

# San Jacinto Community College District

## Course Descriptions

*Listed on the following pages are the course descriptions for classes available at San Jacinto Community College. The descriptions will help you choose courses which best fit your degree plan, career goals, and/or transfer requirements.*

*The information about each course includes the course rubric and number, title, a brief description, any prerequisites or co-requisites, the semester credit hour, and the weekly lecture and/or lab hours.*

*An Index to Disciplines and an Index of Course Rubrics are located on the front part of this section along with helpful definitions.*

<u>Rubric</u>	<u>Course Number</u>	<u>Title</u>	<u>Description</u>	<u>Prerequisite or Co-requisite</u>	<u>SCH</u> <u>Weekly Lecture Hours</u>	<u>Weekly Lab Hours</u>
	ACCT 2301	Accounting Principles I	This study of the fundamentals of financial accounting includes accounting procedures, concepts and theory for proprietorships, partnerships, and corporations. The class emphasizes the accounting cycle for service and merchandising enterprises.	Prerequisite: Reading level 7 (3:3-1.5)		

## Index to Subjects

Accounting (ACCT, ACNT)	Electrical Technology (ELPT, IEIR)	Mexican American Studies (HUMA)
Aeronautical Technology (AIRP, AVIM)	Electronics Technology (CETT, CPMT, CSIR, EECT, ELMT, FCEL, RBTC)	Military Science (AFSC, MSCI)
Agriculture/Agribusiness (AGRI)	Emergency Medical Technology (EMSP)	Modern Languages (CHIN, FREN, GERM, SPAN)
Air Conditioning Technology (HART)	Engineering (ENGR)	Music (MUSI, MUAP, MUEN)
Anthropology (ANTH)	Engineering Design Graphics (ARCE, ARTV, DFTG)	Non-Destructive Testing Technology (METL, NDTE, QCTC, WLDG)
Art (ARTS) and Visual Communication (ARTC, ARTS, ARTV, GRPH, IMED, PHTC)	English (ENGL, HUMA)	Nursing (RNSG)
Astronomy (PHYS)	English for Speakers of Other Languages (ESOL)	Occupational Health and Safety Technology (EPCT, OSHT)
Audio Engineering-(MUSB, MUSC)	Environmental Science (ENVR)	Paralegal (LGLA)
Automotive Collision Repair Technology (ABDR)	Eye Care Technology (HPRS, OPTS, POFM)	Pharmacy Technician (PHRA)
Automotive Technology (AUMT)	Fire Protection Technology (FIRS, FIRT)	Philosophy (PHIL)
Biology (BIOL)	Foreign Languages (See Modern Languages)	Physical Education/Health Education (PHED)
Business (BCIS, BUSG, BUSI)	Geography (GEOG)	Physical Therapist Assistant (PTHA)
Business Management (BMGT, BUSG, HRPO, MRKG)	Geology (GEOL)	Physics (PHYS)
Business Office Technology (POFI, POFL, POFM, POFT)	Gerontology Services (GERS)	Pipefitting (PFPB)
Chemistry (CHEM)	Government (GOVT)	Plumbing (PFPB)
Child Development/Early Childhood Education (CDEC, FMLD, TECA)	Health Information Management (HITT, HPRS)	Process Technology (CBFM, CTEC, INMT, PTAC, PTRT, SCIT)
College Preparatory (GUST)	History (HIST)	Psychology (PSYC)
Communications (COMM)	Homeland Security (HMSY)	Public Service Administration (PBAD)
Computer Information Technology (EDTC, GAME, IMED, INEW, ITCC, ITMC, ITMT, ITNW, ITSC, ITSE, ITSW, ITSY)	Humanities (HUMA) (See English)	Reading (READ)
Computer Science (COSC)	Instrumentation Technology (INTC)	Real Estate (RELE)
Cosmetology (CSME)	Interior Design (INDS)	Respiratory Care (HPRS, RSPT)
Construction Management Technology (CNBT)	International Business, Logistics, and Maritime (IBUS, LMG, and MART)	Restaurant Management (See Culinary Arts)
Criminal Justice (CJCR, CJLE, CJA, CRIJ)	Journalism (See Communications)	Sheet Metal (MCHN)
Culinary Arts (CHEF, IFWA, PSTR, RSTO)	Long Term Care Administration (LTCA)	Sociology (SOCL)
Dance (DANC)	Massage Therapy (MSSG)	Speech (SPCH)
Dental Assisting (DNAT)	Mathematics (MATH)	Surgical Technology (HPRS, SRGT)
Diesel Technology (DEMRT)	Medical Assisting (MDCA)	Theatre and Film (DRAM)
Dietetics (DITA, FDNS, HECO, IFWA)	Medical Imaging Technology (CTMT, DMSO, DSVT, MAMT, MRIT, RADR, )	Truck Driving (Commercial) (CVOP)
Drama (See Theatre and Film)	Medical Laboratory Technology (HPRS, MLAB, PLAB, SCIT)	Video and Film Production (COMM)
Economics (ECON)	Mental Health Services (CMSW, DAAC, SCWK, SOCW, PMHS, PSYT)	Visual Communication (See Art and Visual Communication)
Education (EDUC)		Vocational Nursing (VNNG)
		Welding Technology (WLDG)

*An alphabetic prefix called a rubric, usually containing four characters, is used to designate the subject area of the course or department through which the course is offered.*

*Each course is given a four-character numeric code, called the course number. The first digit denotes the academic level or year in which college-level courses are usually taken. The number "1" indicates freshman or first-year courses; the number "2" indicates sophomore or second-year courses. When the first number is "0," the course is College Preparatory level. The second digit represents the semester credit hour (SCH) value of the course. The third and fourth digits are for departmental sequencing and make the course number unique within the subject area of the department. Consecutive numbers are not always used; however, in general, higher numbers are used for the more advanced courses while lower numbers are used for less advanced courses.*

*Numbers in parentheses at the end of each course description indicate the following: first digit, semester credit hours; second digit, lecture hours per week; third digit, laboratory hours per week. A capital letter "A," indicates Tech-Prep articulation.*

## Index of Course Rubrics

Abbr	Program	Abbr	Program	Abbr	Program
ABDR	Automotive Collision Repair Technology	CRIJ	Criminal Justice	GEOG	Geography
ACCT	Accounting	CSIR	Electronics Technology CPD	GEOL	Geology
ACNT	Accounting	CSME	Cosmetology	GERM	German
AGRI	Agriculture/Agribusiness	CTEC	Process Technology	GERS	Gerontology Services CPD
AFSC	Military Science	CTMT	Medical Imaging Technology	GOVT	Government
AIRP	Aeronautical Technology (Aircraft Pilot)	CULA	Culinary Arts	GRPH	Visual Communication
ANTH	Anthropology	CVOP	Truck Driving (Commercial) CPD	GUST	College Preparatory
ARCE	Engineering Design Graphics	DAAC	Mental Health Services	HART	Air Conditioning Technology
ARTC	Visual Communication	DANC	Dance	HECO	Dietetics
ARTC	Engineering Design Graphics	DEMR	Diesel Technology	HIST	History
ARTS	Art	DFTG	Engineering Design Graphics	HITT	Health Information Management
ARTS	Visual Communication	DITA	Dietetics	HMSY	International Business, Logistics & Maritime
ARTV	Engineering Design Graphics	DMSO	Medical Imaging Technology	HMSY	Homeland Security
ARTV	Visual Communication	DNTA	Dental Assisting	HPRS	Eye Care Technology
AUMT	Automotive Technology	DRAM	Theatre and Film	HPRS	Health Information Management
AVIM	Aeronautical Technology (Aviation Management)	DSVT	Medical Imaging Technology	HPRS	Medical Laboratory Technology
BCIS	Business	ECON	Economics	HPRS	Respiratory Care
BIOL	Biology	EDTC	Computer Information Technology	HPRS	Surgical Technology
BMGT	Business Management	EDUC	Education	HRPO	Business Management
BUSG	Business	EECT	Electronics Technology	HUMA	Humanities
BUSG	Business Management	ELMT	Electronics Technology	IBUS	International Business, Logistics & Maritime
BUSI	Business	ELMT	Electrical Technology	IEIR	Electrical Technology CPD
BUSI	Business Management	ELPT	Electrical Technology	IFWA	Culinary Arts
CBFM	Process Technology	ELPT	Instrumentation Technology	IFWA	Dietetics
CDEC	Child Development/Early Childhood Education	ELTN	Electrical Technology	IMED	Computer Information Technology
CETT	Electronics Technology	EMSP	Emergency Medical Technology	IMED	Visual Communication
CHEF	Culinary Arts	ENER	Electrical Technology	INDS	Interior Design
CHEM	Chemistry	ENGL	English	INMT	Process Technology
CHIN	Chinese	ENGR	Engineering	INEW	Computer Information Technology
CJCR	Criminal Justice	ENVR	Environmental Science	INMT	Process Technology
CJLE	Criminal Justice Law Enforcement	EPCT	Occupational Health and Safety Technology	INTC	Instrumentation Technology
CJSA	Criminal Justice	ESOL	English for Speakers of Other Languages	ITCC	Computer Information Technology
CMSW	Mental Health Services	FCEL	Electronics Technology	ITMC	Computer Information Technology
CNBT	Construction Management Technology	FDNS	Dietetics	ITMT	Computer Information Technology
COMM	Communications/ Journalism	FIRS	Fire Protection Technology	ITNW	Computer Information Technology
COMM	Video and Film Production	FIRT	Fire Protection Technology	ITSC	Computer Information Technology
COSC	Computer Science	FMLD	Child Development/Early Childhood Education	ITSE	Computer Information Technology
CPMT	Electronics Technology	FREN	French	ITSW	Computer Information Technology
		GAME	Computer Information Technology	ITSY	Computer Information Technology



## Accounting

### ACCT 2301 Accounting Principles I

This study of the fundamentals of financial accounting includes accounting procedures, concepts, and theory for proprietorships, partnerships, and corporations. The class emphasizes the accounting cycle for service and merchandising enterprises. Prerequisite: Reading level 7 (3:3-1.5)

### ACCT 2302 Accounting Principles II

This study of the fundamentals of managerial accounting emphasizes accounting for a manufacturing concern. Topics include budgeting, planning, and management decision making. Prerequisite: ACCT 2301 (3:3-1.5)

### ACNT 1303 Introduction to Accounting I

This course focuses on analyzing, classifying, and recording business transactions in a manual and computerized environment. Emphasis is on understanding the complete accounting cycle and preparing financial statements, bank reconciliations, and payroll. (ACNT 1303 may not count for degree or certificate purposes if the student receives credit for ACCT 2301.) ACNT 1303 and 1304 will not satisfy the business administration transfer program degree accounting requirements. (3:3-0)

### ACNT 1304 Introduction to Accounting II

This course focuses on accounting for merchandising, notes payable, notes receivable, valuation of receivables and equipment, and valuation of inventories in a manual and computerized environment. Prerequisite: ACNT 1303 (ACNT 1304 may not count for degree or certificate purposes if the student receives credit for ACCT 2301.) ACNT 1303 and 1304 will not satisfy the business administration transfer program degree accounting requirements. (3:3-0)

### ACNT 1311 Introduction to Computerized Accounting

This course provides an introduction to utilizing the computer in maintaining accounting records, making management decisions, and processing common business applications, with primary emphasis on a general ledger package and spreadsheet applications. Typical areas covered include the general ledger, accounts payable, accounts receivable, and payroll. It is recommended that students have prior knowledge and/or experience in accounting. (3:3-0)

### ACNT 1329 Payroll and Business Tax Accounting

This is a study of payroll procedures, taxing entities, and reporting requirements of local, state, and federal taxing authorities in a manual and computerized environment. Prerequisite: Reading level 4 (3:3-0)

### ACNT 1331 Federal Income Tax: Individual

This course provides basic instruction in the tax laws as currently implemented by the Internal Revenue Services and in tax preparation for the individual and sole proprietorship. Prerequisite: Reading level 4 (3:3-0)

### ACNT 2303 Intermediate Accounting I

The focus of this course is critical analysis of generally accepted accounting principles, concepts, and theory underlying the preparation of financial statements. Emphasis is on current theory and practice. Prerequisite: ACCT 2301 (3:3-0)

### ACNT 2304 Intermediate Accounting II

The focus of this course is in-depth analysis of generally accepted accounting principles underlying the preparation of financial statements, including comparative analysis and statement of cash flow. Prerequisite: ACCT 2301 (3:3-0)

### ACNT 2309 Cost Accounting

This course focuses on budgeting and cost control systems, including a detailed study of manufacturing cost accounts, and reports, job order costing, and process costing. It includes an introduction to alternative costing methods such activity-based and just-in-time costing. Prerequisite: ACCT 2302 or equivalent (3:3-0)

### ACNT 2366 Practicum-Accounting

This course offers practical general training and experiences in the workplace. The College, with the employer, develops and documents an individualized plan for the student. The plan relates the workplace training and experiences to the student, general and technical course of study. The guided external experiences may be paid or unpaid. The course may be repeated if topics and learning outcomes vary, but no more than three times for credit. Prerequisite: ACCT 2301 and 2302 or approval of department chair. (3:0-21)

## Aeronautical Technology

### AIRP 1215 Private Flight

This is flight training to prepare the student for the completion of the Federal Aviation Administration (FAA) private pilot certificate, including dual and solo flight, in which students practice specific maneuvers and cross-country navigation. Prerequisite: Reading level 6. Prerequisite or co-requisite: Federal Aviation Regulation Part 141, Ground School Training and Aeronautical Department chair approval (AIRP 1301, AIRP 1307, and AIRP 1311) (2:1-3)

### AIRP 1255 Intermediate Flight (Commercial Pilot)

This course provides students with flight hours and skills necessary to meet solo cross-country requirements for the FAA Commercial Pilot, single-engine land, airplane certificate. Prerequisite: AIRP 1215 or valid Private Pilot Certificate. Reading level 6. Prerequisite or co-requisite: AIRP 2250 and Aeronautical department chair approval (2:1-2)

### AIRP 1301 Air Navigation

Students receive instruction in visual flight navigation rules in the National Airspace System. Topics include sectional charts, flight computers, plotters, and navigation logs and publications. It qualifies as part of a program leading to Federal Aviation Administration certification. One of three Private Pilot Ground School courses. (3:3-0)

### AIRP 1307 Aviation Meteorology

This course provides in-depth coverage of meteorological phenomena affecting aircraft flight. Topics include basic concepts of aviation meteorology in the study of temperature, pressure, moisture, stability, clouds, air masses, fronts, thunderstorms, icing, and fog. It also includes analysis and use of weather data for flight planning. It qualifies as part of a program leading to FAA certification, and is one of three Private Pilot Ground School courses. (3:3-0)

### AIRP 1311 Flight Theory

This course provides instruction in basic flight information of the National Aerospace System. Topics include publications, regulations, aircraft systems, and performance. Qualifies as part of a program leading to Federal Aviation Administration certification and is one of three private pilot ground school courses. (3:3-0)

# Course **Descriptions**

## **AIRP 1341 Advanced Air Navigation**

This course helps students develop advanced airplane systems and performance skills, including radio navigation and cross-country flight planning. Includes an introduction to instrument flight operations and navigation. This course may be used as part of a program leading to FAA certification. Prerequisite: AIRP 1301, or a Private Pilot Certificate (3:3-0)

## **AIRP 1343 Aerodynamics**

This is a study of the general principles of the physical laws of flight. Topics include physical terms and the four forces of flight: lift, weight, thrust, and drag. Aircraft design, stability control, and high-speed flight characteristics are also included. Prerequisite: Math level 7 (3:3-0)

## **AIRP 1345 Aviation Safety**

This course is a study of the fundamentals essential to the safety of flight. This is a survey of the aviation industry including decision-making factors, accident reporting, accident investigation, air traffic systems, and aircraft technologies. (3:3-0)

## **AIRP 1347 Human Factors in Aviation**

This course provides instruction in flight physiology, the decision-making process, pilot health maintenance, psychological aspects of flight, human behavior as related to the aircraft flight deck, and aeronautical information of significance to flight crews. (3:3-0)

## **AIRP 1451 Instrument Ground School**

This is a study of basic instrument radio and navigation fundamentals used in instrument flight. Topics include a description and practical use of aerial navigation systems and instruments, charts used for instrument flight, and FAA regulations. It qualifies as part of a program leading to FAA certification. Prerequisite: AIRP 1341. (4:4-0)

## **AIRP 2239 Commercial Flight (Commercial Pilot)**

The flight instruction in this course is necessary to qualify for the FAA Commercial Pilot Certificate. Instruction includes both dual and solo flight training to prepare the student for mastery of all commercial pilot maneuvers. Prerequisite: AIRP 2337 (2:1-3)

## **AIRP 2242 Flight Instructor-Instrument Airplane**

This course helps flight instructors develop the skills necessary to qualify for the FAA Certified Flight Instructor Instrument Rating including airplane single-engine landing. Prerequisites: Flight Instructor and Instrument Pilot Certificates, Reading level 6, and Aeronautical Department chair approval. (2:2-0)

## **AIRP 2243 Flight Instructor-Multiengine Airplane**

The flight instruction in this course is necessary to qualify for the FAA Flight Instructor-Multiengine Airplane Rating. It includes combined ground and flight instruction and analysis of flight maneuvers. Prerequisites: Private, Commercial, Instrument, Multi-engine and Flight Instructor Certificates Reading level 6 (2:1-2)

## **AIRP 2250 Instrument Flight (Instrument Pilot)**

This course prepares students for completion of the FAA Instrument Pilot Rating with mastery of all instrument flight procedures. Prerequisites: AIRP 1215 or a valid Private Pilot Certificate and Aeronautical Department chair approval. Prerequisite: Reading level 6. Prerequisite or co-requisite: FAR Part 141 ground school training (AIRP 1451) (2:1-3)

## **AIRP 2251 Multi-Engine Flight**

This course is preparation for the multiengine class rating, which will be added to a current pilot certificate. It includes explanation and demonstration of all required FAA normal and emergency operations and procedures. Prerequisites: AIRP 1215, AIRP 1255, AIRP 2239, and AIRP 2250 or Private or Commercial Pilot Certificate and Instrument Pilot Rating and Aeronautical Department chair approval. Reading level 6 (2:2-0)

## **AIRP 2331 Advanced Meteorology**

This course prepares advanced aviation students to apply knowledge of varying meteorological factors (including weather hazards to flight) to flight. It teaches techniques for minimizing weather hazards and for using aviation weather services. Prerequisite: AIRP 1307 (3:3-0)

## **AIRP 2333 Aircraft Systems**

This course is a study of the general principles, operation, and application of pneumatic, hydraulic, electrical, fuel, environmental, protection, and warning systems. Emphasis on subsystems and control systems. (3:3-0)

## **AIRP 2336 Certified Flight Instructor-Airplane**

This flight instruction is necessary to qualify for the FAA Certified Flight Instructor-Airplane Certificate. Topics include ground and flight instruction. Prerequisite: Commercial Pilot Certificate and Instrument Pilot Rating and Aeronautical Department chair approval Reading level 6 (3:2-3)

## **AIRP 2337 Commercial Ground School**

This is a study of advanced aviation topics that can be used for FAA certification at the commercial pilot level. It includes preparation for the FAA Commercial Airplane written test. Prerequisites: AIRP 1301, AIRP 1307, and AIRP 1311; or a Private Pilot Certificate (3:3-0)

## **AIRP 2352 Practical Dispatching I**

This is a study of advanced concepts in weight and balance, performance calculations, avionics, and engine and airplane specifications, including FAA regulations. Preparation for the FAA Aircraft Dispatcher includes a written examination. (3:3-0)

## **AIRP 2353 Practical Dispatching II**

This is a study of the duties and responsibilities required of an aircraft dispatcher. Topics include instruction in FAA regulations; flight planning; and company operations, both domestic and international. Preparation for the FAA Practical Examination is also included. Students must be at least 22 1/2 years old to take the FAA Aircraft Dispatcher exam. Prerequisite or co-requisite: AIRP 2352 (3:3-1)

## **AIRP 2355 Propulsion Systems**

This course provides in-depth coverage of aircraft engine theory and principles of operation of various types of aircraft engines, including reciprocating, turboprop, turbojet, and turbo fan. Topics include propellers, superchargers, engine accessories, control, and instrumentation. (3:3-0)

## **AIRP 2357 Turbine Aircraft Systems Ground School**

This course provides instruction in the systems of specific turbine aircraft. Emphasis is on the "glass-cockpit," auxiliary power, aircraft systems, and the first officer's operational role. Prerequisite: AIRP 2355 (3:3-0)

## **AVIM 1301 Introduction to Aviation Management**

An introduction to small aviation business management, this course emphasizes financial marketing, human resources, and administrative and information systems essential for successful business operations. (3:3-0)

## **AVIM 2331 Airline Management**

This is an examination of the organization, operation, and management of airlines. Topics include financing, aircraft selection, route feasibility studies, load factors, and marketing. (3:3-0)

## AVIM 2335 Airport Management

This is a study of the major functions of airport management, including facilities and services, organization, human resources, maintenance, planning and zoning, operations, revenues and expenses, public relations, ecology, and safety. (3:3-0)

## AVIM 2337 Aviation Law

This course is a study of domestic and international aviation law including the historical development of aviation law, with in-depth coverage of constitutional, criminal, civil, common, and international law as related to aviation activities. (3:3-0)

## AVIM 2339 Aviation Marketing

This is a study of significance and functions of airline marketing, including market research, sales, advertising and promotion, traffic demand analysis, and price determination theory. (3:3-0)

## Agriculture

### AGRI 1131 The Agricultural Industry

This course is an overview of world agriculture, nature of the industry, resource conservation, and the American agricultural system, including production, distribution, and marketing. Prerequisite: Reading level 6 (1:1-0)

### AGRI 1309 Computer in Agriculture

This course focuses on the use of computers in agricultural applications. Includes introduction to programming languages, word processing, electronic spreadsheets, and agricultural software. Prerequisite: Reading level 6 (3:3-0)

### AGRI 1315 Horticulture

This course covers structure, growth and development of horticultural plants from a practical and scientific approach. Includes environment effects, basic principles of propagation, greenhouse and outdoor production, nutrition, pruning, chemical control of growth, pest control, and landscaping. Prerequisite: Reading level 6 (3:3-0)

### AGRI 1319 Introductory Animal Science

This course covers scientific animal agriculture. Includes importance of livestock and meat industries; selection, reproduction, nutrition, management, and marketing of beef cattle, swine, sheep, goats, and horses. Prerequisite: Reading level 6 (3:2-2)

### AGRI 1407 Agronomy

This course covers principles and practices in the development, production, and management of field crops including plant breeding, plant diseases, soils, insect control and weed control. Prerequisite: Reading level 6 (3:3-0)

## AGRI 2313 Plant Protection

This course covers principles and practices of controlling and preventing economic loss caused by plant pests. Includes instruction in entomology, plant pathology, weed science, crop science, environmental toxicology, and related environmental protection measures. Prerequisite: Reading level 7 (3:2-2)

## AGRI 2317 Introduction to Agricultural Economics

This course covers the fundamental economic principles and their applications to the problems of the industry of agriculture. Prerequisite: Reading level 7, Writing level 7, Math level 7 (3:3-0)

## AGRI 2321 Livestock Evaluation I

This course focuses on selection, evaluation, and classification of livestock and livestock products. Prerequisite: Reading level 7 (3:3-0)

## Air Conditioning Technology

### HART 1356 EPA Recovery Certification Preparation

This course covers certification training for HVAC refrigerant recovery and recycling. Instruction will provide a review of EPA guidelines for refrigerant recovery and recycling during the installation, service, and repair of all HVAC and refrigeration systems. (3:3-0)

### HART 1401 Basic Electricity for HVAC

This course focuses on principles of electricity as required by HVAC, including proper use of test equipment, electrical circuits, and component theory and operation. (4:3-3)

### HART 1407 Refrigeration Principles

This is an introduction to the refrigeration cycle, basic heat transfer theory, temperature/pressure relationship, refrigeration handling, and components and safety. (4:3-3)

### HART 1441 Residential Air Conditioning

This is a study of components, applications, and installation of mechanical air conditioning systems. Topics include operating conditions, troubleshooting, repair, and charging of air conditioning systems. Prerequisites: HART 1401 and HART 1407 or department chair approval (4:3-3)

## HART 1445 Gas and Electrical Heating

This is a study of the procedures and principles used in servicing heating systems including gas-fired furnaces and electric heating systems. Prerequisites or co-requisites: HART 1401 and HART 1407 or department chair approval (4:3-3)

## HART 2301 Air Conditioning and Refrigeration Codes

This course focuses on HVAC standards and concepts, with emphasis on understanding and documenting the codes and regulations required for a state mechanical contractors license and compliance with local codes. Prerequisite: HART 1441 or department chair approval (3:3-0)

## HART 2302 Commercial Air Conditioning System Design

This is an advanced study in essential elements of commercial air conditioning contracting, including duct systems design and/or material takeoff, weight estimating, equipment selection, using manufacturer's catalog data, job cost estimating, scheduling preparation of shop drawings, and submittals. Prerequisites: HART 2345 and HART 2441 or department chair approval (3:3-0)

## HART 2334 Advanced A/C Controls

This course focuses on the theory and use of electrical control devices, electromechanical controls, and/or pneumatic controls. Prerequisites: HART 2431 and HART 2441 or department chair approval (3:3-0)

## HART 2343 Industrial Air Conditioning

This is a study of components, accessories, applications, and installation of air conditioning systems above a 25 ton capacity. Prerequisites: HART 2441 and HART 2431 or department chair approval (3:3-0)

## HART 2345 Residential A/C System Design

Students study the properties of air and results of cooling, heating, humidifying or dehumidifying. They also learn to make heat gain or heat loss calculations necessary for equipment selection and balancing air systems. Prerequisites: HART 1441 and HART 1445 or department chair approval (3:3-0)

## HART 2368 Practicum (or Field Experience) - HVAC/R Technology/Technician

This course offers practical general workplace training through individualized learning plans developed by the employer, the College, and the student. Prerequisites: Completion of 20 semester hours of air conditioning courses, an interview, and department chair approval are required prior to internship assignment (3:0-21)

# Course **Descriptions**

## **HART 2431 Advanced Electricity**

This course provides advanced electrical instruction and skill building in installation and servicing of air conditioning and refrigeration equipment, including detailed instruction in motors and power distribution motors, motor controls, and applications of solid state devices. Prerequisite: HART 1441, HART 1445 or department chair approval (4:3-3)

## **HART 2434 Advanced A/C Controls**

This course covers methods for troubleshooting electrical control devices and control circuits, including correctly wiring electrical components. Prerequisite or co-requisite: HART 2431 or department chair approval (4:3-3)

## **HART 2436 Air Conditioning Troubleshooting**

This is an advanced course in the application of troubleshooting principles and use of test instruments to diagnose air conditioning and refrigeration component and system problems, including conducting performance tests. Prerequisites: HART 1441 and HART 1445 or department chair approval (4:3-3)

## **HART 2441 Commercial Air Conditioning**

This is a study of components, applications, and installation of air conditioning systems with capacities of 20 tons or less. Prerequisites or co-requisites: HART 1441 and HART 2431 or department chair approval (4:3-3)

## **HART 2442 Commercial Refrigeration**

This course focuses on both the theory and practice in the maintenance of commercial refrigeration at both medium and low temperature applications, and ice machines. Prerequisites or co-requisites: HART 1401 and HART 1407 or department chair approval (4:3-3)

## **HART 2449 Heat Pumps**

This is a study of heat pumps, heat pump control circuits, defrost controls, auxiliary heat, air flow, and other topics related to heat pump systems. Prerequisites: HART 1401 and HART 1407 or department chair approval (4:3-3)

## **Anthropology**

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### **ANTH 2301 Introduction to Physical Anthropology**

This course is an overview of human origins and bio-cultural adaptations. It introduces methods and theory in the excavation and interpretation of the physical remains of past human life and cultures. It also explores variation in modern human populations. Prerequisites: Reading level 7, Writing level 7 (3:3-0)

### **ANTH 2302 Introduction to Archaeology**

This study of human prehistory chronicles the major cultural developments in humanity's past and explores the unique methods archeologists use to retrieve, process, and analyze material culture. Prerequisites: Reading level 7 and Writing level 7 (3:3-0)

### **ANTH 2346 General Anthropology**

This is a study of human beings, their antecedents and related primates, and their cultural behavior and institutions. It introduces the major subfields: physical and cultural anthropology, archeology, linguistics, and ethnology. Prerequisites: Reading level 6 and Writing level 6 (3:3-0)

### **ANTH 2351 Cultural Anthropology**

This survey of cultures around the world is an attempt to explain the similarities and differences in human behavior through an examination of the theories and methods of anthropology, including social and political organizations, ethnicity, language, and beliefs in the supernatural. Prerequisites: Reading level 7 and Writing level 7 (3:3-0)

## **Applied Computer Electronics Technology**

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*(See Electronics Technology)*

## **Art and Visual Communications**

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### **ARTC 1302 Digital Imaging I**

This course teaches digital imaging using raster image editing and/or image creation software: scanning, resolution, file formats, output devices, color systems, and image acquisitions. Prerequisite: ARTC 1325 or ARTS 2348 (3:2-4)

### **ARTC 1317 Design Communication I**

This is an introductory study of design development relating to graphic design terminology, tools, media, and layout and design concepts. Topics include integration of type, images, and other design elements, and developing computer skills in industry standard computer programs. Students will not receive credit for both ARTC 1317 and ARTS 2313. Prerequisite: ARTC 1325 or ARTS 2348 or concurrent enrollment with ARTC 1325 or ARTS 2348 with department chair approval (3:2-4)

### **ARTC 1321 Illustration**

This is a study of illustration techniques in various media. Emphasis is on creative interpretation and disciplined draftsmanship for visual communication of ideas. Prerequisite: ARTS 1317, ARTS 2313 or approval of department chair (3:2-4)

### **ARTC 1325 Introduction to Computer Graphics**

This is a survey of computer design concepts, terminology, processes, and procedures. Topics include computer graphics hardware, electronic images, electronic publishing, vector-based graphics, and interactive multimedia. Students will not receive credit for both ARTC 1325 and ARTS 2348. (3:2-4)

### **ARTC 1327 Typography**

A study of letter forms and typographic concepts as elements of graphic communication. Emphasis is on developing a current, practical typographic knowledge based on industry standards. (3:2-4)

### **ARTC 1353 Computer Illustration**

Students explore computer programs with applications to illustration and photo manipulation and file management for reproduction. Emphasis is on concept development in print for digital delivery. Prerequisite: ARTC 1321 or approval of department chair (3:2-4)



## **ARTC 2331 Illustration Concepts**

This is an advanced study of different painting media utilizing both digital and traditional tools. Emphasis is on conceptualization and composition as they relate to "real world" assignments. Prerequisites: ARTC 1353 or approval of department chair (3:2-4)

## **ARTC 2335 Portfolio Development for Graphic Design**

Students prepare a portfolio comprised of completed graphic design class projects. Evaluation and demonstration of portfolio presentation methods appropriate to the student's specific area of study are explored. Prerequisite: ARTS 2314 or ARTC 2347 (3:2-4)

## **ARTC 2347 Design Communication II**

This course is an advanced study of the design process and art direction. The emphasis is on form and content through the selection, creation, and integration of typographic, photographic, illustrative, and design elements. Students will not receive credit for both ARTC 2347 and ARTS 2314. Prerequisite: ARTC 1317 or ARTS 2313. (3:2-4)

## **ARTC 2366 Field Experience-Graphic Design, Commercial Art and Illustration**

This course offers practical, general workplace training supported by an individualized learning plan developed by the employer, college, and student. The plan relates the workplace training and experience to the student's general and technical course of study. The guided external experiences may be paid or unpaid. May be taken for credit in conjunction with each degree or certificate earned. Prerequisites: ARTS 2314 or ARTC 2347 or approval of department chair (3:1-20)

## **ARTS 1301 Art Appreciation**

This is a general education course open to art and non-art majors. It focuses on design principles from a layman's point of view, critical and related evaluation of selected works in the fine and applied visual arts to everyday life. Prerequisite: Reading level 6 (3:3-0)

## **ARTS 1303 Art History I**

This is a critical and analytical study of the great historical works of fine and applied visual arts from the prehistoric era through the medieval period. Prerequisites: Reading level 7 and Writing level 7 (3:3-0)

## **ARTS 1304 Art History II**

This is a critical and analytical study of the great historical works of fine and applied visual arts from the Renaissance through the modern era. Prerequisites: Reading level 7 and Writing level 7 (3:3-0)

## **ARTS 1311 Design I**

This course emphasizes two-dimensional design, including the fundamentals of line, color, form, texture, shape, space, and arrangement. (3:2-4)

## **ARTS 1312 Design II**

This continuation and expansion of Design I includes the study of compositional principles of two- and three-dimensional art and the creative and expressive use of media. Prerequisite: ARTS 1311 (3:2-4)

## **ARTS 1316 Drawing I**

This beginning course investigates a variety of media, techniques and subjects, exploring perceptual and descriptive possibilities with consideration of drawing as a developmental process, as well as an end in itself. (3:2-4)

## **ARTS 1317 Drawing II**

Drawing II stresses the expressive and conceptual aspects of drawing, including the human figure within a spatial environment. Prerequisite: ARTS 1316 (3:2-4)

## **ARTS 2311 Design III**

This course covers elements and principles of art using two- and three-dimensional concepts. This in-depth study of current concerns and practices in the visual arts stresses individually directed studio work. Topics may include, but are not limited to design, drawing, painting, sculpture, ceramics, photography and design communication. Producing a transfer or job-oriented portfolio will be emphasized. Prerequisite: Department chair approval. (3:2-4)

## **ARTS 2312 Design IV**

This course is a continuation of ARTS 2311 Design III. It includes elements and principles of art using two- and three-dimensional concepts. This in-depth study of current concerns and practices in the visual arts stresses individually directed studio work. Topics may include, but are not limited to design, drawing, painting, sculpture, ceramics, photography and design communication. Producing a transfer or job-oriented portfolio will be emphasized. Prerequisite: ARTS 2311 (3:2-4)

## **ARTS 2313 Design Communications I**

This is an introductory study of design development relating to graphic design technology, tools, media, and layout and design concepts. Topics include integration of type, images, and other design elements, and developing computer skills in industry standard computer programs. Students will not receive credit for both ARTS 2313 and ARTC 1317. Prerequisite: ARTC 1325 or ARTS 2348 or concurrent enrollment with ARTC 1325 or ARTS 2348 with department chair approval (3:2-4)

## **ARTS 2314 Design Communications II**

This course offers general practice in commercial art and production. Students will not receive credit for both ARTS 2314 and ARTC 2347. Prerequisite: ARTC 1317 or ARTS 2313 (3:2-4)

## **ARTS 2316 Painting I**

This course explores the potentials of painting media, with emphasis on color and composition. (3:2-4)

## **ARTS 2317 Painting II**

This is a continuation of painting I with emphasis on individual expression. Prerequisite: ARTS 2316 or approval of department chair (3:2-4)

## **ARTS 2323 Life Drawing I**

Life drawing I is a studio course emphasizing structure and action of the human figure. Prerequisite: ARTS 1316 (3:2-4)

## **ARTS 2324 Life Drawing II**

This is a further investigation of drawing the human figure with emphasis on individual expression. Prerequisite: ARTS 2323 (3:2-4)

## **ARTS 2326 Sculpture I**

This is an exploration of various sculptural approaches in a variety of media, including additive and subtractive techniques. (3:2-4)

## **ARTS 2327 Sculpture II**

A continuation of sculpture I, this course emphasizes individual expression. Prerequisite: ARTS 2326 or approval of department chair (3:2-4)

## **ARTS 2333 Printmaking I**

This is an introduction to printmaking, including monoprints, relief, intaglio, and serigraphy. (3:2-4)

## **ARTS 2334 Printmaking II**

A continuation of printmaking I, this emphasizes individual expression. Prerequisite: ARTS 2333 or approval of department chair (3:2-4)

## **ARTS 2341 Art Metals I**

This is a basic course in the fabrication and design of jewelry and metalsmithing. (3:2-4)

## **ARTS 2342 Art Metals II**

This is an intermediate course in the fabrication and design of jewelry and metalsmithing. Prerequisite: ARTS 2341 or approval of department chair (3:2-4)

# Course **Descriptions**

## **ARTS 2346 Ceramics I**

A studio course, this is an introduction to basic ceramic processes and an exploration of clay as an artistic medium, including mechanical (wheel-thrown) and hand-built techniques, and glazing and firing processes. Prerequisite: ARTS 1312 or approval of department chair (3:2-4)

## **ARTS 2347 Ceramics II**

A studio course, this continuation of ARTS 2346 explores clay as an artistic medium, concentrating on combinations of mechanical and hand-built techniques. Prerequisite: ARTS 2346 (3:2-4)

## **ARTS 2348 Digital Art I**

This studio art course explores the potential of computer hardware and software medium for their visual, conceptual, and practical uses in visual arts. Students will not receive credit for both ARTC 1325 and ARTS 2348. (3:2-4)

## **ARTS 2349 Digital Art II**

This studio art course expands upon Digital Art I (ARTS 2348). This course stresses the use of industry standard software applications such as Adobe Photoshop. Course will emphasize both creative and technical elements of image creation, image acquisition, file formats, output devices, and color systems. Prerequisite: Reading level 6, Writing level 6 (3:2-4)

## **ARTS 2356 Fine Arts Photography I**

This is a beginning course in the taking, developing, and printing of photographs. Students receive instruction in photographic principles and are given assignments to complete in the laboratory periods or outside class. The College furnishes darkroom facilities and a limited number of cameras. Students will not receive credit for both ARTS 2356 and COMM 1318. (3:2-4)

## **ARTS 2357 Fine Arts Photography II**

This course offers continued development of techniques, with emphasis on content and composition of photographs, including a variety of professional and technical areas. Students will not receive credit for both ARTS 2357 and COMM 1319. Prerequisite: COMM 1318 or ARTS 2356 or approval of department chair (3:2-4)

## **ARTS 2366 Watercolor I**

This course introduces the basic techniques and materials of transparent and opaque watercolors. (3:2-4)

## **ARTS 2367 Watercolor II**

A continuation of watercolor I, this course places emphasis on individual expression. Prerequisite: ARTS 2366 or approval of department chair (3:2-4)

## **ARTS 2389 Academic Cooperative-Art**

This course is an instructional program designed to integrate on-campus study with practical hands-on work experience. In conjunction with class seminars, the student will set specific goals and objectives in the study of studio art and/or art history. Prerequisites: ARTS 2348 and ARTS 2349, Reading level 6, Writing level 6 (3:1-8)

## **ARTV 1303 Basic Animation**

This course provides an examination of animation concepts, principles, and storyboard for basic production. It emphasizes creating movement and expression utilizing traditionally or digitally generated image sequences. Prerequisite: ARTC 1325 or ARTS 2348 (3:2-4)

## **ARTV 1341 3-D Animation I**

This course is an intermediate level 3-D course introducing animation tools and techniques used to create movement. It emphasizes using the principles of animation. Prerequisite: ARTV 1345 or approval of department chair (3:2-4)

## **ARTV 1345 3-D Modeling and Rendering**

The student will receive instruction in the techniques of three-dimensional (3-D) modeling utilizing industry standard software. This includes the creation and modification of 3-D geometric shapes, use of a variety of rendering techniques, camera, light sources, texture, and surface mapping. (3:2-4)

## **ARTV 1351 Digital Video**

This is a course in producing and editing video and sound for multimedia or web productions. It emphasizes the capture, editing, and outputting of video using a desktop digital video workstation. Prerequisite: ARTC 1325 or ARTS 2348 (3:2-4)

## **ARTV 2301 2-D Animation I**

This course specializes in skill development in the use of software to develop storyboards and two-dimensional animation including creating, importing, and sequencing media elements to create multimedia presentations. Emphasis will be on conceptualization, creativity, and visual aesthetics. Prerequisite: ARTV 1303 (3:2-4)

## **ARTV 2341 Advanced Digital Video**

Advanced digital video consists of techniques for post-production. Emphasizes integration of special effects and animation for film, video, and the Internet. Exploration of new and emerging compression and video streaming technologies. Prerequisite: ARTV 1351 or approval of department chair (3:2-4)

## **ARTV 2351 3-D Animation II**

This course is an advanced level 3-D course utilizing animation tools and techniques used to develop movement. The emphasis is on advanced animation techniques. Prerequisite: ARTV 1341 (3:2-4)

## **GRPH 2309 Electronic Pre-Press I**

This course focuses on theory and techniques for pre-press preparation, using industry-standard software for final file output. Topics include the procedures and problems involved in computer file preparation, ranging from trapping, color separations and resolutions to printing basics and service bureaus. Prerequisite: ARTC 2347 or ARTS 2314 or approval of department chair (3:2-4)

## **GRPH 2370 Electronic Pre-Press II**

This is a continuation of electronic pre-press I, with continued exploration of computer file preparation, including use of Postscript, rip raster image processing, trapping, color separation, and resolutions. Emphasis will be on individual progress. Prerequisite: GRPH 2309 or approval of department chair (3:2-4)

## **IMED 1301 Introduction to Digital Media**

This course offers a survey of the theories, elements, and hardware/software components of digital media. Emphasis is on conceptualizing and producing digital media presentations. Prerequisite: ARTC 1325 or ARTS 2348 or approval of department chair (3:2-4)

## **IMED 1316 Web Page Design I**

This course offers instruction in web design and related graphic design issues including mark-up languages, web sites, and browsers. Prerequisite: ARTC 1325 or ARTS 2348 (3:2-4)

## **IMED 2315 Web Page Design II**

This course is a study of mark-up language advanced layout techniques for creating web pages. The emphasis is on identifying the target audience and producing web sites according to accessibility standards, cultural appearance, and legal issues. Prerequisite: IMED 1316 or approval of department chair (3:2-4)

## **IMED 2345 Interactive Digital Media II**

This course offers instruction in the use of scripting languages to create interactive digital media applications. Prerequisite: IMED 1301 or approval of department chair (3:2-4)

## **PHTC 1311 Fundamentals of Photography**

This course is an introduction to camera operation and image production, composition, supplemental lighting, and use of exposure meters and filters. Emphasis is on digital photography. (3:2-4)

## PHTC 2301 Intermediate Photography

This course is a continuation of fundamentals of photography. Emphasizes social, portrait, studio, fashion, theatrical, publicity, and event photography with digital photography processes and methods. Prerequisite: PHTC 1311 or ARTS 2356 or approval of department chair (3:2-4)

## Audio Engineering

### MUSB 1305 Survey of Music Business

This course includes an overview of the music industry including song writing, live performance, the record industry, music merchandising, contracts and licenses and career opportunities. (3:3-0)

### MUSC 1323 Audio Electronics Troubleshooting

This course covers basic concepts in electricity, Ohm's Law, circuit analysis and troubleshooting audio problems. Topics include soldering techniques, audio electronic alignment procedures for tape machines, console maintenance, and sound reinforcement equipment maintenance. (3:2-2)

### MUSC 1327 Audio Engineering I

This course provides an overview of the modern recording studio and related personnel. Topics include basic studio electronics and acoustic principles, wave form and analysis, microphone concepts and miking techniques, studio setup and signal flow, recording console theory, signal processing concepts, tape machine principles and operation, and overview of mixing and editing. (3:3-1)

### MUSC 1331 Musical Instrument Digital Interface

This course provides an overview of Musical Instrument Digital Interface (MIDI) systems and applications. Topics include the history and evolution of MIDI, hardware requirements, computer numbering systems, channels and modes, the MIDI language and typical implementation of MIDI applications in the studio environment using software-based sequencing programs. Prerequisites: MUSI 1301, MUSI 1181 (3:2-2)

## MUSC 2101 Audio Engineering Practices

This course is a practical application of the concepts, techniques and procedures presented in Audio Engineering I and Audio Engineering II. The students will be divided into several working units comprised of 3-4 students per unit. Each group will be required to complete two recording projects during the semester. It may be repeated for credit up to three times if topics and learning outcomes vary. Prerequisite: MUSC 2427 (1:0-3)

### MUSC 2355 Musical Instrument Digital Interface II

This is a continuation of MIDI I with emphasis on advanced sequencer operation and SMPTE-based synchronization in the interaction of multiple recording and playback systems. Topics also include synthesis and its relation to software and hardware devices, sampling and sampling manipulation utilizing software sequencers, and sequencing for video. The student will perform advanced MIDI techniques, execute multimachine synchronization and demonstrate advanced use of software-based sequencing, synthesis and sampling devices. Prerequisite: MUSC 1331 (3:2-2)

### MUSC 2386 Internship-Recording Arts Technology/Technician

This is a practical, general training and experience in the workplace. The College, with the employer, develops and documents an individualized plan for the student. The plan relates the workplace training and experiences to the student's general technical course of study. The guided external experiences may be paid or unpaid. This course may be repeated if topics and learning experiences vary. Prerequisite: MUSC 2447, MUSC 2355 (3:0-18)

### MUSC 2427 Audio Engineering II

This is a continuation of Audio Engineering I with emphasis on implementation of techniques and theories of the recording process. Topics include applications of microphones, the audio console, the multitrack tape recorder, and signal processing devices in the recording session environment. Prerequisite: MUSC 1327 (4:3-3)

### MUSC 2447 Audio Engineering III

This course covers presentation of advanced procedures and techniques utilized in recording and manipulating audio information. Topics include advanced computer-based console automation, hard disk-based digital audio editing, nonlinear digital multitrack recording and advanced engineering projects. Prerequisites: MUSC 2427 (4:3-3)

## Auto Collision Repair

### ABDR 1303 Vehicle Design and Structural Analysis

This introduction to the collision repair industry emphasizes safety, professionalism, and vehicle structural design. Prerequisite: Reading level 4 (3:2-2)

### ABDR 1307 Collision Repair Welding

This is a study of collision repair welding and cutting procedures. Prerequisite: Reading level 4 (3:2-2)

### ABDR 1315 Vehicle Trim and Hardware

This is an in-depth study of vehicle trim and glass service. Prerequisite: Reading level 4 (3:2-2)

### ABDR 1323 Front and Rear Wheel Alignment

This is an in-depth study of vehicle steering components including alignment, tire rotation, and balancing. Prerequisite: Reading level 4 (3:2-2)

### ABDR 1349 Auto Plastic and Sheet Molding Compound Repair

This is a comprehensive course in repair of interior and exterior plastics, including the use of various types of adhesives and state-of-the-art plastic welding. (3:1-3)

### ABDR 1431 Basic Refinishing

This is an introduction to current refinishing products, shop safety, and equipment used in the automotive refinishing industry. Emphasis is on surface preparation, masking techniques, and refinishing of replacement parts. Prerequisite: Reading level 4 (4:3-3)

### ABDR 1441 Structural Analysis and Damage Report I

This course offers expanded training in the roughing and shaping procedures on automotive sheet metal necessary to make satisfactory body repairs. Emphasis is on the alignment of component parts such as doors, hoods, front-end assemblies, and deck lids. Prerequisite: Reading level 4 (4:3-3)

### ABDR 1449 Automotive Plastic and Sheet Molding Compound Repair

This is a comprehensive course in repair of interior and exterior plastics, including the use of various types of adhesives. Prerequisite: Reading level 4 (4:3-3)

# Course **Descriptions**

## **ABDR 1519 Basic Metal Repair**

This course offers in-depth coverage of basic metal principles and working techniques, including proper tool usage and product application. Prerequisite: Reading level 4 (5:3-5)

## **ABDR 1555 Non-Structural Metal Repair**

This is a course in sheet metal repair principles using mechanical and hydraulic equipment. Emphasis is on attachment devices used to straighten and align exterior body panels. Prerequisite: Reading level 4 (5:3-5)

## **ABDR 1558 Intermediate Refinishing**

This course offers expanded training in mixing and spraying of automotive topcoats. Emphasis is on formula ingredients, reducing, thinning, and special spraying techniques. This course also introduces partial panel refinishing techniques and current industry paint removal techniques. Prerequisite: Reading level 4 (5:3-5)

## **ABDR 2255 Collision Repair Estimating**

This is an advanced course in collision estimating and development of an accurate damage report. Prerequisite: Reading level 4 (2:2-1)

## **ABDR 2257 Collision Shop Management**

This is a study of methods and equipment used in collision repair shops to improve management functions and profitability. Prerequisite: Reading level 4 (2:2-1)

## **ABDR 2353 Color Analysis and Paint Matching**

This is an advanced course in color theory, analysis, tinting, and advanced blending techniques for commercially acceptable paint matching. Prerequisite: Reading level 4 (3:2-2)

## **ABDR 2380 Cooperative Education - Autobody/Collision and Repair Technology**

Career-related activities encountered in the student's area of specialization are offered through an individualized agreement among the College, employer, and student. Under the supervision of the College and the employer, the student combines classroom learning with work experience. This course also includes a lecture component. This may be a paid or unpaid experience. Prerequisite: Reading level 4 (3:1-14)

## **ABDR 2502 Auto Body Mechanical and Electrical Service**

This is a course in the repair, replacement, and/or service of collision damaged mechanics or electrical systems. Topics include drive train removal, reinstallation and service; cooling system service and repair; exhaust system service;

and emission control systems. Additional topics include wire and connector repair, reading diagrams, and troubleshooting. Prerequisite: Reading level 4 (5:3-5)

## **ABDR 2541 Major Collision Repair and Panel Replacement**

Focusing on instruction in preparation of vehicles for major repair processes. This course covers interpreting information from damage reports, planning repair sequences, selecting appropriate tools, and organizing removed parts for reinstallation. Prerequisite: Reading level 4 (5:3-5)

## **ABDR 2549 Advanced Refinishing**

This course offers skill development in multi-stage refinishing techniques particularly in identification of problems and solutions in color matching and partial panel refinishing. Prerequisite: Reading level 4 (5:3-5)

## **ABDR 2551 Specialized Refinishing Techniques**

This course focuses on advanced topics in specialty automotive refinishing. Emphasis is on refinishing of plastics, fiberglass, aluminum and galvanized panels, as well as on custom graphics and current industry innovations. Prerequisite: Reading level 4 (5:3-5)

# **Automotive Technology**

## **AUMT 1280 Cooperative Education Auto/Automotive**

Career-related activities encountered in the student's area of specialization are offered through a cooperative agreement among the College, employer, and student. Under supervision of the College and the employer, the student combines classroom learning with work experience. Directly related to a technical discipline, specific learning objectives guide the student through the work experience. (2:1-10)

## **AUMT 1305 Introduction to Automotive Technology**

This is an introduction to the automotive industry including automotive history, safety practices, shop equipment and tools, vehicle subsystems, service publications, professional responsibilities, and basic automotive maintenance. May be taught manufacturer specific. Prerequisite: Reading level 4 (3:2-4)

## **AUMT 1310 Automotive Brake Systems**

This course focuses on the operation and repair of drum/disc type brake systems. Topics include brake theory, diagnosis, and repair of power, manual, anti-lock brake systems, and parking brakes. May be taught with manufacturer specific instructions. Prerequisite: Reading level 4 (3:2-4)

## **AUMT 1316 Automotive Suspension and Steering**

This course covers the diagnosis and repair of automotive suspension and steering systems including electronically controlled systems. Includes component repair, alignment procedures, and tire and wheel service. May be taught manufacturer specific. Prerequisite: Reading level 4 (3:2-4)

## **AUMT 1345 Automotive Climate Control Systems**

This course focuses on the diagnosis and repair of manual/electronic climate control systems; includes the refrigeration cycle and EPA guidelines for refrigerant handling. May be taught manufacturer specific. Prerequisite: Reading level 4 (3:2-4)

## **AUMT 1407 Automotive Electrical Systems**

This course provides an overview of automotive electrical systems, including topics in operational theory, testing, diagnosis, and repair of charging and starting systems, and electrical accessories. Emphasis is on electrical principles schematic diagrams and service manuals. May be taught manufacturer specific. Prerequisite: Reading level 4 (4:2-6)

## **AUMT 1419 Automotive Engine Repair**

This course is an overview of automotive electrical systems including topics in operational theory, testing, diagnosis, and repair of charging and starting systems, and electrical accessories. Emphasis on electrical principles schematic diagrams and service manuals. May be taught manufacturer specific. Prerequisite: Reading level 4 (4:2-6)

## **AUMT 2307 Hybrid Systems Diagnostics**

This course is an advanced study of hybrid vehicles and the unique characteristics of hybrid systems. It includes hybrid safety procedures and diagnosis and repair of hybrid systems. Prerequisite: AUMT 1407 (3:2-4)

## **AUMT 2311 Automotive Electronic Controls**

This is a study of electronic principles, semiconductor and integrated circuits, digital fundamentals, microcomputer systems, and electrical test equipment as applied to automotive technology. May be taught manufacturer specific. Prerequisite: Reading level 4 (3:2-4)

## **AUMT 2313 Automotive Drive Train and Axles**

This is a study of automotive clutches, clutch operation devices, manual transmissions/transaxles, and differentials with emphasis on diagnosis and repair. May be taught with manufacturer specific instructions. Prerequisite: Reading level 4 (3:2-4)

## **AUMT 2321 Automotive Electrical Diagnosis and Repair**

This is a course in repair of automotive electrical subsystems, lighting, instrumentation, and accessories. Emphasis on accurate diagnosis and proper repair methods using various troubleshooting skills and techniques. This course may be taught with manufacturer-specific focus. (3:2-4)

## **AUMT 2388 Internship - Automotive Technology**

This course offers experience external to the College for an advanced student in a specialized field, involving a written agreement between the educational institution and a business or industry. Monitored and supervised by a workplace employee, the student achieves objectives that are developed and documented by the College and are directly related to specific occupational outcomes. This may be a paid or unpaid experience. The course may be repeated if topics and learning outcomes vary. (3:0-15)

## **AUMT 2417 Engine Performance Analysis I**

This course focuses on the theory, operation, diagnosis of drivability concerns, and repair ignition and fuel delivery systems. Students learn to use current engine performance diagnostic equipment. May be taught with manufacturer specific instructions. Prerequisite: Reading level 4 (4:2-6)

## **AUMT 2425 Automotive Automatic Transmission and Transaxles**

This is a study of the operation, hydraulic circuits and electronic controls of modern automatic transmissions/transaxles. It covers diagnosis, disassembly, and assembly procedures with emphasis on the use of special tools and repair techniques. May be taught manufacturer specific. Prerequisite: Reading level 4 (4:2-6)

## **AUMT 2434 Automotive Engine Performance Analysis II**

This is a course in diagnosis and repair of emission systems, computerized engine performance systems, and advanced ignition and fuel systems. Includes use of advanced engine performance diagnostic equipment. May be taught manufacturer specific. Department chair approval. (4:2-6)

# Honda Professional Automotive Career Training (PACT)

## **AUMT 1305 Introduction to Automotive Technology**

This introduction to the automotive industry includes automotive history, safety practices, shop equipment and tools, vehicle subsystems, service publications, fasteners, professional responsibilities, and automotive maintenance. This course may be taught with a manufacturer-specific focus. Prerequisite: Writing level 4, Reading level 4, Math level 4 (3:2-4)

## **AUMT 1310 Automotive Brake Systems**

This course focuses on the operation and repair of drum/disc type brake systems, with emphasis on the safe use of modern equipment. Topics include brake theory, diagnosis, and repair of power, manual, and anti-lock brake systems and parking brakes. This course may be taught with a manufacturer-specific focus. Prerequisite: Writing level 4, Reading level 4, Math level 4 (3:2-4)

## **AUMT 1316 Suspension and Steering**

This course focuses on the theory and operation of automotive suspension and steering systems, including tire and wheel problem diagnosis, component repair, and alignment procedures. It may be taught with a manufacturer-specific focus. Prerequisite: Writing level 4, Reading level 4, Math level 4 (3:2-4)

## **AUMT 1345 Automotive Heating and Air Conditioning**

This course focuses on the theory of automotive air conditioning and heating systems. Emphasis is on the basic refrigeration cycle and diagnosis and repair of system malfunctions. It covers EPA guidelines for refrigerant handling and new refrigerant replacements. This course may be taught with a manufacturer-specific focus. Prerequisite: Writing level 4, Reading level 4, Math level 4 (3:2-4)

## **AUMT 1407 Automotive Electrical Systems**

This course provides an overview of automotive electrical systems, including topics in operational theory, testing, diagnosis, and repair of batteries, charging and starting systems, and electrical accessories. Emphasis is on electrical schematic diagrams and service manuals. This course may be taught with a manufacturer-specific focus. Prerequisite: Writing level 4, Reading level 4, Math level 4 (4:2-6)

## **AUMT 1419 Automotive Engine Repair**

This course covers the fundamentals of engine operation, diagnosis, and repair, including fabrication systems and cooling systems. Emphasis is on overhaul of selected engines, identification and inspection, and measurements, and on disassembly, repair, and reassembly of the engine. The course may be taught with a manufacturer-specific focus. Prerequisite: Writing level 4, Reading level 4, Math level 4 (4:2-6)

## **AUMT 2311 Automotive Electronic Controls**

This is a study of electrical principles, semiconductor and integrated circuits, digital fundamentals, microcomputer systems, and electrical test equipment as applied to automotive technology. The course may be taught with a manufacturer-specific focus. Prerequisites: Writing level 4, Reading level 4, Math level 4, and AUMT 1407 or department chair approval (3:2-4)

## **AUMT 2313 Manual Drive Train and Axles**

This is a study of automotive clutches, clutch operation devices, standard transmissions/transaxles, and differentials, with emphasis on the diagnosis and repair of transmissions and drive lines. The course may be taught with a manufacturer-specific focus. Prerequisite: Writing level 4, Reading level 4, Math level 4 (3:2-4)

## **AUMT 2321 Toyota Electrical Lighting and Accessories**

This is a course in repair of automotive electrical subsystems, lighting, instrumentation, and accessories. Emphasis is on accurate diagnosis and proper repair methods using various troubleshooting skills and techniques. The course may be taught with a manufacturer-specific focus. Prerequisites: Writing level 4, Reading level 4, Math level 4, and AUMT 1407 or department chair approval (3:2-4)

## **AUMT 2388 Internship - Automotive Technology**

This course offers experience external to the College for an advanced student in a specialized field, involving a written agreement between the educational institution and a business or industry. Monitored and supervised by a workplace employee, the student achieves objectives that are developed and documented by the College and are directly related to specific occupational outcomes. This may be a paid or unpaid experience. The course may be repeated if topics and learning outcomes vary. (3:0-15)

# Course **Descriptions**

## **AUMT 2417 Engine Performance Analysis I**

This course focuses on the theory, operation, diagnosis, and repair of basic engine dynamics, ignition systems, and fuel delivery systems. Students learn the use of basic engine performance diagnostic equipment. The course may be taught with a manufacturer-specific focus. Prerequisites: Writing level 4, Reading level 4, Math level 4, and AUMT 1407 or department chair approval (4:2-6)

## **AUMT 2425 Automotive Transmission and Transaxles**

This is a study of the operation, hydraulic principles, and related circuits of modern automatic transmissions and automatic transaxles. It covers diagnosis, disassembly, and assembly procedures with emphasis on the use of special tools and proper repair techniques. The course may be taught with a manufacturer-specific focus. Prerequisite: Writing level 4, Reading level 4, Math level 4 (4:2-6)

## **College Automotive Program (CAP) Chrysler**

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## **AUMT 1280 Cooperative Education Auto/Automotive**

Career-related activities encountered in the student's area of specialization are offered through a cooperative agreement among the College, employer, and student. Under supervision of the College and the employer, the student combines classroom learning with work experience. Directly related to a technical discipline, specific learning objectives guide the student through the work experience. (2:1-10)

## **AUMT 1305 Introduction to Automotive Technology**

This introduction to the automotive industry includes automotive history, safety practices, shop equipment and tools, vehicle subsystems, service publications, fasteners, professional responsibilities, and automotive maintenance. This course may be taught with a manufacturer-specific focus. Prerequisite: Writing level 4, Reading level 4, Math level 4 (3:2-4)

## **AUMT 1310 Automotive Brake Systems**

This course focuses on the operation and repair of drum/disc type brake systems, with emphasis on the safe use of modern equipment. Topics include brake theory, diagnosis, and repair of power, manual, and anti-lock brake systems and parking brakes. This course may be taught with a manufacturer-specific focus. Prerequisite: Writing level 4, Reading level 4, Math level 4 (3:2-4)

## **AUMT 1316 Suspension and Steering**

This course focuses on the theory and operation of automotive suspension and steering systems, including tire and wheel problem diagnosis, component repair, and alignment procedures. It may be taught with a manufacturer-specific focus. Prerequisite: Writing level 4, Reading level 4, Math level 4 (3:2-4)

## **AUMT 1345 Automotive Heating and Air Conditioning**

This course focuses on the theory of automotive air conditioning and heating systems. Emphasis is on the basic refrigeration cycle and diagnosis and repair of system malfunctions. It covers EPA guidelines for refrigerant handling and new refrigerant replacements. This course may be taught with a manufacturer-specific focus. Prerequisite: Writing level 4, Reading level 4, Math level 4 (3:2-4)

## **AUMT 1407 Automotive Electrical Systems**

This course provides an overview of automotive electrical systems, including topics in operational theory, testing, diagnosis, and repair of batteries, charging and starting systems, and electrical accessories. Emphasis is on electrical schematic diagrams and service manuals. This course may be taught with a manufacturer-specific focus. Prerequisite: Writing level 4, Reading level 4, Math level 4 (4:2-6)

## **AUMT 1419 Automotive Engine Repair**

This course covers the fundamentals of engine operation, diagnosis, and repair, including fabrication systems and cooling systems. Emphasis is on overhaul of selected engines, identification and inspection, and measurements, and on disassembly, repair, and reassembly of the engine. The course may be taught with a manufacturer-specific focus. Prerequisite: Writing level 4, Reading level 4, Math level 4 (4:2-6)

## **AUMT 2311 Automotive Electronic Controls**

This is a study of electrical principles, semiconductor and integrated circuits, digital fundamentals, microcomputer systems, and electrical test equipment as applied to automotive technology. The course may be taught with a manufacturer-specific focus. Prerequisites: Writing level 4, Reading level 4, Math level 4, and AUMT 1407 or department chair approval (3:2-4)

## **AUMT 2313 Manual Drive Train and Axles**

This is a study of automotive clutches, clutch operation devices, standard transmissions/transaxles, and differentials, with emphasis on the diagnosis and repair of transmissions and drive lines. The course may be taught with a manufacturer-specific focus. Prerequisite: Writing level 4, Reading level 4, Math level 4 (3:2-4)

## **AUMT 2388 Internship - Automotive Technology**

This course offers experience external to the College for an advanced student in a specialized field, involving a written agreement between the educational institution and a business or industry. Monitored and supervised by a workplace employee, the student achieves objectives that are developed and documented by the College and are directly related to specific occupational outcomes. This may be a paid or unpaid experience. The course may be repeated if topics and learning outcomes vary. (3:0-15)

## **AUMT 2417 Engine Performance Analysis I**

This course focuses on the theory, operation, diagnosis, and repair of basic engine dynamics, ignition systems, and fuel delivery systems. Students learn the use of basic engine performance diagnostic equipment. The course may be taught with a manufacturer-specific focus. Prerequisites: Writing level 4, Reading level 4, Math level 4, and AUMT 1407 or department chair approval (4:2-6)

## **AUMT 2425 Automotive Transmission and Transaxles**

This is a study of the operation, hydraulic principles, and related circuits of modern automatic transmissions and automatic transaxles. It covers diagnosis, disassembly, and assembly procedures with emphasis on the use of special tools and proper repair techniques. The course may be taught with a manufacturer-specific focus. Prerequisite: Writing level 4, Reading level 4, Math level 4 (4:2-6)

## Ford Motor Company Automotive Service Educational Training (ASSET)

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### AUMT 1280 Cooperative Education Auto/Automotive

Career-related activities encountered in the student's area of specialization are offered through a cooperative agreement among the College, employer, and student. Under supervision of the College and the employer, the student combines classroom learning with work experience. Directly related to a technical discipline, specific learning objectives guide the student through the work experience. (2:1-10)

### AUMT 1305 Introduction to Automotive Technology

This introduction to the automotive industry includes automotive history, safety practices, shop equipment and tools, vehicle subsystems, service publications, fasteners, professional responsibilities, and automotive maintenance. This course may be taught with a manufacturer-specific focus. Prerequisite: Writing level 4, Reading level 4, Math level 4 (3:2-4)

### AUMT 1310 Automotive Brake Systems

This course focuses on the operation and repair of drum/disc type brake systems, with emphasis on the safe use of modern equipment. Topics include brake theory, diagnosis, and repair of power, manual, and anti-lock brake systems and parking brakes. This course may be taught with a manufacturer-specific focus. Prerequisite: Writing level 4, Reading level 4, Math level 4 (3:2-4)

### AUMT 1316 Suspension and Steering

This course focuses on the theory and operation of automotive suspension and steering systems, including tire and wheel problem diagnosis, component repair, and alignment procedures. It may be taught with a manufacturer-specific focus. Prerequisite: Writing level 4, Reading level 4, Math level 4 (3:2-4)

### AUMT 1345 Automotive Heating and Air Conditioning

This course focuses on the theory of automotive air conditioning and heating systems. Emphasis is on the basic refrigeration cycle and diagnosis and repair of system malfunctions. It covers EPA guidelines for refrigerant handling and new refrigerant replacements. This course may be taught with a manufacturer-specific focus. Prerequisite: Writing level 4, Reading level 4, Math level 4 (3:2-4)

### AUMT 1407 Automotive Electrical Systems

This course provides an overview of automotive electrical systems, including topics in operational theory, testing, diagnosis, and repair of batteries, charging and starting systems, and electrical accessories. Emphasis is on electrical schematic diagrams and service manuals. This course may be taught with a manufacturer-specific focus. Prerequisite: Writing level 4, Reading level 4, Math level 4 (4:2-6)

### AUMT 1419 Automotive Engine Repair

This course covers the fundamentals of engine operation, diagnosis, and repair, including fabrication systems and cooling systems. Emphasis is on overhaul of selected engines, identification and inspection, and measurements, and on disassembly, repair, and reassembly of the engine. The course may be taught with a manufacturer-specific focus. Prerequisite: Writing level 4, Reading level 4, Math level 4 (4:2-6)

### AUMT 2311 Automotive Electronic Controls

This is a study of electrical principles, semiconductor and integrated circuits, digital fundamentals, microcomputer systems, and electrical test equipment as applied to automotive technology. The course may be taught with a manufacturer-specific focus. Prerequisites: Writing level 4, Reading level 4, Math level 4, and AUMT 1407 or department chair approval (3:2-4)

### AUMT 2313 Manual Drive Train and Axles

This is a study of automotive clutches, clutch operation devices, standard transmissions/transaxles, and differentials, with emphasis on the diagnosis and repair of transmissions and drive lines. The course may be taught with a manufacturer-specific focus. Prerequisite: Writing level 4, Reading level 4, Math level 4 (3:2-4)

### AUMT 2388 Internship - Automotive Technology

This course offers experience external to the College for an advanced student in a specialized field, involving a written agreement between the educational institution and a business or industry. Monitored and supervised by a workplace employee, the student achieves objectives that are developed and documented by the College and are directly related to specific occupational outcomes. This may be a paid or unpaid experience. The course may be repeated if topics and learning outcomes vary. (3:0-15)

### AUMT 2417 Engine Performance Analysis I

This course focuses on the theory, operation, diagnosis, and repair of basic engine dynamics, ignition systems, and fuel delivery systems. Students learn the use of basic engine performance diagnostic equipment. The course may be taught with a manufacturer-specific focus. Prerequisites: Writing level 4, Reading level 4, Math level 4, and AUMT 1407 or department chair approval (4:2-6)

### AUMT 2425 Automotive Transmission and Transaxles

This is a study of the operation, hydraulic principles, and related circuits of modern automatic transmissions and automatic transaxles. It covers diagnosis, disassembly, and assembly procedures with emphasis on the use of special tools and proper repair techniques. The course may be taught with a manufacturer-specific focus. Prerequisite: Writing level 4, Reading level 4, Math level 4 (4:2-6)

## General Motors Automotive Service Education Program (ASEP)

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### AUMT 1280 Cooperative Education Auto/Automotive

Career-related activities encountered in the student's area of specialization are offered through a cooperative agreement among the College, employer, and student. Under supervision of the College and the employer, the student combines classroom learning with work experience. Directly related to a technical discipline, specific learning objectives guide the student through the work experience. (2:1-10)

# Course **Descriptions**

## **AUMT 1305 Introduction to Automotive Technology**

This introduction to the automotive industry includes automotive history, safety practices, shop equipment and tools, vehicle subsystems, service publications, fasteners, professional responsibilities, and automotive maintenance. This course may be taught with a manufacturer-specific focus. Prerequisite: Writing level 4, Reading level 4, Math level 4 (3:2-4)

## **AUMT 1310 Automotive Brake Systems**

This course focuses on the operation and repair of drum/disc type brake systems, with emphasis on the safe use of modern equipment. Topics include brake theory, diagnosis, and repair of power, manual, and anti-lock brake systems and parking brakes. This course may be taught with a manufacturer-specific focus. Prerequisite: Writing level 4, Reading level 4, Math level 4 (3:2-4)

## **AUMT 1316 Suspension and Steering**

This course focuses on the theory and operation of automotive suspension and steering systems, including tire and wheel problem diagnosis, component repair, and alignment procedures. It may be taught with a manufacturer-specific focus. Prerequisite: Writing level 4, Reading level 4, Math level 4 (3:2-4)

## **AUMT 1345 Automotive Heating and Air Conditioning**

This course focuses on the theory of automotive air conditioning and heating systems. Emphasis is on the basic refrigeration cycle and diagnosis and repair of system malfunctions. It covers EPA guidelines for refrigerant handling and new refrigerant replacements. This course may be taught with a manufacturer-specific focus. Prerequisite: Writing level 4, Reading level 4, Math level 4 (3:2-4)

## **AUMT 1407 Automotive Electrical Systems**

This course provides an overview of automotive electrical systems, including topics in operational theory, testing, diagnosis, and repair of batteries, charging and starting systems, and electrical accessories. Emphasis is on electrical schematic diagrams and service manuals. This course may be taught with a manufacturer-specific focus. Prerequisite: Writing level 4, Reading level 4, Math level 4 (4:2-6)

## **AUMT 1419 Automotive Engine Repair**

This course covers the fundamentals of engine operation, diagnosis, and repair, including fabrication systems and cooling systems. Emphasis is on overhaul of selected engines, identification and inspection, and measurements, and on disassembly, repair, and reassembly of the engine. The course may be taught with a manufacturer-specific focus. Prerequisite: Writing level 4, Reading level 4, Math level 4 (4:2-6)

## **AUMT 2311 Automotive Electronic Controls**

This is a study of electrical principles, semiconductor and integrated circuits, digital fundamentals, microcomputer systems, and electrical test equipment as applied to automotive technology. The course may be taught with a manufacturer-specific focus. Prerequisites: Writing level 4, Reading level 4, Math level 4, and AUMT 1407 or department chair approval (3:2-4)

## **AUMT 2313 Manual Drive Train and Axles**

This is a study of automotive clutches, clutch operation devices, standard transmissions/transaxles, and differentials, with emphasis on the diagnosis and repair of transmissions and drive lines. The course may be taught with a manufacturer-specific focus. Prerequisite: Writing level 4, Reading level 4, Math level 4 (3:2-4)

## **AUMT 2388 Internship - Automotive Technology**

This course offers experience external to the College for an advanced student in a specialized field, involving a written agreement between the educational institution and a business or industry. Monitored and supervised by a workplace employee, the student achieves objectives that are developed and documented by the College and are directly related to specific occupational outcomes. This may be a paid or unpaid experience. The course may be repeated if topics and learning outcomes vary. (3:0-15)

## **AUMT 2417 Engine Performance Analysis I**

This course focuses on the theory, operation, diagnosis, and repair of basic engine dynamics, ignition systems, and fuel delivery systems. Students learn the use of basic engine performance diagnostic equipment. The course may be taught with a manufacturer-specific focus. Prerequisites: Writing level 4, Reading level 4, Math level 4, and AUMT 1407 or department chair approval (4:2-6)

## **AUMT 2425 Automotive Transmission and Transaxles**

This is a study of the operation, hydraulic principles, and related circuits of modern automatic transmissions and automatic transaxles. It covers diagnosis, disassembly, and assembly procedures with emphasis on the use of special tools and proper repair techniques. The course may be taught with a manufacturer-specific focus. Prerequisite: Writing level 4, Reading level 4, Math level 4 (4:2-6)

# **Toyota Technical Education Network (TTEN)**

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## **AUMT 1305 Introduction to Automotive Technology**

This introduction to the automotive industry includes automotive history, safety practices, shop equipment and tools, vehicle subsystems, service publications, fasteners, professional responsibilities, and automotive maintenance. This course may be taught with a manufacturer-specific focus. Prerequisite: Writing level 4, Reading level 4, Math level 4 (3:2-4)

## **AUMT 1310 Automotive Brake Systems**

This course focuses on the operation and repair of drum/disc type brake systems, with emphasis on the safe use of modern equipment. Topics include brake theory, diagnosis, and repair of power, manual, and anti-lock brake systems and parking brakes. This course may be taught with a manufacturer-specific focus. Prerequisite: Writing level 4, Reading level 4, Math level 4 (3:2-4)

## **AUMT 1316 Suspension and Steering**

This course focuses on the theory and operation of automotive suspension and steering systems, including tire and wheel problem diagnosis, component repair, and alignment procedures. It may be taught with a manufacturer-specific focus. Prerequisite: Writing level 4, Reading level 4, Math level 4 (3:2-4)

## **AUMT 1345 Automotive Heating and Air Conditioning**

This course focuses on the theory of automotive air conditioning and heating systems. Emphasis is on the basic refrigeration cycle and diagnosis and repair of system malfunctions. It covers EPA guidelines for refrigerant handling and new refrigerant replacements. This course may be taught with a manufacturer-specific focus. Prerequisite: Writing level 4, Reading level 4, Math level 4 (3:2-4)

## **AUMT 1407 Automotive Electrical Systems**

This course provides an overview of automotive electrical systems, including topics in operational theory, testing, diagnosis, and repair of batteries, charging and starting systems, and electrical accessories. Emphasis is on electrical schematic diagrams and service manuals. This course may be taught with a manufacturer-specific focus. Prerequisite: Writing level 4, Reading level 4, Math level 4 (4:2-6)



## **AUMT 1419 Automotive Engine Repair**

This course covers the fundamentals of engine operation, diagnosis, and repair, including fabrication systems and cooling systems. Emphasis is on overhaul of selected engines, identification and inspection, and measurements, and on disassembly, repair, and reassembly of the engine. The course may be taught with a manufacturer-specific focus. Prerequisite: Writing level 4, Reading level 4, Math level 4 (4:2-6)

## **AUMT 2311 Automotive Electronic Controls**

This is a study of electrical principles, semiconductor and integrated circuits, digital fundamentals, microcomputer systems, and electrical test equipment as applied to automotive technology. The course may be taught with a manufacturer-specific focus. Prerequisites: Writing level 4, Reading level 4, Math level 4, and AUMT 1407 or department chair approval (3:2-4)

## **AUMT 2313 Manual Drive Train and Axles**

This is a study of automotive clutches, clutch operation devices, standard transmissions/transaxles, and differentials, with emphasis on the diagnosis and repair of transmissions and drive lines. The course may be taught with a manufacturer-specific focus. Prerequisite: Writing level 4, Reading level 4, Math level 4 (3:2-4)

## **AUMT 2321 Toyota Electrical Lighting and Accessories**

This is a course in repair of automotive electrical subsystems, lighting, instrumentation, and accessories. Emphasis is on accurate diagnosis and proper repair methods using various troubleshooting skills and techniques. The course may be taught with a manufacturer-specific focus. Prerequisites: Writing level 4, Reading level 4, Math level 4, and AUMT 1407 or department chair approval (3:2-4)

## **AUMT 2388 Internship - Automotive Technology**

This course offers experience external to the College for an advanced student in a specialized field, involving a written agreement between the educational institution and a business or industry. Monitored and supervised by a workplace employee, the student achieves objectives that are developed and documented by the College and are directly related to specific occupational outcomes. This may be a paid or unpaid experience. The course may be repeated if topics and learning outcomes vary. (3:0-15)

## **AUMT 2417 Engine Performance Analysis I**

This course focuses on the theory, operation, diagnosis, and repair of basic engine dynamics, ignition systems, and fuel delivery systems. Students learn the use of basic engine performance diagnostic equipment. The course may be taught with a manufacturer-specific focus. Prerequisites: Writing level 4, Reading level 4, Math level 4, and AUMT 1407 or department chair approval (4:2-6)

## **AUMT 2425 Automotive Transmission and Transaxles**

This is a study of the operation, hydraulic principles, and related circuits of modern automatic transmissions and automatic transaxles. It covers diagnosis, disassembly, and assembly procedures with emphasis on the use of special tools and proper repair techniques. The course may be taught with a manufacturer-specific focus. Prerequisite: Writing level 4, Reading level 4, Math level 4 (4:2-6)

# **Biology**

## **BIOL 1406 General Biology I**

General Biology I is a contemporary course covering the scientific method, cellular and molecular biology, biochemistry, classical and human genetics, and evolution. Prerequisite: Reading level 7 (4:3-3)

## **BIOL 1407 General Biology II**

General Biology II is a survey of viruses, Kingdoms Monera, Protista, Fungi, Plantae, and Animalia. The study of organism systems is stressed. Development and ecology topics are included. Prerequisite: Reading level 7 (4:3-3)

## **BIOL 1408 Biology I for Non-Science Majors**

This is a general biology course for non-science majors that address the biological concepts encountered in everyday life. Topics include the nature of science, cellular and molecular biology, biotechnology, classical and human genetics, and evolution, with emphasis on applications and current issues. This course applies toward the core curriculum requirements for natural science for students pursuing A.A. degrees. A student may not use both BIOL 1406 and BIOL 1408 to satisfy the core. Prerequisite: Reading level 7 (4:3-3)

## **BIOL 1409 Biology II for Non-Science Majors**

This is a general biology course for non-science majors that address biological concepts encountered in everyday life. Topics include a survey of viruses and the domains of life, study of organism systems, and ecology with emphasis on applications and current issues. This course applies toward the core curriculum requirements for natural science for students pursuing A.A. degrees. A student may not use both BIOL 1407 and BIOL 1409 to satisfy the core. Prerequisite: Reading level 7 (4:3-3)

## **BIOL 1411 General Botany**

This is a course in the fundamental principles of plant life. Focus is on the structure, physiology, taxonomy, and life histories of plants. Basic principles of heredity, ecology, distribution, adaptation, populations and evolution of organisms are included. Prerequisite: Reading level 7 (4:3-3)

## **BIOL 1413 General Zoology**

This is a course in the fundamental principles of living animals. It focuses on the structure and physiology of animals, animal development, and taxonomy, with considerable reference to man. Prerequisite: Reading level 7 (4:3-3)

## **BIOL 1414 Introduction to Biotechnology**

This course is an overview of classical genetics, DNA structure, the flow of genetic information, DNA replication, gene transcription, and protein translation. Principles of major molecular biology and genetic engineering techniques are covered, including restriction enzymes and their uses, major types of cloning vectors, construction of libraries, Southern and Northern blotting, hybridization, PCR, and DNA typing. The course also covers applications of these techniques in human health and welfare, medicine, agriculture and the environment. Introduction to the human genome project, gene therapy, molecular diagnostics, forensics, creation and uses of transgenic plants and animal and animal cloning and of the ethical, legal, and social issues and scientific problems associated with these technologies. Relevant practical exercises in the above areas. Prerequisites: Reading level 7, Writing level 7, Math level 7 (4:3-3)

# Course **Descriptions**

## **BIOL 2305 Pathophysiology**

Pathophysiology is a three-credit lecture course appropriate for students preparing for a nursing career or as an elective for a biology major. This is a specialized study of the structure and function of human anatomy, including the neuroendocrine, integumentary, musculoskeletal, digestive, urinary, reproductive, respiratory, and circulatory systems as they relate to the study of human disease. Objectives include a study of general physiological factors involved in the disease process as well as pathology affecting different human systems. Prerequisites: BIOL 2401 or BIOL 2402 or BIOL 1406 and BIOL 1407 (3:3-0)

## **BIOL 2316 Principles of Genetics (Heredity)**

This study of the principles of inheritance and variation in plant and animal populations emphasizes Mendelian inheritance, molecular genetics, and population genetics. Prerequisites: BIOL 1406 and 1407 or BIOL 1411 and 1413 or approval of department chair, and Reading level 7 (3:3-0)

## **BIOL 2401 Human Anatomy and Physiology I**

This study of chemical and cellular levels of organization focuses on the structure and function of the integumentary, skeletal, muscular, nervous and endocrine systems. Prerequisite: Reading level 7 (4:3-3)

## **BIOL 2402 Human Anatomy and Physiology II**

The structure and function of the cardiovascular, respiratory, digestive, urinary, and reproductive systems are emphasized. Basic principles of human genetics are included. Prerequisites: BIOL 2401 and Reading level 7 (4:3-3)

## **BIOL 2406 Environmental Biology**

The course is designed to study human interaction and its effects upon plant and animal communities, with a focus on conservation, pollution, energy, sustainability, and other contemporary ecological problems. It includes a general study of ecological concepts, an introduction to natural resources, the study of the biotic and abiotic interrelationships and the energy transfer through food chains and food webs. This course introduces biological and chemical principles as they relate to the environment. It also introduces laboratory and field approaches to the study of the environment. A student may not receive credit for both BIOL 2306 and BIOL 2406. Prerequisites: Reading level 7, BIOL 1406, 1407, 1411 or 1413 (4:3-3)

## **BIOL 2416 Genetics**

This course is designed to give students a comprehensive, in-depth survey of the field of modern genetics. Genetics is concerned with the study of heredity and the molecular basis of physical traits. The broad scope of the discipline extends from the study of single molecules (DNA structure and function), to inheritance patterns, and populations of organisms. The course is designed with a lecture and laboratory format, meeting three hours per week for lecture and three hours per week for lab, and as such awards four credit hours. Topics include (but are not limited to) Mendelian and non-Mendelian biotechnology, the molecular nature of genes, the physical and chemical nature of DNA, biotechnology, and the applications of these topics for medicine and industry. Students may not receive credit for BIOL 2416 and BIOL 2316. At least one semester of college chemistry is strongly recommended. Prerequisites: BIOL 1406 and 1407, or 1413 and 1411, or approval of department chair, and Reading level 7 (4:3-3)

## **BIOL 2420 Microbiology and Pathology**

This is a study of microbiology and pathology from the standpoint of cause, symptoms, and prevention of disease. Basic principles of immunological responses by the body in relation to visible pathological symptoms will be stressed. This course is primarily designed for students pursuing a degree as a registered nurse. (A student may not receive credit for both BIOL 2420 and BIOL 2421.) Prerequisites: BIOL 2401 or 2402 or approval by department chair, and Reading level 7 (4:3-3)

## **BIOL 2421 Introductory Microbiology (Bacteriology)**

This course focuses on the morphology, physiology, and taxonomy of microorganisms. It also covers the relation of man to microorganisms in agriculture, industry, sanitation, and disease. (A student may not receive credit for both BIOL 2420 and BIOL 2421.) Prerequisites: BIOL 1406 and BIOL 1407 or BIOL 1411 and 1413, CHEM 1411 and 1412, and sophomore standing, Reading level 7. Some prerequisites may be waived with permission of department chair. (4:3-3)

## **ENVR 1401 Environmental Science I: Principles of Environmental Systems**

This overview of environmental and urban systems and current global concerns explores scientific, economic, social, and political solutions to environmental problems with emphasis on ethical issues and sustainability. Field trips are required. Prerequisites: Reading level 7, Writing level 7, Math level 7 (4:3-3)

## **ENVR 1402 Environmental Science II: Chemicals in the Environment**

This is an overview of chemicals and containments in the environment, including description of environmental media, types of contaminants and their properties, their fate, and transport in the environment; potential remediation technologies; and environmental regulation(s). Prerequisites: Reading level 7, Writing level 7, Math level 9 (4:3-3)

# **Business**

## **BCIS 1305 Business Computer Applications**

This course discusses computer terminology, hardware, software, operating systems, and information systems relating to the business environment. The main focus of this course is on business applications of software, including word processing, spreadsheets, databases, presentation graphics, and business-oriented utilization of the Internet. (3:3-1)

## **BUSG 2309 Small Business Management**

This is a course on how to start and operate a small business. Topics include facts about a small business, essential management skills, how to prepare a business plan, financial needs, marketing strategies, and legal issues. Prerequisite: Reading level 4 (3:3-0)

## **BUSG 2317 Business Law/Commercial**

This course explores the relationships of law and business as they relate to commercial transactions. Prerequisite: Reading level 7 (3:3-0)

## **BUSI 1301 Introduction to Business**

This course teaches fundamental business principles, including structure, functions, resources, and operational processes. Prerequisite: Reading level 6 (3:3-0)

## **BUSI 1304 Business Report Writing and Correspondence**

This study of the principles of effective written and oral communication in business situations focuses on grammar, spelling, punctuation, and sentence structure. This course stresses common communication weaknesses identified in today's business employees. (3:3-0)

## **BUSI 2301 Business Law I**

Major content areas covered include general principles of law and the legal system, contracts, sales, commercial paper, bank-customer relations, agency, and property. Prerequisite: Reading level 7 (3:3-0)

## **BUSI 2304 Business Communications**

This is a study of the practical principles of word usage, language structure, and writing mechanics. Detailed attention is given to report writing and to the construction of letters concerned with sales, credits, collections, inquiries, adjustments, orders, recommendations, and applications for employment. (3:3-0)

## **Business Management**

### **BMGT 1301 Supervision**

This study of the role of the supervisor examines managerial functions as applied to leadership, counseling, motivation, and human skills. Prerequisite: Reading level 4 (3:3-0)

### **BMGT 1313 Principles of Purchasing**

This course focuses on the purchasing process as it is related to such topics as inventory control, price determination, vendor selection, negotiation techniques, and ethical issues. (3:3-0)

### **BMGT 1327 Principles of Management**

This course focuses on the concepts, terminology, principles, theory, and issues relevant to management in organizations. Prerequisite: Reading level 4 (3:3-0)

### **BMGT 1331 Production and Operations Management**

This course teaches fundamentals of the various techniques used in the practice of production management, including location, design, and resource allocation. Prerequisite: Reading level 4 (3:3-0)

### **BMGT 1341 Business Ethics**

This course offers discussion of ethical issues, the development of a moral frame of reference, and the need for an awareness of social justice in management practices and business activities. Review of ethical responsibilities and relationships between organizational departments, divisions, executive management, and the public. Prerequisite: Reading level 4 (3:3-0)

### **BMGT 2309 Leadership**

This course explores the concepts and styles of leadership, their relation to management, and their impact on the organization. It prepares the student with leadership and communication skills necessary to motivate and identify appropriate principles of leadership in individual, group, and organizational settings. Prerequisite: Reading level 4 (3:3-0)

### **BMGT 2368 Practicum (or Field Experience)**

This course offers practical training and experience in the workplace supported by an individualized learning plan developed and documented by the employer, College, and student. This allows the student to apply classroom theories, concepts, and skills in a workplace environment. The student must be working 20 hours per week in a paid or unpaid position. Prerequisites: Six hours of Business Management courses or approval of the program director, and Reading level 4 (3:0-21)

### **BUSG 2309 Small Business Management**

This is a course on how to start and operate a small business. Topics include facts about a small business, essential management skills, how to prepare a business plan, financial needs, marketing strategies, and legal issues. Prerequisite: Reading level 4 (3:3-0)

### **HRPO 1311 Human Relations**

This course teaches practical application of the principles and concepts of the behavioral sciences to interpersonal relationships in the business and industrial environment. (3:3-0)

### **HRPO 2301 Human Resources Management**

This course teaches behavioral and legal approaches to the management of human resources in organizations. Prerequisite: Reading level 4 (3:3-0)

### **MRKG 1311 Principles of Marketing**

This is an introduction to basic marketing functions; identification of consumer and organizational needs; explanation of economic, psychological, sociological, and global issues; and description and analysis of the importance of marketing research. Prerequisite: Reading level 4 (3:3-0)

### **MRKG 2312 E-Commerce Marketing**

This course explores the convergence and divergence of traditional marketing principles and strategies with those of electronic marketing. The focus is on marketing communications and developing customer relationships in this dynamic environment. How e-marketers use electronic tools to pursue and evaluate these goals also are considered. Prerequisite: Reading level 4 (3:3-0)

### **MRKG 2333 Principles of Selling**

This course is an overview of the selling process. Identification of the elements of the communication process between buyers and sellers is discussed as well as examination of the legal and ethical issues of organizations which affect salespeople. (3:3-0)

## **Business Office Technology**

### **BMGT 1341 Business Ethics**

This course offers discussion of ethical issues, the development of a moral frame of reference, and the need for an awareness of social justice in management practices and business activities. Review of ethical responsibilities and relationships between organizational departments, divisions, executive management, and the public. Prerequisite: Reading level 4 (3:3-0)

### **MRMT 1307 Medical Transcription I**

This course teaches the fundamentals of medical transcription with hands-on experience in transcribing physician dictation including basic reports such as history and physicals, discharge summaries, consultations, operative reports, and other medical reports. The course utilizes transcribing and information processing equipment compatible with industry standards, and is designed to develop speed and accuracy. (3:3-1)

### **POFI 1341 Computer Applications II**

Continued study of current computer terminology and technology that provides advanced skill development in computer hardware, software applications, and procedures. (3:3-1)

### **POFI 1349 Spreadsheets**

Intermediate-level instruction includes in-depth coverage in the use of spreadsheet software for business applications. Topics include worksheet creation, modification, and graphics. (3:3-1)

### **POFI 2331 Desktop Publishing for the Office**

This course provides in-depth coverage of desktop publishing terminology, text editing, and use of design principles to create publishing material using word processing desktop publishing features. Emphasis is on layout techniques, graphics, multiple-page displays, and business applications. (3:3-1)

### **POFL 1305 Legal Terminology**

This introduction to legal terminology (including spelling, pronunciation, and definition of legal terms) includes an overview of the areas of law and the legal professions. (3:3-0)

# Course Descriptions

## **POFL 2301 Legal Document Processing**

This course develops the intermediate-level skills necessary for the production of legal documents used in the legal and court systems. (3:3-1)

## **POFM 1327 Medical Insurance**

This survey of medical insurance includes the life cycle of various claim forms, terminology, litigation, patient relations, and ethical issues. (3:3-0)

## **POFT 1127 Introduction to Keyboarding**

This course provides skill development in keyboarding techniques. Emphasis is on the development of acceptable speed and accuracy. Students learn the skill of keyboarding by touch, using superior keyboarding software. (1:1.5-.5)

## **POFT 1309 Administrative Office Procedures I**

This course focuses on decision making, critical thinking, and the study of current office procedures, including telephone skills, time management, travel and meeting arrangements, mail processing, and other duties and responsibilities applicable to an office environment. (3:3-0)

## **POFT 1319 Records and Information Management I**

This introduction to basic records and information management includes the life cycle of a record, manual and electronic records management, and basic filing procedures and rules. (3:3-0)

## **POFT 1325 Business Math and Machine Applications**

This course offers skill development in the use of electronic calculators and business mathematical functions. Emphasis is on business problem-solving skills using spreadsheet software and/or an electronic calculator/keyboard. (3:3-0)

## **POFT 1328 Business Presentations**

This course offers skill development in planning and conducting business presentations including communication and media skills. (3:3-1)

## **POFT 1329 Keyboarding and Document**

This course offers skill development of touch typing and proper keyboarding techniques. Emphasis is on development of acceptable speed and accuracy levels, and formatting basic documents. (3:3-1)

## **POFT 2301 Intermediate Keyboarding**

This course offers a continuation of keyboarding skills emphasizing acceptable speed and accuracy levels and formatting documents. Emphasis is on proofreading, editing, following instructions, and keying documents from various types of copy. (3:3-1)

## **POFT 2364 Practicum**

This course offers practical, general workplace training supported by an individualized learning plan developed by the employer, the College, and the student. (3:0-21)

# Chemistry

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## **CHEM 1405 Introductory Chemistry I**

This survey course introduces chemistry. Topics may include inorganic, organic, biochemistry, food/physiological chemistry, and environmental/consumer chemistry. This course is designed for science and allied health students and contains an introduction to the fundamentals and principles of chemistry for students with no previous background in chemistry. Topics will include the metric system, atomic structure, periodic table, ionic and covalent bonding, chemical equations, solutions, and emphasis on practical applications of chemistry. This course satisfies the lab science requirements for some allied health majors, but does not substitute for CHEM 1411. Prerequisites: Reading level 6, Writing level 6, and Math level 6 (4:3-3)

## **CHEM 1407 Introductory Chemistry II**

This survey course introduces chemistry. Topics may include inorganic, organic, biochemistry, food/physiological chemistry, and environmental/consumer chemistry. This is designed for non-science and allied health students. This is the second semester of Introductory Chemistry, with an introduction to the language and basic concepts of organic chemistry and biochemistry. Topics include molecular structure, stereochemistry, organic nomenclature, and chemistry of biologically important functional groups. Does not substitute for CHEM 1412. Prerequisites: CHEM 1405 or CHEM 1411, Reading level 6, Writing level 6, and Math level 6 (4:3-3)

## **CHEM 1411 General Chemistry I**

The first semester of two College level courses in general inorganic chemistry, this course includes measurements, atomic and molecular structure, periodic classification of elements, chemical nomenclature, empirical and molecular formulas, equation writing, stoichiometry, and gas laws. Prerequisites: Reading level 7, Math level 9 (4:3-3)

## **CHEM 1412 General Chemistry II**

This second semester of general inorganic chemistry includes a study of liquids, solids, solutions, acids, bases, ionic equations, oxidation/reduction equations, reaction rates, chemical equilibria, and thermochemistry. Prerequisites: CHEM 1411, Reading level 7 and Math level 9 (4:3-3)

## **CHEM 2423 Organic Chemistry I**

This introductory organic chemistry course includes the study of covalent bonding, isomerism, nomenclature, alkyl halides, substitution and elimination reactions, free radical reactions, alkenes, alcohols, ethers and spectroscopy. Prerequisite: CHEM 1412 (4:3-3)

## **CHEM 2425 Organic Chemistry II**

This second semester of introductory organic chemistry includes the study of alkenes, alkynes, aromatic compounds, aldehydes, ketones, carboxylic acids and their derivatives, polycyclic and heterocyclic compounds, carbohydrates, amino acids, and proteins. Prerequisite: CHEM 2423 (4:3-3)

# Child Development

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## **CDEC 1303 Families, School and Community**

This course focuses on the study of the child, family, community, and schools. Includes parent education and involvement, family and community lifestyles, child abuse, and current family life issues. Course content is aligned with state Board of Educator Certification Pedagogy and Professional Responsibilities standards. Requires students to participate in a minimum of 16 hours field experience with children from infancy through age 12 in a variety of settings with varied and diverse populations. (Note: Credit will not be given for both CDEC 1303 and TECA 1303.) (3:3-1)

## **CDEC 1311 Educating Young Children**

This is an introduction to the education of the young child. Includes developmentally appropriate practices and programs, theoretical and historical perspectives, ethical and professional responsibilities, and current issues. Course content is aligned with state Board for Educator Certification Pedagogy and Professional Responsibilities standards. This course requires students to participate in a minimum of 16 hours of field experience with children from infancy through age 12 in a variety of settings with varied diverse populations. Credit will not be given for both CDEC 1311 and TECA 1311. (3:3-1)

## **CDEC 1318 Wellness of the Young Child**

This course focuses on factors impacting the well-being of young children. Includes healthy behavior, food, nutrition, fitness, and safety practices. The course focuses on local and national standards and legal implications of relevant policies and regulations. Course content is aligned with state Board of Educator Certification Pedagogy and Professional Responsibilities standards. The course requires students to participate in a minimum of 16 hours of field experience with children from infancy through age 12 in a variety of settings with varied and diverse populations. Credit will not be given for both CDEC 1318 and TECA 1318. (3:3-1)

## **CDEC 1319 Child Guidance**

This is an exploration of common behavior problems of young children in child care settings. Emphasis is on positive guidance techniques for effective behavior management. Practical application through direct participation in a child care setting. (3:3-1)

## **CDEC 1321 The Infant and Toddler**

This course is a study of appropriate infant and toddler programs (birth to age 3), including an overview of development, quality routines, appropriate environments, materials and activities, and teaching/guidance techniques. (3:3-0)

## **CDEC 1323 Observation and Assessment**

This course is a study of observation skills, assessment techniques, and documentation of children's development. (3:3-1)

## **CDEC 1354 Child Growth and Development**

This course covers physical, emotional, social, and cognitive factors impacting growth and development of children through adolescence. Credit will not be given for both CDEC 1354 and TECA 1354. (3:3-0)

## **CDEC 1356 Emergent Literacy for Early Childhood**

This course explores the principles, methods, and materials for teaching young children language and literacy through a play-based, integrated curriculum. (3:3-0)

## **CDEC 1359 Children With Special Needs**

This course is a survey of information regarding children with special needs, including possible causes and characteristics of exceptionalities, educational intervention, available resources, referral processes, and the advocacy role and legislative issues. (3:3-0)

## **CDEC 1413 Curriculum Resources for Early Childhood Programs**

This course is a study of the fundamentals of curriculum design and implementation in developmentally appropriate programs for children. (4:3-3)

## **CDEC 1417 Child Development Associate Training I**

This course is based on the requirements for the Child Development Associate (CDA) National Credential. Includes topics on CDA overview, general observation skills, and child growth and development overview. The four functional areas of study are creative, cognitive, physical, and communication. (4:3-4)

## **CDEC 1458 Creative Arts for Early Childhood**

This course explores the principles, methods, and materials for teaching young children music, movement, visual arts, and dramatic play through process-oriented experiences to support divergent thinking. (4:3-3)

## **CDEC 2315 Diverse Cultural/Multilingual Education**

This course is an overview of multicultural education to include relationship with the family and community to develop awareness and sensitivity to diversity related to individual needs of children. (3:3-0)

## **CDEC 2326 Administration of Programs for Children I**

This course includes the application of management procedures for early child care and education programs. Includes planning, operating, supervising, and evaluating programs. Topics cover philosophy, types of programs, policies, fiscal management, regulations, staffing, evaluation, and communication. (3:3-0)

## **CDEC 2328 Administration of Programs for Children II**

This course includes an in-depth study of the skills and techniques in managing early care and education programs, including legal, ethical issues, personnel management, team building, leadership, conflict resolution, stress management advocacy, professionalism, fiscal analysis, planning parent education/partnerships, and technical applications in programs. (3:3-0)

## **CDEC 2336 Administration of Programs for Children III**

This is an advanced study of the skills and techniques in managing early child care education programs. Co-requisite: CDEC 2366. Prerequisites: Six hours of child development courses to include CDEC 2326 and CDEC 2328 or department chair approval (3:3-0)

## **CDEC 2341 The School Age Child**

This is a study of the appropriate age (5-13 years) programs, including an overview of development, appropriate environments, materials and activities, and teaching/guidance techniques. (3:3-0)

## **CDEC 2366 Practicum (or Field Experience) - Child Care Provider/Assistant**

This course includes practical, general workplace training supported by an individualized learning plan developed by the employer, College, and student. The plan relates the workplace training and experiences to the student's general and technical course of study. The guided external experiences may be for pay or no pay. This course may be repeated if topics and learning outcomes vary. Prerequisite or co-requisite: CDEC 1319 (3:0-21)

## **CDEC 2407 Math and Science for Early Childhood**

This course is an exploration of principles, methods, and materials for teaching young children math and science concepts and process skills through discovery and play. (4:3-3)

## **CDEC 2422 Child Development Associate Training II**

This course is a continuation of the study of the requirements for the Child Development Associate (CDA) National Credential. The six functional areas of study include safe, healthy, learning environment, self, social, and guidance. (4:3-4)

## **CDEC 2424 Child Development Associate Training III**

This course is a continuation of the requirements for the Child Development Associate (CDA) National Credential. Three of the 13 functional areas of study include family, program management and professionalism. (4:3-4)

## **FMLD 1353 Marriage and Family Studies**

This course explores the relationship between family values, structures, and types. Examines the functions of the family and the appropriate roles for caregivers. (3:3-0)

## **FMLD 1372 Dynamics of Human Relationships**

This course is a study of the fundamentals of human relationships, communication, and problem-solving skills. The factors of self-concept, emotions, perceptions, defense mechanisms, and conflict resolution styles, as they pertain to the dynamics of human relationships within the family as well as the workplace, will be explored. (3:3-0)

# Course **Descriptions**

## **TECA 1303 Families, School and Community**

This is a study of the child, family, community, and schools. It includes parent education and involvement, family and community lifestyles, child abuse, and current family life issues. The course content is aligned with state Board of Educator Certification Pedagogy and Professional Responsibilities standards. The course requires students to participate in a minimum of 16 hours field experience with children from infancy through age 12 in a variety of settings with varied and diverse populations. Credit will not be given for both TECA 1303 and CDEC 1303. (3:3-1)

## **TECA 1311 Educating Young Children**

This is an introduction to the education of the young child. It includes developmentally appropriate practices and programs, theoretical and historical perspectives, ethical and professional responsibilities, and current issues. Course content is aligned with state Board for Educator Certification Pedagogy and Professional Responsibilities standards. It requires students to participate in a minimum of 16 hours of field experience with children from infancy through age 12 in a variety of settings with varied and diverse populations. Credit will not be given for both TECA 1311 and CDEC 1311. (3:3-1)

## **TECA 1318 Wellness of the Young Child**

This is a study of the factors impacting the well-being of young children. It includes healthy behavior, food, nutrition, fitness, and safety practices. This course focuses on local and national standards and legal implications of relevant policies and regulations. The course content is aligned with state Board of Educator Certification Pedagogy and Professional Responsibilities standards. It requires students to participate in a minimum of 16 hours of field experience with children from infancy through age 12 in a variety of settings with varied and diverse populations. Credit will not be given for TECA 1318 and CDEC 1318. (3:3-1)

## **TECA 1354 Child Growth and Development**

This course is a study of the physical, emotional, social, and cognitive factors impacting growth and development of children through adolescence. Credit will not be given for both TECA 1354 and CDEC 1354. (3:3-0)

# **College Preparatory**

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## **ENGL 0306 Beginning Writing Skills**

This course is designed for systematic study and review of applicable grammatical forms and proper punctuation in a gradual progression from sentence structure to paragraph writing. The course offers opportunities to develop basic writing skills and to enhance critical thinking. The course includes one hour of lab weekly. This course is not applicable to any degree. Prerequisite: Writing level 4. (3:3-1)

## **ENGL 0307 Preparation for College English**

This course is a comprehensive review of the fundamentals of composition and grammar with emphasis on paragraph writing, beginning theme construction, and mechanical and syntactical correctness. It provides students with opportunities to develop critical reading and writing skills through reading and discussing the works of professional writers. This course is not applicable to any degree. Prerequisite: A grade of C or above in ENGL 0306 or writing score within defined range (3:3-0)

## **ENGL 0308 Writing and Grammar: English for Speakers of Other Languages**

This course reviews the fundamentals of composition and grammar with emphasis on logical paragraph and essay construction, clear and idiomatic English, appropriate syntactical features, and mechanical correctness. In addition, the course provides for the development of critical reading, thinking, writing, and speaking skills through the analysis and discussion of professional essays. Laboratory sessions provide group and individual practice with a variety of second language problem areas. This course is not applicable to any degree. Prerequisite: A grade of C or above in ENGL 0306 or writing score within defined range (3:3-1)

## **ESOL 0311 Introductory Listening and Speaking**

This course focuses on developing basic social and pre-academic speaking and listening skills which include pronouncing, describing, giving directions, and comprehending oral directions. This course does not apply toward any degree. Prerequisite: standardized test of English language proficiency. (3:3-1)

## **ESOL 0312 Intermediate Listening and Speaking**

This course is designed for students with some English skills who want to increase their listening, speaking, and writing communication skills. This course does not apply toward any degree. Prerequisite: completion of ESOL 0311 with a grade of C or better or minimum score on standardized test of English language proficiency (3:3-1)

## **ESOL 0313 Advanced Listening and Speaking**

This course develops public and academic oral language skills through active participation in group activities. Rhetorical skills such as narration and description are practiced. This course does not apply toward any degree. Prerequisite: a grade of C or better in ESOL 0312 or minimum score on standardized test of English language proficiency (3:3-1)

## **ESOL 0321 ESOL Introductory Reading**

This course is designed for the non-native speaker. It focuses on English language development through reading activities such as comprehension and vocabulary. This course does not apply toward any degree. Prerequisite: standardized test of English language proficiency (3:3-0)

## **ESOL 0322 ESOL Intermediate Reading**

This course continues language development through reading comprehension, vocabulary building and paragraph organization. This course can be taken with other skill areas of ESOL. This course does not apply toward any degree. Prerequisite: a grade of C or better in ESOL 0321 or minimum score on a standardized test of English language proficiency (3:3-0)

## **ESOL 0323 Advanced Reading**

This course continues language development through reading comprehension, vocabulary building, and adapting reading rate for different purposes. This course can be taken with other skill areas of ESOL. This course does not apply toward any degree. Prerequisites: a grade of C or better in ESOL 0322 or minimum score on a standardized test of English language proficiency (3:3-0)

## **ESOL 0331 Introductory Writing and Grammar**

This course helps students learn to comprehend and use the basic structures of English and perform simple writing tasks such as using complete sentences, filling out forms, writing invitations, and communicating through short notes. This course does not apply toward any degree. Prerequisite: standardized test of English language proficiency (3:3-1)

## **ESOL 0332 Intermediate Writing and Grammar**

This course introduces the development of controlled and guided paragraphs using a variety of organizational structures, logic patterns, and basic grammar. This course does not apply toward any degree. Prerequisite: a grade of C or better in ESOL 0331 or minimum score on standardized test of English language proficiency (3:3-1)

## **ESOL 0333 Advanced Writing and Grammar**

This course stresses the process of paragraph writing and the characteristics of effective paragraphs. The student will learn how to write controlled essays, to develop and support opinions, and to write introductions and conclusions. This course does not apply toward any degree. Prerequisite: a grade of C or better in ESOL 0332 or minimum score on standardized test of English language proficiency (3:3-1)

## **ESOL 0351 Introductory Composition for Non-native Speakers**

This course is designed for non-native students who need to master the rhetorical modes for academic and professional English writing and reading situations. This course will introduce them to essays, short stories, and poetry. This course does not apply toward an associate degree. Prerequisite: standardized test of English language proficiency (3:3-0)

## **ESOL 0352 Intermediate Composition for Non-native Speakers**

This course is designed for non-native speakers who have taken ESOL 0351 and need to master the rhetorical modes for academic and professional English writing and reading situations. This course does not apply toward the associate degree. Prerequisite: completion of ESOL 0351 with a grade of C or better, or minimum score on standardized test of English language proficiency (3:3-0)

## **ESOL 0353 ESOL Advanced Composition**

This course is designed for non-native speakers who have taken ESOL 0352 and need to master the rhetorical modes for academic and professional English writing and reading situations and learn to recognize the different uses of language. This course does not apply toward the associate degree. Prerequisite: completion of ESOL 0352 with a grade of C or better or minimum score on standardized test of English language proficiency (3:3-0)

## **GUST 0305 College Student Success**

This course covers psychology of learning and success, and examines factors that underlie learning, success, and personal development in higher education. This course also emphasizes student responsibility and techniques in behavior modification. Topics covered include information processing, memory, strategic learning, self-assessment and regulation, self-management, goal setting and commitment, motivation, educational and career planning, decision making, networking, emotional intelligence, and learning styles. Techniques of study such as time management, listening and note taking, text marking, library and research skills, preparing for examinations, and utilizing learning resources are covered. It includes courses in college orientation and developments of students' academic skills that apply to all disciplines. Prerequisite: Reading level 2, Writing level 4, and Math level 4 (3:3-0)

## **INRW 0301 Developmental Integrated Reading and Writing-Intermediate**

This first-level course is a combined lecture/lab, performance-based course designed to develop students' critical reading and academic writing skills. The focus of the course will be on applying critical reading skills for organizing, analyzing, and retaining material and developing written work appropriate to the audience, purpose, situation, and length of the assignment. The course integrates preparation in basic academic reading skills with basic skills in writing a variety of academic essays. This is a course with a required lab. The course fulfills TSI requirements for reading and writing. Prerequisite: Reading level 4 (3:3-1)

## **INRW 0302 Developmental Integrated Reading and Writing - Advanced**

This second-level course is a combined lecture/lab, performance-based course designed to develop students' critical reading and academic writing skills. The focus of the course will be on applying critical reading skills for organizing, analyzing, and retaining material and developing written work appropriate to the audience, purpose, situation, and length of the assignment. The course integrates preparation in basic academic reading skills with basic skills in writing a variety of academic essays. This is a course with a required lab. The course fulfills TSI requirements for reading and writing. Prerequisite: Reading level 6 (3:3-1)

## **MATH 0303 Basic Mathematics**

This is an arithmetic course which builds basic skills of addition, subtraction, multiplication and division with whole numbers, fractions, and decimals. Additional topics include graphing whole numbers, fractions and decimals on a number line as well as area and perimeter concepts. This course is designed specifically for students who need a review of the basic arithmetic skills or have not yet mastered them. This course is not applicable toward any degree. Prerequisite: Math level 2 (3:2-2)

## **MATH 0304 Pre-Algebra**

This is a pre-algebra course which integrates the study of integers, fractions, decimals, percents, ratio and proportion with basic algebra. Additional topics covered include: measurement, estimation, elementary statistics, reasoning skills, number relationships, order of operations, and basic geometry. The emphasis in all topics is on their application to real life situations. This course is not applicable toward any degree. Prerequisite: Math level 4 (3:3-1)

## **MATH 0305 Introductory Algebra**

This course is a study of the basic algebra of solving and graphing linear equations, inequalities, and systems. Other topics include formulas, literal equations, polynomials, integral exponents, factoring, basic operations of radicals and rational expressions. Algebraic and basic geometric applications are included. This course promotes critical thinking and problem solving techniques. This course is not applicable toward any degree. Prerequisite: a grade of C or better in MATH 0304 or Math level 6 (3:3-0)

## **MATH 0306 Intermediate Algebra**

This course is a study of intermediate algebra including sets, variation, polynomials, exponents, radicals, and functions. Studies of quadratic and rational equations and inequalities, as well as graphs of quadratics and other nonlinear equations and inequalities are also included. The course emphasizes applications in both single- and multi-step real world problems. This course is not applicable toward any degree. Prerequisite: a grade of C or better in MATH 0305 or math score within defined range (3:3-0)

# Course Descriptions

## **MATH 0310 College Preparatory Math**

This course is computer-based using a software program to accelerate students through the College Preparatory math curriculum. It covers all topics that are taught in Prealgebra, Introductory Algebra, and Intermediate Algebra. Topics include: basic arithmetic and order of operations using integers, fractions and decimals; algebraic concepts using real numbers, percents, ratios, proportions and algebraic expressions; basic geometry, reasoning skills, measurement and elementary statistics; solving linear, quadratic, absolute value, rational and radical equations; solving and graphing linear, quadratic and rational inequalities, including interval notation; graphing linear and quadratic equations; applications using linear, quadratic and rational equations; properties of functions and function notation; solving  $2 \times 2$  and  $3 \times 3$  systems of equations and applications of  $2 \times 2$  systems; polynomial operations, exponent properties and scientific notation; factoring polynomials; operations with rational expressions, radicals and complex numbers. This course is not applicable toward any degree. Prerequisite: Math level 4 (3:3-0)

## **MATH 0320 College Preparatory Math**

This course is a continuation of MATH 0310 and is computer-based using a software program to accelerate students through the College Preparatory math curriculum. It covers all topics that are taught in Prealgebra, Introductory Algebra, and Intermediate Algebra. Topics include: basic arithmetic and order of operations using integers, fractions and decimals; algebraic concepts using real numbers, percents, ratios, proportions and algebraic expressions; basic geometry, reasoning skills, measurement and elementary statistics; solving linear, quadratic, absolute value, rational and radical equations; solving and graphing linear, quadratic and rational inequalities, including interval notation; graphing linear and quadratic equations; applications using linear, quadratic and rational equations; properties of functions and function notation; solving  $2 \times 2$  and  $3 \times 3$  systems of equations and applications of  $2 \times 2$  systems; polynomial operations, exponent properties and scientific notation; factoring polynomials; operations with rational expressions, radicals and complex numbers. This course is not applicable toward any degree. Prerequisite: MATH 0310, Math level 4 (3:3-0)

## **MATH 0330 College Preparatory Math**

This course is a continuation of MATH 0320 and is computer-based using a software program to accelerate students through the College Preparatory math curriculum. It covers all topics that are taught in Prealgebra, Introductory Algebra, and Intermediate Algebra. Topics include: basic arithmetic and order of operations using integers, fractions and decimals; algebraic concepts using real numbers, percents, ratios, proportions and algebraic expressions; basic geometry, reasoning skills, measurement and elementary statistics; solving linear, quadratic, absolute value, rational and radical equations; solving and graphing linear, quadratic and rational inequalities, including interval notation; graphing linear and quadratic equations; applications using linear, quadratic and rational equations; properties of functions and function notation; solving  $2 \times 2$  and  $3 \times 3$  systems of equations and applications of  $2 \times 2$  systems; polynomial operations, exponent properties and scientific notation; factoring polynomials; operations with rational expressions, radicals and complex numbers. This course is not applicable toward any degree. Prerequisite: MATH 0320, Math level 4 (3:3-0)

## **READ 0308 Basic Reading Skills**

This course is designed to improve basic reading skills. Following assessment, the student will be taught word recognition, basic vocabulary skills, and literal comprehension, such as main idea and details. This course is not applicable to any degree. Prerequisite: Reading level 2 (3:3-2)

## **READ 0309 Reading Comprehension**

This intermediate reading course is designed to continue the sequential process of reading with emphasis on reading comprehension and vocabulary development. Selected readings will be used for intensive work in literal and inferential meanings. This course is not applicable to any degree. Prerequisite: a grade of C or above in READ 0308 or reading score within defined range. (3:3-1)

## **READ 0310 College Reading Techniques**

This course is designed for the development of reading skills beyond the basic skills on an individual basis. Emphasis is placed on further development of comprehension, vocabulary, and interpretation of nonfiction articles and reading speed. This course is not applicable to any degree. Prerequisite: a grade of C or above in READ 0309 or reading score within defined range. (3:3-0)

## **READ 0311 Speed Reading**

This course is designed primarily for students who read at or above the 12th grade reading level. Emphasis is placed on increased comprehension, reading speed, critical reading, vocabulary expansion and reading flexibility. This course is for personal enrichment; it is not part of our sequential reading program nor does it transfer as credit toward any degree. Prerequisite: Reading level 7 (3:3-0)

# Communications

## **COMM 1129 Newspaper Laboratory**

This course offers first-year participation on a weekly newspaper and it is required for COMM 2311 and 2315 students. Any student may register for the laboratory with consent of department chair. Course may be taken a maximum of two times for credit. Prerequisites: Reading level 6 and Writing level 6 (1:0-3)

## **COMM 1136 Television Production I**

This course offers practical experience in the operation of television studio and control room equipment, including both pre- and post-production needs. Students will produce and direct news and public affairs programs and generate original video packages. (1:0-6)

## **COMM 1137 Television Production II**

This course offers practical experience in the operation of television studio and control room equipment, including both pre- and post-production needs. Students will produce and direct news and public affairs programs and generate original video packages. (1:0-6)

## **COMM 1138 Television Production III**

This course offers practical experience in the operation of television studio and control room equipment, including both pre- and post-production needs. Students will produce and direct news and public affairs programs and generate original video packages. (1:0-6)

## **COMM 1307 Mass Communications**

This freshman course in the development of the mass media in America emphasizes newspapers, magazines, radio, and television with a brief study of the historical development of the mass media and social, economic and cultural responsibilities of the mass media. Prerequisite: Reading level 7 (3:3-0)



## COMM 1318 Beginning Photography

This is a beginning course in the taking, developing, and printing of photographs. Students receive instruction in photographic principles and are given assignments to complete in the laboratory period or outside class. Darkroom facilities and a limited number of cameras are furnished by the College. Students will not receive credit for both ARTS 2356 and COMM 1318. (3:1-5)

## COMM 1319 Intermediate Photography

This course offers further development of techniques with emphasis on content and composition of photographs, including experience in a variety of professional and technical areas. Students will not receive credit for both ARTS 2357 and COMM 1319. Prerequisite: COMM 1318 or ARTS 2356 or department chair approval (3:1-5)

## COMM 2120 Practicum in Electronic Media I

This course introduces the theory and practice of Electronic Media: radio, television, film, cable and the Internet. Includes the analysis of production and programming in these technologies. Lecture and laboratory instruction and participation. (1:2-4)

## COMM 2121 Practicum in Electronic Media II

This course advances the theory and practice of Electronic Media: radio, television, film, cable and the Internet. Includes the analysis of production and programming in these technologies. Lecture and laboratory instruction and participation. (1:2-4)

## COMM 2129 Newspaper Laboratory

This course offers second-year students participation on a weekly newspaper, and it may be taken a maximum of two times for credit. Prerequisites: Reading level 6 and Writing level 6 (1:0-3)

## COMM 2289 Academic Cooperative

This is an instructional program designed to integrate on-campus study with practical hands-on work experience. In conjunction with class seminars, the individual student will set specific goals and objectives in the study of communication. (2:2-10)

## COMM 2304 Introduction to Cinematic Production

This course introduces the concepts and techniques of basic single-camera production necessary to prepare for editing and presentation of short films in a computer-assisted digital video environment. (3:3-0)

## COMM 2309 Editing I

This course covers the fundamentals of copy editing for newspapers, including copy reading, headline writing, and makeup. It includes studies in news value, story organization, clarity and writing and style, and typography as related to make-up. Prerequisites: COMM 2311 or consent of department chair, Reading level 7, Writing level 7 (3:2-3)

## COMM 2311 Reporting I

This course features instruction and practice in interviewing and writing, and discussion of news sources, news values, and types of news stories. Concurrent registration for a newspaper laboratory required. Prerequisites: Reading level 7, Writing level 7 (3:3-0)

## COMM 2315 Reporting II

This course focuses on specialized fields of reporting, including feature writing, governmental and political reporting, courtroom reporting, radio and television, and analytical writing. The class works on special feature and analytical projects. Concurrent registration for a newspaper laboratory is required. Prerequisite: COMM 2311; Co-requisite: COMM 2129 Reading level 7, Writing level 7 (3:3-0)

## COMM 2327 Principles of Advertising

This course covers the fundamentals of advertising, with special attention to advertising techniques for the mass media; copy preparation; headlines; and use of artwork and layout theories for newspaper and magazine advertising, direct mail, radio, television, outdoor, and other types of advertising. Prerequisite: Reading level 7 (3:3-0)

## COMM 2339 Writing for Electronic Media

This course introduces gathering, editing, and presenting news and public service programs, documentaries, commercials, and special programs for radio, television and other forms of electronic media. Prerequisites: Reading level 6, Writing level 6 (3:3-0)

# Computer Information Technology

## CPMT 2302 Home Technology Integration

This course covers integration and maintenance of various home technology subsystems. Includes home automation, security and surveillance, home networks, video and audio networks, and structured wiring. Prerequisites: EECT 1307 and (ITCC 1401 or ITNW 1325) or department chair approval (3:2-2)

## EDTC 1341 Instructional Technology and Computer Applications

This course focuses on the examination of specialized educational technology. Topics include the integration of educational computer terminology, system operations, software, and multimedia in the contemporary classroom environment. (3:2-2)

## EECT 2337 Wireless Telephony Systems

This course covers principles of wireless/cellular telephony systems to include call processing, hand-off, site analysis, antenna radiation patterns, commonly used test/maintenance equipment and access protocol. Prerequisites: ITCC 1401 or ITNW 1325 (3:2-2)

## GAME 1303 Introduction to Game Design and Development

This course is an introduction to electronic game development and game development careers and includes an examination of history and philosophy of games, the game production process, employee factors for success in the field, and current issues and practices in the game development industry. The course includes designing and implementing simple computer games. (3:2-2)

## GAME 1304 Level Design

This course is an introduction to the tools and concepts used to create levels for games and simulations which incorporates level design, architecture theory, concepts of critical path and flow, balancing, play testing, and storytelling, and includes utilization of toolsets from industry titles. (3:2-2)

## GAME 1343 Game and Simulation Programming I

This course covers game and simulation programming. It includes advanced pointer manipulation techniques and pointer applications, points and vectors, sound, and graphics. Prerequisite: ITSE 1307 or COSC 1337 or GAME 1303 or department chair approval (3:2-2)

## GAME 1353 Multi-User Game Programming I

This course covers network topologies, architecture and protocols, and communication in game and simulation programming. It introduces sockets programming utilizing TCP and UDP protocols in a high-level language and focuses on blocking and asynchronous modes. (3:2-2)

# Course **Descriptions**

## **GAME 2332 Project Development I**

This course includes skill development in an original modification based on a current game engine. It includes management of version control; development of project timelines; integration of sound, models, and animation; production of demos; and creation of original levels, characters, and content for a real-time multiplayer game. It applies skills learned in previous classes in a simulated real-world design team experience. Prerequisite: GAME 1304 or department chair approval (3:2-2)

## **GAME 2341 Game Scripting**

This course covers scripting languages with emphasis on game concepts and simulations. (3:2-2)

## **GAME 2344 DirectX Programming**

This course covers the exploration of the advanced suite of multimedia application programming interfaces (API) built into the Microsoft Windows operating system. Prerequisites: Math level 6 and (ITSE 2331 or COSC 2336) or department chair approval (3:2-2)

## **GAME 2359 Game & Simulation**

### **Group Project**

This course focuses on the creation of a game and/or simulation project utilizing a team approach. It includes the integration of design, art, audio, programming, quality assurance. Prerequisite: GAME 2332 or department chair approval (3:2-2)

## **IMED 1341 Interface Design - with Photoshop**

This course offers skill development in the interface design process, including selecting interfaces that are meaningful to users and relative to a project's content and delivery system. Emphasis is on aesthetic issues such as iconography, screen composition, colors, and typography. This class utilizes the Photoshop software package. (3:2-2)

## **IMED 1345 Interactive Digital Media I**

This course covers the use of graphics and sound to create interactive digital media applications and/or animations using industry standard authoring software. (3:2-2)

## **INEW 2330 Comprehensive Software**

### **Project: Planning and Design**

This is a comprehensive application of skills learned in previous courses in a simulated workplace. The course covers the development, testing, and documenting of a complete software and/or hardware solution. This course may be used as a capstone course for a certificate or degree. Prerequisite: COSC 2336 or ITSE 2331 or ITSE 2349 or department chair approval (3:2-2)

## **INEW 2332 Comprehensive Software**

### **Project: Coding, Testing and Implementation**

This course covers a comprehensive application of skills learned in previous semesters in a simulated workplace including coding, testing, maintenance, and documentation of a complete software and/or hardware solution. This course may be used as a capstone course for a certificate or degree. Prerequisite: INEW 2330 or department chair approval (3:2-2)

## **INEW 2334 Advanced Web Programming - E-Commerce**

This course focuses on programming for web authoring. Includes industry-standard languages and data stores. It includes an in-depth study of the Internet as a marketing and sales tool with emphasis on developing a working prototype for electronic commerce. The topics include database technology, creating websites in order to collect information, performing online transactions, and generating dynamic content. Students will develop their own e-commerce website. Prerequisite: ITSC 1319 or department chair approval (3:2-2)

## **INEW 2340 Object-Oriented Design - Game Design**

This course is a study of large system analysis and design concepts from the object-oriented perspective. It includes determining required objects and their interfaces, and it also covers relationships between objects. (3:2-2)

## **ITCC 1308 Introduction to Voice over Internet Protocol (VoIP)**

This course covers basic concepts of voice over internet protocol (VoIP). Focuses on technology integration of and data transmission in network communications. Prerequisite: ITCC 1401 or ITNW 1325 (3:2-2)

## **ITCC 1401 Cisco Exploration 1 - Network Fundamentals**

This is a course introducing the architecture, structure, functions, components, and models of the Internet. It describes the use of OSI and TCP layered models to examine the nature and roles of protocols and services at the applications, network, data link, and physical layers. This course covers principles and structure of IP addressing and the fundamentals of Ethernet concepts, media, and operations. The students will build simple LAN topologies by applying basic principles of cabling; performing basic configurations of network devices, including routers and switches; and implementing IP addressing schemes. Prerequisite or co-requisite: ITSC 1305 or department chair approval (4:3-2)

## **ITCC 1404 Cisco Exploration 2 - Routing Protocols and Concepts**

This course describes the architecture, components, and operation of routers, and explains the principles of routing and routing protocols. Students analyze, configure, verify, and troubleshoot the primary routing protocols RIPv1, RIPv2, EIGRP, and OSPF. Students will recognize and correct common routing issues and problems, and model and analyze routing processes. Prerequisite: ITCC 1401 or department chair approval (4:3-2)

## **ITCC 2408 Cisco Explorations 3 - LAN Switching and Wireless**

This course helps students develop an in-depth understanding of how switches operate and are implemented in the LAN environment for small and large networks. Topics include detailed explanations of LAN switch operations, VLAN implementation, Rapid Spanning Tree Protocol (RSTP), VLAN Trunking Protocol (VTP), Inter-VLAN routing, and wireless network operations. Students will analyze, configure, verify, and troubleshoot VLANs, RSTP, VTP, and wireless networks. Campus network design and Layer 3 switching concepts are introduced. Prerequisite: ITCC 1404 or department chair approval (4:3-2)

## **ITCC 2410 Cisco Exploration 4 - Accessing the WAN**

This course explains the principles of traffic control and access control lists (ACLs) and provides an overview of the services and protocols at the data link layer for wide-area access. Students will learn how to describe user access technologies and devices and discover how to implement and configure Point-to-Point Protocol (PPP), Point-to-Point Protocol over Ethernet (PPPoE), DSL, and Frame Relay. WAN security concepts, tunneling, and VPN basics are introduced. Students will discuss the special network services required by converged applications and an introduction to quality of service (QoS). Prerequisite: ITCC 2408 or department chair approval (4:3-2)

## **ITNW 1325 Fundamentals of Networking Technologies**

This course covers instruction in networking technologies and their implementation. Topics include network fundamentals and terminology; the OSI reference model; network protocols; transmission media; networking hardware and software; identifying media used in network communication; connecting servers and clients in a network; recognizing the primary network architectures/topologies; determining how to implement and support the major networking components, including the server, operating system, and clients; distinguishing between

Local Area Networks (LANs) and Wide Area Networks (WANs); identifying the components used to expand a LAN into a WAN; how to implement connectivity devices in the larger LAN/WAN environments; and networking technologies as they apply to current Microsoft Windows Operating Systems. The students will gain experience installing, configuring and maintaining current Windows Operating Systems. (3:2-2)

### **ITNW 1345 Implementing Network Directory Services**

This course provides students with in-depth coverage of the skills necessary to install, configure, and administer Network Directory service. Prerequisite: ITNW 1354 or department chair approval (3:2-2)

### **ITNW 1353 Supporting Network Server Infrastructure**

Installing, configuring, managing, and supporting a network infrastructure are covered in this course. Implementing routing; implementing, managing and maintaining Dynamic Host Configuration Protocol (DHCP), Domain Name System (DNS), and Windows Internet Name Service (WINS); securing Internet Protocol (IP) traffic with Internet Protocol security (IPSec) and certificates; implementing a network access infrastructure by configuring the connections for remote access clients; and managing and monitoring network access are topics covered in this course. (Non-vendor specific course.) Prerequisite: ITNW 1354 or department chair approval (3:2-2)

### **ITNW 1354 Implementing and Supporting Servers**

This is a course in the development of skills necessary to implement, administer, and troubleshoot information systems that incorporate servers in a networked computing environment. Topics include managing accounts and resources, maintaining server resources, monitoring server performance, and safeguarding data in a Microsoft Windows Server 2003 environment, including skills necessary to implement, administer, and troubleshoot information systems that incorporate Windows Based Servers in a networked computing environment. Topics include setting up servers for various client computers. It also covers how to configure directory applications, how to manage licensing, user group accounts, user profiles, system policies and profiles, administer remote servers, disk resources, create and share resources, implement permissions and security, fault-tolerance, install and configure RAS, identify, monitor, and resolve performance bottlenecks and configuration problems. Prerequisite: ITSC 1305 or department chair approval (3:2-2)

### **ITNW 1392 Special Topics in Computer Systems Networking and Telecommunications**

Topics in this course address current events, skills, knowledge, and/or attitudes and behaviors pertinent to the technology or occupation and relevant to the professional development of the student. This course was designed to be repeated multiple times to improve student proficiency. Prerequisite: department chair approval (3:2-2)

### **ITNW 2346 Designing a Secure Network**

This course provides students with the knowledge and skills necessary to design a security framework for small, medium, and enterprise networks. (3:2-2)

### **ITNW 2352 Administering SQL Server**

This is a skills development course in the installation, configuration, administration, and troubleshooting of SQL Servers client/server database management system version. Prerequisites: ITSW 2337 and ITNW 1325 or department chair approval (3:2-2)

### **ITNW 2354 Internet/Intranet Server**

This course covers designing, installing, configuring, maintaining, and managing an Internet/Intranet server. Topics include workstation maintenance and Internet-related protocols; implementation of Internet servers such as World Wide Web (WWW), file transfer protocols (FTP), new, mail and gopher. Course includes hands-on experience building web servers. Prerequisite: ITNW 1325 or ITCC 1401 or department chair approval (3:2-2)

### **ITSC 1305 Introduction to PC Operating Systems**

This course is a study of current personal computer operating systems. Topics include installation and configuration, file management, memory and storage management, control of peripheral devices, use of utilities including command line, and the Windows operating system. (3:2-2)

### **ITSC 1307 UNIX Operating System I**

This course covers an introduction to the UNIX operating system, including multi-user concepts, terminal emulation, use of system editor, basic UNIX commands, and writing script files. Topics include introductory systems management concepts. Prerequisite: ITSC 1305 or department chair approval (3:2-2)

### **ITSC 1309 Integrated Software Applications I**

This course covers an introduction to business productivity software suites using word processing, spreadsheets, databases, and/or presentation software. It includes instruction in embedding data, linking and combining documents using word processing, spreadsheets, databases, and/or presentation media software. Fundamentals of personal computer operations and the Windows operating system will also be covered. (3:2-2)

### **ITSC 1319 Internet/Web Page Development**

This course includes instruction in the use of Internet concepts and the introduction to web page design and website development. It is an introduction to designing and publishing web documents. It includes basic markup language, hyperlinks, tables, frames, images, forms, and an exploration of tools available for creating and editing web documents. (3:2-2)

### **ITSC 1321 Intermediate PC Operating Systems**

The course covers custom operating system installation, configuration, and troubleshooting. Topics include installation and configuration, file management, memory and storage management, continued study in advanced installation, configuration troubleshooting, advanced file management, memory, storage management. It also covers how to update peripheral device drivers, and use of utilities to increase system performance. This will extend the student's knowledge of hardware, systems and application software, data integration and communications. Prerequisite: ITSC 1325 or department chair approval (3:2-2)

### **ITSC 1325 Personal Computer Hardware**

This course is a study of current personal computer hardware, including personal computer assembly, upgrading, setup and configuration, and troubleshooting. Major topics include an overview of the computer system, installing and configuring hardware and software, troubleshooting hardware and software problems, management of the computer's resources (including hard drive space and memory) data storage on hard drives and external drives, data recovery methods, and installing peripheral equipment. (3:2-2)

# Course **Descriptions**

## **ITSC 1391 Special Topics in Computer and Informational Sciences, General**

Topics addressed in this course include current events, skills, knowledge, and/or attitudes and behaviors pertinent to the technology or occupation and relevant to the professional development of the student. Prerequisite: department chair approval (3:2-2)

## **ITSC 2321 Integrated Software Applications II**

This course is an intermediate study of computer applications from business productivity software suites. It also covers instruction in embedding data and linking and combining documents using word processing, spreadsheets, databases, and/or presentation media software. Prerequisite: ITSC 1309 or department chair approval (3:2-2)

## **ITSC 2337 UNIX Operating System II**

This course is a continued study of the UNIX operating system commands. It includes advanced concepts of system management and communication, the installation and maintenance of software, network security, and data integrity issues. This course heavily utilizes the Linux OS and includes additional topics such as CGI, PERL, and scripting languages. Prerequisite: ITSC 1307 or department chair approval (3:2-2)

## **ITSC 2339 Personal Computer Help Desk**

This course covers diagnosis and solution of user hardware and software related problems with on-the-job and/or simulated projects. Emphasis will be placed upon hands-on training (e.g., participation in the construction of an expert system). Prerequisite: ITSC 1325 or ITSC 2321 or department chair approval (3:2-2)

## **ITSC 2364 Practicum - Computer and Information Sciences, General**

This practicum class is a practical, general workplace training supported by an individualized learning plan developed by the employer, college, and student. Prerequisites: 15 credit hours of computer courses (9 of these credit hours must be earned at San Jacinto College) which must include at least one of the following courses: ITCC 1404, ITNW 1354, ITNW 2354, ITSE 1359, ITSE 2313, ITSE 2331, ITSW 2334, or ITSW 2337. An accumulative GPA of at least 2.0 is required. An interview and department chair approval are required 60 days prior to enrollment. (3:0-21)

## **ITSE 1302 Computer Programming**

This is an introduction to computer programming with emphasis on the fundamentals of structured design, development, testing, implementation, and documentation. It includes language syntax, data and file structures, input/output devices, and files. It also covers how to structure programming techniques, develop correct executable programs; and creating appropriate documentation. (3:2-2)

## **ITSE 1307 Introduction to C++ Programming**

This course is an introduction to computer programming using C++. The emphasis is on the fundamentals of object-oriented design with development, testing, implementation, and documentation. It includes language syntax, data and file structures, input/output devices, and files. Since C++ is based on the C language, the course will also cover some C language functions and techniques. Students will learn/use standard C++ to complete assignments which give experience in coding, testing, and debugging applications. (3:2-2)

## **ITSE 1318 Introduction to COBOL Programming**

This is an introduction to computer programming using COBOL. Emphasis on the fundamentals of structured design, development, testing, implementation, and documentation. Includes language syntax, data and file structures, input/output devices, files, editing, and an introduction to tables. Prerequisite: ITSE 1329 or department chair approval (3:2-2)

## **ITSE 1329 Programming Logic and Design**

This course covers programming problem-solving by applying object oriented programming and structured programming techniques, and representation of algorithms using appropriate design tools such as hierarchy charts, flowcharts, data flow charts, and pseudocode. It includes discussion of methods for testing, evaluating, and documenting programs. This course includes hands-on lab assignments to implement the techniques. (3:3-1)

## **ITSE 1331 Introduction to Visual BASIC Programming**

This is an introduction to computer programming using Visual BASIC, with an emphasis on the fundamentals of structure design, development, testing, implementation, and documentation. The course includes language syntax, data and file structures, input/output devices, and files, sequence, branch, and loop control structures; use of sequential files; interactive screen processing; printed report generation; and event driven programming are also covered. Prerequisite or co-requisite: ITSE 1329 or department chair approval (3:2-2)

## **ITSE 1345 Introduction to Oracle SQL**

This course is an introduction to the design and creation of relational databases using Oracle. Topics include storing, retrieving, updating, and displaying data using Structured Query Language (SQL). Prerequisite or co-requisite: ITSW 1307 or department chair approval (3:2-2)

## **ITSE 1356 Extensible Markup Language (XML)**

This course is an introduction of skills and practices related to Extensible Markup Language (XML). Includes Document Type Definition (DTD), well-formed and valid XML documents, XML schemes, and Extensible Style Language (XSL). (3:2-2)

## **ITSE 1359 Introduction To Scripting Languages**

This course is an introduction to scripting languages including basic data types, control structures, regular expressions, input/output, and textual analysis. (3:2-2)

## **ITSE 1391 Special Topics in Computer Programming**

Topics in this course address current events, skills, knowledge, and/or attitudes and behaviors pertinent to the technology or occupation and relevant to the professional development of the student. (3:2-2)

## **ITSE 2305 Windows Programming**

This is an introductory course to computer programming for Windows. Emphasis will be placed on the fundamentals of structured design, development, testing, implementation, and documentation. Topics include language syntax, data and file structures, input/output devices, and files. Prerequisite: ITSE 1331 or department chair approval (3:2-2)

## **ITSE 2309 Database Programming**

This is a course in database development using database programming techniques emphasizing database structures, modeling, and database access. Topics include developing database applications using a structured query language (SQL Server) to design SQL Server applications; architecture describing Transact-SQL. It also covers how to create and manage databases, implement data integrity, create queries and reports from database tables, optimize query performance, create and maintain indexes, and create appropriate documentation. Prerequisite: ITSW 2337 or department chair approval (3:2-2)

## **ITSE 2313 Web Authoring**

This course provides instruction in designing and developing Web pages that incorporate text, graphics, and other supporting elements using current technologies and authoring tools. Prerequisite: ITSE 1311 or ITSE 1305 or ITSC 1313 or ITSC 1319 or department chair approval (3:2-2)

## **ITSE 2317 Java Programming**

This course is an introduction to object-orientation Java programming. It emphasizes the fundamental syntax and semantics of Java for applications and web applets. Prerequisite: ITSE 1307 or department chair approval (3:2-2)

## **ITSE 2331 Advanced C++ Programming**

This course includes further application of C++ programming techniques including file access, abstract data structures, class inheritance and other advanced techniques. Students will study Object Oriented Programs (OOP) by using, creating and modifying C++ classes. In addition, students will use many of the standard built-in C++ classes and data structures to solve programming assignments. Prerequisite: ITSE 1307 or department chair approval (3:2-2)

## **ITSE 2343 Advanced Windows Programming**

This course covers continued applications of Windows programming, including file access methods, data structures, modular programming, program testing, and documentation. It provides instruction in developing correct, well documented programs containing complex data structures, incorporating complex input/output and file handling techniques, developing graphical user interfaces to other applications, and integrated external programs and libraries. Prerequisite: ITSE 2305 (3:2-2)

## **ITSE 2345 Data Structures**

This course covers the design and analysis of data structures and their operations. Prerequisite: ITSE 1307 or COSC 1337 or department chair approval (3:2-2)

## **ITSE 2346 Oracle Application I**

This course provides skill development in the use of forms in a developer environment. Topics include the use of Object Navigator and Virtual Graphics System (VGS), Layout Editor, and Menu Options. Prerequisite: ITNW 1325 or ITCC 1401 or department chair approval (3:2-2)

## **ITSE 2354 Advanced Oracle PL/SQL**

This course is a continuation of Oracle SQL. Topics include hierarchical queries, set based queries, correlated subqueries, scripting, and scripting generation. Prerequisite: ITSE 1345 or department chair approval (3:2-2)

## **ITSE 2357 Advanced Object-Oriented Programming**

This is a course for application of advanced object-oriented programming techniques such as abstract data structures, class inheritance, polymorphism, and exception handling. Prerequisite: ITSE 2305 or department chair approval (3:2-2)

## **ITSW 1307 Introduction to Database**

This course is an introduction to database theory and the practical applications of a database. Students will plan, define, and design a database; design and generate tables, forms, and reports; and devise and process queries. Prerequisite: ITSC 1309 or department chair approval (3:2-2)

## **ITSW 1310 Introduction to Presentation Media Software**

This course offers instruction in the utilization of presentation software to produce multimedia presentations. Graphics, test, sound, animation and/or video may be used in presentation development. Prerequisites: ARTC 1325 or ARTS 2348 (3:2-4)

## **ITSW 2334 Advanced Spreadsheets**

This course includes advanced techniques for developing and modifying spreadsheets, including macros and data analysis functions. Topics covered include data entry, graphics, table building and searching, macro development, customized reports, database administration, and statistical analysis. Prerequisite: ITSC 1309 or department chair approval (3:2-2)

## **ITSW 2337 Advanced Database**

This course covers advanced concepts of database design and functionality. It is designed to provide an understanding of advanced functionality of databases, including physical representation, design criteria, and application implementation. A data control language is used in the implementation of database processing applications. Programs written will include report generation, multiple file management, relational database management, online screen generation, and menu driven systems. Prerequisite: ITSW 1307 or department chair approval (3:2-2)

## **ITSY 1300 Fundamentals of Information Security**

This course covers basic information security goals of availability, integrity, accuracy, and confidentiality. Vocabulary and terminology specific to the field of information security are discussed. Identification of exposures and vulnerabilities and appropriate countermeasures are addressed. The importance of appropriate planning and administrative controls is also discussed. (3:3-0)

## **ITSY 1342 Information Technology Security**

Instruction is provided in security for network hardware, software, and data including physical security; backup procedures; relevant tools; encryption; and protection from viruses. Prerequisite: ITNW 1325 or ITCC 1401 or department chair approval (3:2-2)

## **ITSY 2300 Operating System Security**

This course covers the safeguarding of computer systems by demonstrating server support skills and designing and implementing a security system. Students will identify security threats and monitor network security implementations, and use best practices to configure operating systems to industry security standards. Prerequisite or co-requisite: ITSY 1342 or department chair approval (3:2-2)

## **ITSY 2301 Firewalls and Network Security**

Students will identify elements of firewall design, types of security threats and responses to security attacks using best practices to design, implement, and monitor a network security plan, as well as perform security incident postmortem reporting and ongoing network security activities. Prerequisite: ITSY 1342 or department chair approval (3:2-2)

# Course **Descriptions**

## **ITSY 2341 Security Management Practices**

This course provides in-depth coverage of security management practices, including asset evaluation and risk management; cyber law and ethics issues; policies and procedures; business recovery and business continuity planning; network security design; and developing and maintaining a security plan. Prerequisite: ITSY 2301 (3:2-2)

## **ITSY 2342 Incident Response and Handling**

This course presents an in-depth coverage of incident response and incident handling, including identifying sources of attacks and security breaches; analyzing security logs; recovering the system to normal; performing postmortem analysis; and implementing and modifying security measures. Prerequisite: ITSY 2301 (3:2-2)

## **ITSY 2343 Computer System Forensics**

This course provides an in-depth study of system forensics including methodologies used for analysis of computer security breaches. It also includes gathering and evaluating evidence to perform postmortem analysis of a security breach. Prerequisites: ITSY 1342 and ITSY 2301 or department chair approval (3:2-2)

## **ITSY 2359 Security Assessment and Auditing**

This course is the capstone experience for the security curriculum. It synthesizes technical material covered in prior courses to monitor, audit, analyze, and revise computer and network security systems to ensure appropriate levels of protection are in place to assure regulatory compliance. (3:2-2)

## **Computer Science**

### **COSC 1336 Programming Fundamentals I**

This course introduces the fundamental concepts of structured programming. Topics include software development methodology, data types, control structures, functions, arrays, and the mechanics of running, testing, and debugging. This course assumes computer literacy. Prerequisite: Reading level 7 (3:3-0)

### **COSC 1337 Programming Fundamentals II**

This course is a review of control structures and data types places. The emphasis is on structured data types. The students apply object-oriented programming paradigm, focusing on the definition and use of classes along with fundamentals of object-oriented design. The course includes basic analysis of algorithms, searching and sorting techniques, and an introduction to software engineering. Prerequisite or co-requisite: COSC 1336 or department chair approval (3:2-2)

### **COSC 2325 Comp Org and Mach Lang**

This course focuses on basic computer organization, machine cycle, digital representation of data and instructions, assembly language programming, and assembler, loader, macros, subroutines, and program linkages. Prerequisite: COSC 1336 and COSC 1337 and MATH 1314 or department chair approval (3:2-2)

### **COSC 2336 Programming Fundamentals III**

This course explores further applications of programming techniques, introducing the fundamental concepts of data structures and algorithms. The topics include recursion, fundamental data structures (including stacks, queues, linked lists, hash tables, trees, and graphs), and algorithmic analysis. Prerequisite: COSC 1337 or department chair approval (3:2-2)

## **Construction Management Technology**

### **CNBT 1171 Green Building II**

This course is designed to prepare students who complete the course to sit for the USGBC LEED Green Associate Exam. (1:1-0)

### **CNBT 1210 Basic Construction Safety**

This course provides an introduction to basic job site construction in residential, commercial, and industrial construction. This course is designed to prepare students who complete the course to sit for the OSHA 10-hour certification exam. (2:2-0)

### **CNBT 1311 Construction Methods & Materials I**

This course provides an introduction to construction materials and methods and their applications including an introduction to green materials and methods. (3:3-0)

### **CNBT 1442 Building Codes and Inspections**

This course is a study of building codes, standards applicable to building construction, and inspection processes. (4:4-0)

### **CNBT 1446 Construction Estimating I**

This course is a study of fundamentals of estimating materials and labor costs in construction. (4:3-3)

### **CNBT 2310 Commercial/Industrial Blueprint Reading**

This course provides an introduction to blueprint reading for commercial/industrial construction. Topics of study will include architectural and engineering scales, blueprint symbols and abbreviations, interpreting a set of commercial/industrial construction contract documents, and correlation of elevations, selections, details, plan views, schedules, and general notes. (3:2-4)

### **CNBT 2315 Construction Specifications and Contracts**

This course is a study of the legal aspects of written construction documents. (3:3-0)

### **CNBT 2317 Green Building**

This course provides a study of methods and materials used for buildings that conserve energy, water, and human resources. (3:2-2)

### **CNBT 2342 Construction Management I**

This course is an overview of human relations management skills on the job site. Topics of study include written and oral communications, leadership and motivation, problem solving, and decision making. (3:3-0)

### **CNBT 2344 Construction Management II**

This course is a management course in contract documents, safety, planning, scheduling, production control, and law and labor issues. Topics of study include contracts, planning, cost and production peripheral documents, and costs and work analysis. (3:3-0)

### **CNBT 2366 Practicum-Construction Technology**

This course is a practical, general workplace training supported by an individualized learning plan developed by the employer, college, and student. Direct supervision is provided by a faculty member or worker supervisor. A practicum may be a paid or unpaid learning experience. The job description for the worksite must relate to the general curriculum of the Construction Management program. Prerequisite: Department chair approval (3:0-21)

## **CNBT 2435 Computer-Aided Construction Scheduling**

This course provides a study of advanced construction scheduling utilizing computer scheduling software to perform various scheduling procedures. (4:3-3)

## **CNBT 2440 Mechanical, Plumbing and Electrical Systems in Construction II**

This course is a study of the processes and methods used in design, selection of equipment, and installation of mechanical, plumbing, and electrical systems in commercial buildings. Topics of study will include heating and cooling systems, duct work, mechanical and electrical control systems, lighting requirements, and design of water supply and sanitary sewer systems including methods and materials used in buildings to conserve water, electricity, and natural gas. (4:3-2)

# **Cosmetology**

## **CSME 1248 Principles of Skin Care**

This is an introduction of the theory and practice of skin care and nail enhancements. Prerequisites: Reading level 4 and courses taken in sequence order or department chair approval. 80 contact hours per semester. (2:1-4)

## **CSME 1302 Applications of Facial and Skin Care Technology I**

This course is an introduction to the applications of facial and skin care technology. Includes identifying and utilizing professional skin care products. Prerequisite: Reading level 4. Co-requisites: CSME 1421 and 1520, or department chair approval. 80 contact hours per semester. (3:2-3)

## **CSME 1310 Introduction to Haircutting and Related Theory**

Introduction to the theory and practice of hair cutting. Topics include terminology, implements, sectioning, and finishing techniques. Prerequisites: Reading level 4 and courses taken in level sequence order or department chair approval. 112 contact hours per semester. (3:1-6)

## **CSME 1330 Orientation to Nail Technology**

This course is an overview of the fundamental skills and knowledge necessary for the field of nail technology. Topics include professional ethics, safety, sanitation, sterilization, basic manicuring, arm and hand massage, pedicuring and the laws and rules of the state licensing agency. Prerequisites: Reading level 4 and courses taken in level sequence order or department chair approval. 144 contact hours per semester (3:1-8)

## **CSME 1354 Artistry of Hair Design I**

This course is an introduction to hair design. Topics include the theory and applications of wet styling, braiding, thermal hair styling, finishing techniques, and client communication skills. Prerequisites: Reading level 4 and courses taken in level sequence order or department chair approval. (3:1-6)

## **CSME 1355 Artistry of Hair Design II**

This is a continuation of the study of hair design. Topics include additional theory and applications of current trends in hair design. Additional topics include salon operations and wigology. Prerequisite: Reading level 4 and courses taken in level sequence order or department chair approval (Students may not receive credit for CSME 1355 if they have previously earned credit for COSM 1232, COSM 1332 or CSME 1251.)-112 contact hours per semester (3:1-6)

## **CSME 1421 Principles of Facial and Skin Care Technology I**

This is an introduction to the principles of facial and skin care technology. Topics include anatomy, physiology, theory, and related skills of facial and skin care technology. Prerequisite: Reading level 4. Co-requisites CSME 1520, CSME 1302 and courses taken in level sequence order or department chair approval. 128 contact hours per semester. (4:2-6)

## **CSME 1435 Orientation to the Instruction of Cosmetology**

This course is an overview of skills and knowledge required for the instruction of cosmetology students, including methods and techniques of teaching skills, orientation, the theory of teaching basic unit planning and daily skill lesson plan development. Prerequisites: Reading level 6, Writing level 6, Math level 4. Co-requisite: CSME 1534, and valid Texas Department of Licensing and Regulations License, high school diploma or GED or department chair approval. 112 contact hours per semester. (4:2-5)

## **CSME 1457 Applications of Hair-Weaving and Braiding**

This course emphasizes the application of hair weaving and braiding techniques and preparation for the State Licensing Agency examination. Prerequisite: Reading level 4. Co-requisite: CSME 1552. 144 contact hours (4:2-7)

## **CSME 1501 Orientation to Cosmetology**

This course is an overview of the skills and knowledge necessary for the field of cosmetology. Topics include the theory and/or skills related to braiding, manicuring, pedicuring, anatomy, physiology, electricity, light therapy, bacteriology, contamination, infection control and laws and rules of the state licensing agency. Prerequisites: Reading level 4 and courses taken in level sequence order or department chair approval. 176 contact hours per semester. (5:3-8)

## **CSME 1505 Fundamentals of Cosmetology**

This is a course in the basic fundamentals of cosmetology for high school and dual credit students. Topics include service preparation, manicure, facial, chemical services, shampoo, haircut, wet styling, and comb out and laws and rules of the state licensing agency. The course will identify fundamental concepts related to skills required by the Texas Department of Licensing and Regulation. Prerequisites: Reading level 4 and courses taken in level sequence order or department chair approval. 112 contact hours per semester. (5:3-4)

## **CSME 1520 Orientation to Facial Specialist**

This is an overview of the skills and knowledge necessary for the field of facials and skin care. Prerequisite: Reading level 4, Co-requisite: CSME 1421, CSME 1302 or department chair approval. 176 contact hours per semester. (5:3-8)

## **CSME 1531 Principles of Nail Technology I**

This is a course in the principles of nail technology. Topics include anatomy, physiology, theory, and related skills of nail technology. Emphasis will be directed toward major structures and functions of the bones, muscles and nerves of the hands, arms, feet and lower leg. Other topics include the practice of manicuring, pedicuring, and nail enhancement sanitation and safety measures. Prerequisite: Reading level 4. 176 contact hours per semester. (5:3-8)

## **CSME 1534 Cosmetology Instructor I**

This course covers the fundamentals of instructing cosmetology students, including methods of teaching skills in a lab situation. Prerequisites: Reading level 6, Writing level 6, Math level 4. Co-requisite: CSME 1435 or department chair approval. A valid Texas Department of Licensing and Regulation license and high school diploma or GED. 144 contact hours per semester. (5:3-6)

# Course Descriptions

## **CSME 1541 Principles of Nail Technology II**

This course is a continuation of the concepts and principles of nail technology. Topics include professional ethics, salon management, client relations and related skills of nail technology. Emphasis will be directed toward application of artificial nails, including equipment, implements and supplies for application of cosmetic fingernails. Other topics include sanitation, safety measures, hazardous chemicals and MSDS information data. Prerequisites: Reading level 4 and courses taken in level sequence order or department chair approval. 176 contact hours per semester. (5:3-8)

## **CSME 1545 Principles of Facial and Skin Care Technology II**

This course is a continuation of the concepts and principles in skin care and other related technologies. Topics include advanced instruction in anatomy, physiology, theory, and related skills of facial and skin care technology. Prerequisite: Reading level 4. Co-requisites: CSME 1520, CSME 1421, CSME 1302, CSME 2431 and CSME 2333 or department chair approval. 176 contact hours per semester. (5:3-8)

## **CSME 1552 Orientation to Hair-Weaving and Braiding**

This course is an overview of the skills and knowledge necessary for the field of hair weaving and braiding. (Students may not receive credit for CSME 1552 if they have previously earned credit for CSME 1471 or CSME 1472.) Prerequisite: Reading level 4. Co-requisite: CSME 1457. 160 contact hours per semester. (5:3-7)

## **CSME 1553 Chemical Reformation and Related Theory**

Presentation of the theory and practice of chemical reformation including terminology, application and workplace competencies. Emphasis on history, chemistry, hair structure, chemical texturizing techniques, service preparation, brush and scalp techniques/analysis, shampooing and conditioning. Prerequisites and co-requisites: Reading level 4, courses taken in level sequence order or department chair approval (Students may not receive credit for CSME 1553 if they have previously earned credit for COSM 1321 or COSM 1312.)-176 contact hours (5:3-8)

## **CSME 2245 Preparation for the State Licensing Practical Examination**

This course is the preparation for the state licensing practical examination and continued focus on client services. Prerequisites: Reading level 4 and courses taken in level sequence order or department chair approval. 80 contact hours per semester. (2:1-4)

## **CSME 2310 Advanced Haircutting and Related Theory**

This course focuses on advanced concepts and practice of haircutting. Topics include haircuts utilizing scissors, razors, and/or clippers. Emphasis will be directed towards men's haircutting techniques, women's haircutting techniques, and client services in the salon. Prerequisites: Reading level 4, CSME 1310 and courses taken in level sequence order or department chair approval. 112 contact hours per semester. (3:1-6)

## **CSME 2333 Application of Facial and Skin Care Technology II**

This course is a continuation of the Application of Facial and Skin Care Technology I. Emphasis will be on the preparation for the state licensing Facial Specialty Exam. Prerequisite: Reading level 4. Co-requisites: CSME 1520, CSME 1421, CSME 1302, CSME 1545, and CSME 2431 or department chair approval. (Students may not receive credit for CSME 2333 if they have previously earned credit for CSME 1372 or CSME 1272.) 80 contact hours per semester. (3:2-3)

## **CSME 2337 Advanced Cosmetology Techniques**

This course covers the mastery of advanced cosmetology techniques including hair designs, professional cosmetology services, and workplace competencies. Prerequisite: Reading level 4 and department chair approval. 80 contact hours per semester. (3:1-4)

## **CSME 2343 Salon Development**

This course offers procedures necessary for salon development. Topics include professional ethics, goal setting, salon operation, record keeping and the creation of an employment portfolio. Prerequisites: Reading level 4 and courses taken in level sequence order or department chair approval. 112 contact hours per semester. (3:1-5)

## **CSME 2344 Preparation for the State Licensing Written Examination**

This course is the preparation for the state licensing written examination. The emphasis will be directed towards the preparation for the state written exam, the refinement of professional skills to serve clients and the development of business practices for successful entry into the industry. Prerequisite: Reading level 4 and courses taken in level sequence order or department chair approval. 96 contact hours per semester. (3:2-4)

## **CSME 2414 Cosmetology Instructor II**

This course is a continuation of the fundamentals of instructing cosmetology students. Introduces students to methods and techniques of teaching informational theory relative to cosmetology. Prerequisites: Reading level 6, Writing level 6, Math level 4, CSME 1435 and 1534. Co-requisite: CSME 2515 or department chair approval. 112 contact hours per semester. (4:2-5)

## **CSME 2430 Nail Enhancement**

This is a course in the theory, application, and related technology of artificial nails. Emphasis will be directed toward applications of nail extensions, to include sculpture nails, tips, wraps, fiberglass, gels, odorless products and nail art. Simulated work experience provide the opportunity for the students to enhance and further develop learned skills, safety measures, human relations, employment related skills, salesmanship and public relations. 112 contact hours per semester. Prerequisite: Reading level 4 (4:3-4)

## **CSME 2431 Principles of Facial and Skin Care Technology III**

This course focuses on advanced concepts and principles of skin care and other related technologies. Prerequisites: Reading level 4, CSME 1520, CSME 1421, and CSME 1302. Co-requisites: CSME 1545, CSME 2333 or department chair approval. 128 contact hours per semester. (4:2-6)

## **CSME 2445 Instructional Theory and Clinic Operation**

This course is an overview of the objectives required by the Texas Department of Licensing and Regulation Instructor Examination. It provides employment-seeking skills and instructs students in the preparation of resumes and interviewing techniques. Prerequisites: Reading level 6, Writing level 6, Math level 4, CSME 1435, CSME 1534, CSME 2414 and CSME 2515. Co-requisite: CSME 2544 or department chair approval. 112 contact hours per semester. (4:2-5)



## **CSME 2501 Principles of Hair Coloring and Related Theory**

This course is a presentation of the theory, practice and chemistry of hair color. Topics include terminology, application, and workplace competencies related to hair color and chemistry. Emphasis will be directed towards hair-lightening and temporary, semi-permanent hair coloring using current applications, formulations, and mixing techniques. Prerequisites: Reading level 4 and courses taken in level sequence order or department chair approval. 176 contact hours per semester. (5:3-8)

## **CSME 2515 Cosmetology Instructor III**

This course covers lesson plan assignments and evaluation techniques, including assessing cosmetology student techniques. Prerequisites: Reading level 6, Writing level 6, Math level 4, CSME 1435 and 1534. Co-requisite: CSME 2414 or department chair approval. 144 contact hours per semester. (5:3-6)

## **CSME 2539 Advanced Hair Design**

This course promotes advanced concepts in the theory and practice of hair design. Topics include the mastery of advanced cosmetology techniques, professional cosmetology services, and workplace competencies. Emphasis will be directed toward client services in a simulated salon. (Students may not receive credit for CSME 2439 if they have previously earned credit in CSME 2539) Prerequisites: Reading level 4 and courses taken in level sequence order or department chair approval. 160 contact hours per semester. (5:2-9)

## **CSME 2541 Preparation for the State Licensing Examination**

This course is a preparation for the state licensing examination which emphasizes the study of theory and skill procedures, the refinement of professional skills to serve clients, and the development of business practices for successful entry into the industry. Prerequisites: Reading level 4 and courses taken in level sequence order or department chair approval. 176 contact hours per semester. (5:3-8)

## **CSME 2544 Cosmetology Instructor IV**

This course focuses on advanced concepts of instruction in a cosmetology program. Topics include demonstration, development and implementation of advanced evaluation and assessment techniques. Prerequisites: Reading level 6, Writing level 6, Math level 4, CSME 1435, 1534, 2414, and 2515. Co-requisite: CSME 2445 or department chair approval. 144 contact hours per semester. (5:3-6)

# **Criminal Justice**

## *Technical Courses (CJCR, CJLE, and CJSA)*

### **CJCR 1304 Probation and Parole**

This is a survey of the structure, organization, and operation of probation and parole services. Emphasis on applicable state statutes and administrative guidelines. Prerequisite: Reading level 4 (3:3-0)

### **CJCR 1307 Correctional Systems and Practices**

A study of the role of corrections in the criminal justice system. Topics include organization and theory of correctional systems, institutional operations, management, alternatives to institutionalization, treatments and rehabilitation, and current and future issues. Prerequisite: Reading level 4. Credit will not be given for both CJCR 1307 and CRIJ 2313. (3:3-0)

### **CJCR 2324 Community Resources in Corrections**

This course is an overview of diversionary practices and treatment programs available to offenders in a local context. Topics include selected recognized models and future trends in community treatment. Prerequisite: Reading level 4. Credit will not be given for both CJCR 2324 and CRIJ 2301. (3:3-0)

### **CJCR 2325 Legal Aspects of Corrections**

This course is a study of the operation, management, and legal issues affecting corrections. Analysis of constitutional issues involving rights of the convicted, as well as civil liability of correctional agencies and staff. Prerequisite: Reading level 4 (3:3-0)

### **CJLE 1327 Interviewing and Report Writing for Criminal Justice Professions**

This course covers instruction and skill development in interviewing, note taking, and report writing in the criminal justice context; development of skills to conduct investigations by interviewing witnesses, victims, and suspects properly; and organization of information regarding incidents into effective written reports. Prerequisite: Reading level 4 (3:3-0)

### **CJLE 1333 Traffic Law and Investigation**

This course covers instruction in the basic principles of traffic control, traffic law enforcement, court procedures, and traffic law. Emphasis is on the need for a professional approach in dealing with traffic law violators, and the police role in accident investigation and traffic supervision. Prerequisite: Reading level 4 (3:3-0)

### **CJSA 1308 Criminalistics I**

This course is an introduction to the field of criminalistics. Topics include the application of scientific and technical methods in the investigation of crime, including location, identification, and handling of evidence for scientific analysis. Prerequisite: Reading level 4 (3:3-0)

### **CJSA 1322 Introduction to Criminal Justice**

This course is an overview of the criminal justice system. Topics include the history and philosophy of criminal justice, the definition of crime, and its nature and impact. Prerequisite: Reading level 4 (Note: credit will not be given for both CJSA 1322 and CRIJ 1301.) (3:3-0)

### **CJSA 1348 Ethics in Criminal Justice**

This course is a study of ethical thought and issues facing the criminal justice professional. Topics include constitutional ethics, codes of conduct, and standards of conduct. Prerequisite: Reading level 4 (3:3-0)

### **CJSA 1351 Use of Force**

This course is a study of the use of force including an introduction to and statutory authority for the use of force, force options, deadly force, and related legal issues. Fulfills the TCLEOSE Use of Force Intermediate Certificate requirements. Prerequisite: Reading level 4 (3:3-0)

### **CJSA 2323 Criminalistics II**

This course focuses on both the theory and practice of crime scene investigation, and includes hands-on lab exercises. Topics include report writing, blood and other body fluids, document examination, etchings, casts and molds, glass fractures, use of microscopes, and firearms identification. Prerequisite: Reading level 4 (3:3-1)

### **CJSA 2364 Practicum (or Field Experience) - Criminal Justice/Safety Studies**

This course offers practical, general workplace training supported by an individualized learning plan developed by the employer, College, and student. The plan relates the workplace training and experiences to the student's general and technical course of study, and it includes a written agreement between the educational institution and a business or industry. Monitored and supervised by the instructor and a workplace employee, the student achieves objectives that are developed and documented by the College, and that are directly related to specific occupational outcomes. This may be a paid or unpaid experience. Prerequisite: 15 credit hours of criminal justice courses (9 of these credit hours must be earned at San Jacinto College), and an accumulative GPA of at least 2.0 is required. (Note: the student must receive approval to enroll from instructor at least 60 days prior to start of course.) (3:0-21)

# Course **Descriptions**

## **CJSA 2388 Internship - Criminal Justice Studies**

This is an intermediate or advanced type of work-based instruction that helps students synthesize new knowledge, apply previous knowledge, or gain experience managing the workflow. Practical experience is simultaneously related to theory. Direct supervision is provided by the faculty or the work supervisor. An internship may be a paid or non-paid learning experience in the criminal justice profession. This course may be repeated if topics and learning outcomes vary. Prerequisite: department chair approval (3:0-9)

## **Academic Transfer Courses (CRIJ)**

### **CRIJ 1301 Introduction to Criminal Justice**

This course covers the history and philosophy of criminal justice and ethical considerations; crime defined, its nature and impact, overview of criminal justice system; law enforcement; court system; prosecution and defense; trial process; and corrections. Prerequisite: Reading level 4. Credit will not be given for both CRIJ 1301 and CJSA 1322. (3:3-0)

### **CRIJ 1306 Court Systems and Practices**

This course includes examination of the role of the judiciary in the criminal justice system. Topics include the structure of the American court system, prosecution, right to counsel, pretrial release, grand jury process, adjudication process, types and rules of evidence, and sentencing concepts. Prerequisite: Reading level 4. Credit will not be given for both CRIJ 1306 and CJSA 1313. (3:3-0)

### **CRIJ 1307 Crime in America**

This course covers the study of crime problems in historical perspective, social and public policy factors affecting crime, impact and crime trends, social characteristics of specific crimes, and crime prevention. Prerequisite: Reading level 4. Credit will not be given for both CRIJ 1307 and CJSA 1312. (3:3-0)

### **CRIJ 1310 Fundamentals of Criminal Law**

This course is a study of the nature of criminal law. Topics include philosophical and historical development; major definitions and concepts; classification of crime; elements of crimes and penalties and individual criminal responsibilities. Prerequisite: Reading level 4. Credit will not be given for both CRIJ 1310 and CJSA 1327. (3:3-0)

### **CRIJ 1313 Juvenile Justice System**

This course is a study of the juvenile justice process. Topics include specialized juvenile law, role of the juvenile courts, role of police agencies, role of correctional agencies, and theories concerning delinquency. Prerequisite: Reading level 4. Credit will not be given for both CRIJ 1313 and CJSA 1317. (3:3-0)

### **CRIJ 2301 Community Resources in Corrections**

This is an overview of diversionary practices and treatment programs available to offenders in a local context. Topics include selected recognized models and future trends in community treatment. Prerequisite: Reading level 4. Credit will not be given for both CRIJ 2301 and CJCR 2324. (3:3-0)

### **CRIJ 2313 Correctional Systems and Practices**

This course covers corrections in the criminal justice system; organization of correctional systems; correctional role; institutional operations; alternatives to institutionalization; treatment and rehabilitation; current and future issues. Prerequisite: Reading level 4. Credit will not be given for both CRIJ 2313 and CJCR 1307. (3:3-0)

### **CRIJ 2314 Criminal Investigation**

This is a study of investigative theory, the collection and preservation of evidence, sources of information, concepts of interviewing and interrogation, the use of forensic sciences; and trial preparation. Prerequisite: Reading level 4. Credit will not be given for both CRIJ 2314 and CJSA 1342. (3:3-0)

### **CRIJ 2323 Legal Aspects of Law Enforcement**

This is a study of police authority; responsibilities; constitutional constraints; laws of arrest; search and seizure; police civil liability. Prerequisite: Reading level 4. Credit will not be given for both CRIJ 2323 and CJSA 2300. (3:3-0)

### **CRIJ 2328 Police Systems and Practices**

This course covers exploration of the profession of police officer. Topics include: organization of law enforcement systems; the police role; police discretion; ethics; police community interaction; and current and future issues. Prerequisite: Reading level 4. Credit will not be given for both CRIJ 2328 and CJSA 1359. (3:3-0)

# **Culinary Arts**

## **CHEF 1305 Sanitation and Safety**

This is a study of personal cleanliness; sanitary practices in food preparation; causes, investigation, control of illness caused by food contamination (Hazard Analysis Critical Control Points); and workplace safety standards. (3:3-0)

## **CHEF 1310 Garde Manger**

This is a study of specialty foods and garnishes, with an emphasis on design, techniques, and display of fine foods. It also emphasizes basic garde manger principles and training techniques for food service professionals. Prerequisite: CHEF 1301 or PSTR 1301 and Co-requisite: CHEF 1305 (3:2-4)

## **CHEF 1313 Food Service Operation/ Systems**

This course is an overview of the information needs of food and lodging properties. Emphasis is on both front, back, and material management utilizing computer systems. (3:3-0)

## **CHEF 1314 A La Carte Cooking**

This course covers a la carte "cooking to order" concepts. Topics include menu and recipe interpretation and conversion, organization of work station, employment of appropriate cooking methods, plating, and saucing principles. Prerequisite: CHEF 1305 (3:2-4)

## **CHEF 1345 International Cuisine**

This course covers the study of classical cooking skills associated with the preparation and service of international and ethnic cuisines. Topics include similarities between food production systems used in the United States and in other regions of the world. Co-requisite: CHEF 1305 (3:1-6)

## **CHEF 1401 Basic Food Preparation**

This is a study of the fundamental principles of food preparation and cookery to include the Brigade System, cooking techniques, material handling, heat transfer, sanitation, safety, nutrition, and professionalism. Study will include basic skills and terminology. (4:3-3)

## **CHEF 2365 Practicum (or Field Experience) - Culinary Arts/Chef Training**

This course offers practical general workplace training supported by an individualized learning plan developed by the employer, the College, and student. The plan relates workplace training and experiences to the student's general and technical course of study. The guided external experiences

may be for pay or not for pay. The course may be repeated if topics and learning outcomes vary. Prerequisite: 12 completed credit hours in CHEF 1305 and 9 credit hours in CHEF, PSTR, IFAWA, or RSTO prior to taking CHEF 2365 Practicum. (3:0-21)

## **CHEF 2402 Saucier**

This course focuses on instruction in the preparation of stocks, soups, classical sauces, contemporary sauces, accompaniments, and the pairing of sauces with a variety of foods. (4:3-3)

## **IFWA 1305 Food Service Equipment and Planning**

This course is a study of various types of food service equipment and the planning of equipment layout for product flow and efficient operation. Prerequisite: Reading (3:3-0)

## **IFWA 1318 Nutrition for the Food Service Professional**

This course is an introduction to nutrition including nutrients, digestion and metabolism, menu planning, recipe modification, dietary guidelines and restrictions, diet and disease, and healthy cooking techniques. Students may not receive credit for IFWA 1318 if they have previously earned credit for RSTO 1217. (3:3-0)

## **IFWA 2437 Special Projects and Field Work**

This course includes assignment to real or simulated projects in campus facilities or off-campus locations which require the application of all knowledge and skills learned throughout the program. Prerequisite: Reading (4:1-8)

## **IFWA 2441 Specialized Food Preparation**

This is a study of ethnic/regional cooking with actual preparation of local favorite dishes and common international favorites. (4:3-3)

## **IFWA 2445 Quantity Procedures**

This course includes exploration of the theory and application of quality procedures for the operation of commercial, institutional, and industrial food services, with an emphasis on quantity cookery and distribution. Prerequisite: Reading (4:2-8)

## **IFWA 2446 Quantity Procedures**

This course includes the exploration of the theory and application of quantity procedures for the operation of commercial, institutional, and industrial food services with an emphasis on quantity cookery and distribution. Co-requisite: CHEF 1305 (4:2-8)

## **PSTR 1301 Fundamentals of Baking**

This is a course in fundamentals of baking including dough, quick breads, pies, cakes, cookies, tarts, and doughnuts, and instruction in flours, fillings, and ingredients. Topics include baking terminology, tool and equipment use, formula conversions, functions of ingredients, and the use of proper flours. Prerequisite: Reading level 4. Co-requisite: CHEF 1305 (3:2-4)

## **PSTR 1306 Cake Decorating I**

This is an introduction to skills, concepts and techniques of cake decorating. Co-requisites: PSTR 1301 and CHEF 1305 (3:2-4)

## **PSTR 1342 Quantity Bakeshop Production**

This course is a study of advanced baking techniques to include volume production of a variety of breads and desserts. Co-requisites: PSTR 1301 and CHEF 1305 (3:1-7)

## **PSTR 1391 Special Topics in Baker/Pastry Chef**

This course covers topics that address recently identified current events, skills, knowledge, and/or attitudes and behaviors pertinent to the technology or occupation and relevant to the professional development of the student. This course was designed to be taken twice to improve student proficiency. Co-requisites: CHEF 1305, PSTR 1301 (3:2-4)

## **PSTR 1401 Fundamentals of Baking**

This is a course in fundamentals of baking including dough, quick breads, pies, cakes, cookies, tarts and doughnuts, and instruction in flours, fillings, and ingredients. Topics include baking terminology, tool and equipment use, formula conversions, functions of ingredients, the evaluation of baked products, and the use of proper flours. (4:3-3)

## **PSTR 2301 Chocolates and Confections**

This course covers production and decoration of traditional truffles, marzipan, molded and hand-dipped chocolates, caramels, nougats, and pate de fruit. The student will prepare tempered and molded chocolates; and prepare a variety of filled and dipped chocolates. Co-requisite: CHEF 1305 (3:1-7)

## **PSTR 2307 Cake Decorating I**

This is a course in decoration of specialized and seasonal products. Produce and decorate a variety of commercially acceptable cakes and other bakery products using a variety of techniques. Co-requisite: CHEF 1305 (3:2-4)

## **PSTR 2331 Advanced Pastry Shop**

This is a study of classical desserts, French and international pastries, hot and cold desserts, ice creams and ices, chocolate work, and decorations. Emphasis on advanced techniques. Prerequisite or co-requisite: PSTR 1301, Co-requisite: CHEF 1305 (3:1-7)

## **PSTR 2365 Practicum - Baking and Pastry**

This is a practical, general workplace training supported by an individualized learning plan developed by the employer, college, and student. Prerequisite: 12 completed credit hours to include CHEF 1305 and 9 credit hours in PSTR prior to taking CHEF 2365 Practicum. (3:0-21)

## **PSTR 2431 Advanced Pastry Shop**

This is a study of classical desserts, French and international pastries, hot and cold desserts, ice creams and ices, chocolate work, and decorations, with an emphasis on advanced techniques. (4:3-3)

## **RSTO 1217 Nutrition for the Food Service Professional**

This is an introduction to nutrition including nutrients, digestion and metabolism, menu planning, recipe modification, dietary guidelines and restrictions, diet and disease, and healthy cooking techniques. Topics include fundamental principles of the basic food nutrients, their digestive and absorptive characteristics, and the relationship of food to the development and maintenance of health, study of people's eating habits, and the nutritional needs of all age groups. Application of the concepts of good nutrition to the planning of satisfying and interesting meals for commercial and institutional food service operations is also included. Prerequisite: Reading (2:2-0)

## **RSTO 1301 Beverage Management**

This is a study of the beverage service of the hospitality industry including spirits, wines, beers, and non-alcoholic beverages. Topics include purchasing, resource control, legislation, marketing, physical plant requirements, staffing, serving, and the selection of wines to enhance foods. (3:3-0)

## **RSTO 1313 Hospitality Supervision**

This course includes fundamentals of recruiting, selection, and training of food service and hospitality personnel. Topics include job descriptions, schedules, work improvement, motivation, and applicable personnel laws and regulations, with an emphasis on leadership development. (3:3-0)

# Course **Descriptions**

## **RSTO 1325 Purchasing for Hospitality Operations**

This is a study of purchasing and inventory management of foods and other supplies to include development of purchase specifications, determination of order quantities, formal and informal price comparison, proper receiving procedures, storage management, and issue procedures, with an emphasis on product cost analysis, yields, pricing formulas, controls, and record keeping at each stage of the purchasing cycle. (3:3-0)

## **RSTO 2301 Principles of Food and Beverage Control**

This is a study of financial principles and controls of food service operation including review of operation policies and procedures. Topics include financial budgeting and cost analysis emphasizing food and beverage labor costs, operational analysis, and international and regulatory reporting procedures. (3:3-0)

## **RSTO 2365 Practicum (or Field Experience) - Restaurant, Culinary, and Catering Management/Manager**

This course offers practical general workplace training supported by an individualized learning plan developed by the employer, the College, and student. The plan relates workplace training and experiences to the student's general and technical course of study. The guided external experiences may be for paid or unpaid. The course may be repeated if topics and learning outcomes vary. (3:0-21)

## **RSTO 2405 Management of Food Production and Service**

This is a study of quantity cookery and management problems pertaining to commercial and institutional food service, merchandising and variety in menu planning, and customer food preferences. It includes laboratory experiences in quantity food preparation and service. (4:3-3)

## **RSTO 2431 Food Service Management**

This course covers mastery of actual management experiences in supervision, training, planning, and control of a variety of food service operation formats to include cafeteria, table service, meetings, banquets, and catered events. Students may not receive credit for both RSTO 2431 and RSTO 2405. Co-requisite: CHEF 1305 (4:2-8)

## **Dance**

### **DANC 1101 Dance Composition I**

This course includes exploration of the qualitative use of the body through manipulation of the variables of space, time, weight, and flow. (1:0-3)

### **DANC 1102 Dance Composition II**

This course includes explorations of choreographic tools with emphasis on basic compositional forms, spatial design, dynamics, rhythmic structure, character, and the use of props. Prerequisite: Dance Composition I (1:0-3)

### **DANC 1151 Dance Performance I**

This course includes exploration of dance as an art form through participation in and performance of choreographed works. Co-requisite: concurrent enrollment in ballet or modern or department chair approval required. (1:0-3)

### **DANC 1152 Dance Performance II**

This course includes exploration of dance as an art form through participation in and performance of choreographed works. Co-requisite: concurrent enrollment in ballet or modern or department chair approval required. (1:0-3)

### **DANC 1341 Ballet I**

This course includes introduction to the theory, practice, and terminology of classical ballet with emphasis on development and refinement of barre and center technique. (3:1-5)

### **DANC 1342 Ballet II**

This course includes continuation and progression of DANC 1341 with emphasis on development and refinement of barre and center technique. (3:1-5)

### **DANC 1345 Modern I**

This course includes beginning technique in modern dance with emphasis on floor and center work, basic rhythm, and movement combinations. (3:1-5)

### **DANC 1346 Modern II**

This course includes continuation and progression of DANC 1345 with emphasis on floor and center work, rhythm, and movement combinations. (3:1-5)

### **DANC 2151 Dance Performance III**

This course includes exploration of dance as an art form through participation in and performance of choreographed works. Co-requisite: concurrent enrollment in ballet or modern dance or department chair approval required. (1:0-3)

### **DANC 2152 Dance Performance IV**

This course includes exploration of dance as an art form through participation in and performance of choreographed works. Co-requisite: concurrent enrollment in ballet or modern dance or department chair approval required. (1:0-3)

### **DANC 2303 Dance Appreciation**

This course is an introduction to dance as an art form with emphasis on historical perspectives, observation, and analysis of live and video performance, and exploration/analysis of creative and expressive experiences in dance. Prerequisite: Reading level 7 and Writing level 7 (3:3-0)

### **DANC 2325 Anatomy and Kinesiology for Dance**

This course is an exploration of the sciences of anatomy and kinesiology as they apply to and support the analysis of human movement. Prerequisite: Reading level 6 and Writing level 6 (3:3-1)

### **DANC 2341 Ballet III**

This is a further exposure to the theory, practice, and terminology of classical ballet with emphasis on expansion and refinement of the skills developed in DANC 1341 and DANC 1342. (3:1-5)

### **DANC 2342 Ballet IV**

This is a further exposure to the theory, practice, and terminology of classical ballet with emphasis on expansion and refinement of the skills developed in DANC 2341. (3:1-5)

### **DANC 2345 Modern Dance III**

DANC 2345 is intended to build upon and expand the technical skills developed in DANC 1345/1346 as well as to emphasize and enhance artistic aspects of movement. (3:1-5)

### **DANC 2346 Modern Dance IV**

DANC 2346 is intended to build upon and expand the technical skills developed in DANC 2345 as well as to emphasize and enhance artistic aspects of movement. (3:1-5)

## **Dental Assisting**

### **DNTA 1102 Communication and Behavior in the Dental Office**

This course will provide better understanding of human interaction in the dental office. The student will study motivation and learning experiences as related to health professional, and human behavior. Prerequisites: Reading level 6 (1:1-0)

### **DNTA 1167 Practicum - Dental Assisting/Assistant**

This course is a practical, general workplace training supported by an individualized learning plan developed by the employer, college, and student. Prerequisite: Reading level 6 (1:0-10)

## **DNTA 1241 Dental Laboratory Procedures**

This course includes dental laboratory procedures including skills associated with chairside assisting; pouring, trimming, and polishing study casts, preliminary impressions, and fabrication provisional restorations. Prerequisite: Reading level 6 (2:1-4)

## **DNTA 1245 Preventative Dentistry**

This course includes the study and prevention of dental diseases and community dental health. Prerequisite: Reading level 6 (2:2-1)

## **DNTA 1251 Dental Office Management**

This course is the study of business office procedures, including telephone management, appointment control, receipt of payment for dental services, completion of third-party reimbursement forms, supply inventory maintenance, data entry for charges and payments, record management (manage recall systems), federal and state guidelines regarding health care providers, and operating basic business equipment. Prerequisite: Reading level 6 (2:2-1).

## **DNTA 1305 Dental Radiology**

This course is an introduction to radiation physics, protection, the operation of radiographic equipment, exposure, processing and mounting of dental radiographs. Specific federal and state safety and standard practices for the classroom and lab setting will be practiced. Prerequisite: Reading level 6 (3:2-3)

## **DNTA 1349 Dental Radiology in the Clinic**

This course covers the practical application of exposing, processing, and mounting diagnostically acceptable radiographs obtained by utilizing various radiographic techniques. Prerequisites: Reading level 6 (3:2-3)

## **DNTA 1401 Dental Materials**

This course covers structure, properties, and procedures related to dental materials. It includes safety and American Dental Association regulated standard precautions. Prerequisite: Reading level 6 (4:3-3)

## **DNTA 1411 Dental Science**

This course covers anatomical systems with emphasis placed on head and neck anatomy. Topics include the physiology and morphology of the deciduous and the permanent teeth along with basic dental terminology. Prerequisite: Reading level 6 ((4:3-3)

## **DNTA 1415 Chairside Assisting**

This course covers pre-clinical chairside assisting procedures, instrumentation, infection and hazard control protocol, equipment safety and maintenance. Prerequisite: Reading level 6 (4:3-3)

## **DNTA 1447 Advanced Dental Science**

This course covers anatomical systems with emphasis on pharmacology, oral pathology, and developmental abnormalities. Prerequisite: Reading level 6 (4:3-3)

## **DNTA 1453 Dental Assisting Applications**

This course covers dental assisting techniques with emphasis on four-handed dentistry and utilization of tray setups for general practice and specialty procedures. Prerequisite: Reading level 6 (4:3-3)

## **DNTA 2267 Practicum - Dental Assisting/ Assistant**

This course is a practical, general workplace training supported by an individualized learning plan developed by the employer, college, and student. Prerequisite: Reading level 6 (2:0-15)

# Diesel Technology

## **DEMR 1229 Preventative Maintenance**

This is an introductory course designed to provide the student with basic knowledge of proper servicing practices. Content includes record keeping and condition of major systems. (2:1-2)

## **DEMR 1301 Shop Safety and Procedures**

This is a study of shop safety, rules, basic shop tools, and test equipment. Prerequisite: Reading level 4 (3:3-0)

## **DEMR 1306 Diesel Engine I**

This is an introduction to the basic principles of diesel engines and systems. Prerequisite: Reading level 4 (3:2-4)

## **DEMR 1317 Basic Brake Systems**

This is an introduction to the basic principles of brake systems of diesel powered equipment, with an emphasis on maintenance, repairs, and troubleshooting. Prerequisite: Reading level 4 (3:2-4)

## **DEMR 1323 Heating, Ventilation, and Air Conditioning (HVAC) Troubleshooting and Repair**

This is an introduction to heating, ventilation, and air conditioning theory, testing, and repair, with an emphasis on refrigerant reclamation, safety procedures, specialized tools, and repairs. Prerequisite: Reading (3:2-4)

## **DEMR 1380 Cooperative Education- Diesel Mechanics**

This course offers career-related activities encountered in the student's area of specialization offered through an individualized agreement

among the college, employer, and student. Under the supervision of the College and the employer, the student combines classroom learning with work experience. This course is designed to substitute for a DEMR three semester hour course in which a student has extensive diesel work experience and in which the student is currently working. The student must have permission from the lead diesel instructor before he/she can enroll in this class. This course can be taken only once for credit. Course includes a lecture component. Prerequisite: 12 credit hours in diesel technology at San Jacinto College (3:1-20)

## **DEMR 1405 Basic Electrical Systems**

This is an introduction to the basic principles of electrical systems of diesel powered equipment with emphasis on starters, alternators, batteries, and regulators. Prerequisite: Reading level 4 (4:3-3)

## **DEMR 1410 Diesel Engine Testing and Repair I**

This is an introduction to testing and repairing diesel engines including related systems and specialized tools. Prerequisite: Reading level 4 (4:3-3)

## **DEMR 1421 Power Train I**

This is an introduction to fundamentals, repair and theory of power trains including clutches, transmissions, drive shafts, and differentials, with an emphasis on inspection and repair. Specific attention will include the Allison V-Drive, HD 740, World Transmission, and the 1000 and 2000 Series Transmissions. Prerequisite: Reading level 4 (4:3-3)

## **DEMR 1423 Heating, Ventilation, and Air Conditioning (HVAC) Troubleshooting and Repair**

This is an introduction to heating, ventilation, and air conditioning theory, testing and repair, with an emphasis on refrigerant reclamation, safety procedures, specialized tools and repairs. Prerequisite: Reading level 4 (4:3-3)

## **DEMR 1449 Diesel Engine II**

This course is an in-depth coverage of disassembly, repair, identification, evaluation, and reassembly of diesel engines. Prerequisite: Reading level 4 (4:3-3)

# Course Descriptions

## **DEMR 1480 Cooperative Education-Diesel Mechanics**

This course offers career-related activities encountered in the student's area of specialization offered through an individualized agreement among the College, employer, and student. Under the supervision of the College and the employer, the student combines classroom learning with work experience. This course is designed to substitute for a DEMR four semester hour course in which a student has extensive diesel work experience and in which the student is currently working. The student must have permission from the lead diesel instructor before he/she can enroll in this class. This course can be taken only once for credit. Course includes a lecture component. Prerequisite: 12 credit hours in diesel technology at San Jacinto College (4:1-25)

## **DEMR 2266 Field Experience-Diesel Mechanics**

This course offers practical and general workplace training supported by an individual learning plan developed by the employer, college, and student. Prerequisite: 15 credit hours in diesel technology at San Jacinto College (2:0-16)

## **DEMR 2334 Advanced Diesel Tune-up and Troubleshooting**

This course includes advanced concepts and skills required for tune-up and troubleshooting procedures of diesel engines, with an emphasis on the science of diagnostics with a common sense approach. Prerequisite: Reading level 4 (3:2-4)

## **DEMR 2412 Diesel Engine Testing and Repair II**

This course is a continuation of Diesel Engine Testing and Repair I. It includes coverage of testing and repairing diesel engines including related systems and specialized tools. Prerequisite: Reading level 4 (4:3-3)

## **DEMR 2432 Electronic Controls**

This course covers advanced skills in diagnostic and programming techniques of electronic control systems. Prerequisite: Reading level 4 (4:3-3)

## **Dietetics**

### **DITA 1400 Dietary Manager I**

This preparation for supervisory roles in food service departments emphasizes normal and therapeutic nutrition and food service systems management. Major topics include dietary and meal planning guidelines, sources and functions of nutrients, diet therapy, nutritional assessment and care, food production management and purchasing, and regulatory agencies. Program director approval and concurrent enrollment in FDNS 1168 is required. (4:4-0)

### **DITA 1401 Dietary Manager II**

This course is a continuation of Dietary Manager I which emphasizes food service sanitation and safety, and administrative and personnel management. Major topics include regulatory agencies, computer applications, production management, budgeting and cost control, personnel management, quality assurance, leadership skills, human relations, and communications. Program director approval and concurrent enrollment in FDNS 1169 is required. (4:4-0)

### **FDNS 1168 Practicum - Dietetics/Dietitian (RD)**

This course provides practical, general workplace training supported by an individualized learning plan developed by the employer, College, and student. The plan relates the workplace training and experiences to the student's general and technical course of study. The guided external experiences may be paid or unpaid. Program director approval and concurrent enrollment in DITA 1400 is required. (1:0-10)

### **FDNS 1169 Practicum-Dietetics/Dietitian (RD)**

This course provides practical, general workplace training supported by an individualized learning plan developed by employer, the College and the student. The plan relates the workplace training and experiences to the student's general and technical course of study. The guided external experiences may be paid or unpaid. Program director approval and concurrent enrollment in DITA 1401 is required. (1:0-10)

### **FDNS 1309 Nutrition in the Community**

This is a study of the nutritional status of populations at the national, state, and local community levels. It includes socioeconomic cultural and psychological influences on eating behavior, national and state health objectives, marketing strategies for objective implementation, and community nutrition program serving risk-group populations. Basic teaching/counseling methods for the nutrition education of small groups and individual clients/patients is also covered. (3:3-0)

### **HECO 1322 Nutrition and Diet Therapy**

This course focuses on fundamental principles of human nutrition and metabolic processes. Topics include food selection and quality of nutrients in normal and therapeutic diets related to needs of individuals through the life cycle. (3:3-0)

## **IFWA 1318 Nutrition for the Food Service Professional**

This course is an introduction to nutrition including nutrients, digestion and metabolism, menu planning, recipe modification, dietary guidelines and restrictions, diet and disease, and healthy cooking techniques. Students may not receive credit for IFWA 1318 if they have previously earned credit for RSTO 1217. (3:3-0)

## **Drafting Technology**

*(See Engineering Design Graphics)*

## **Drama**

*(see Theatre and Film)*

## **Economics**

### **ECON 1301 Introduction to Economics**

This course is a study of consumer problems of the individual and of the family in the American economy. Areas of study may include: money and credit management, saving and personal investment, estate planning, wills, buying food and clothing, home ownership or rental, transportation, insurance, taxes and consumer protection. It is designed to expose non-business majors to a broad range of economic issues and policies. It may not be taken for credit toward any degree plan for Business Administration, Accounting, Finance, Economics. Prerequisites: Reading level 6, Writing level 6 and Math level 6 (3:3-0)

### **ECON 2301 Principles of Macroeconomics**

This course covers an analysis of the economy as a whole including measurement and determination of national income, inflation, and unemployment. Other topics include international trade, economic growth, business cycles, fiscal policy, and monetary policy. Prerequisites: Reading level 7, Writing level 7 and Math level 7 (3:3-0)

### **ECON 2302 Principles of Microeconomics**

This is survey of the concepts of price determination and resource allocations in a market economy, including the economics of consumption, production and factor income, and the relationships of money and government to the market. Prerequisites: Reading level 7, Writing level 7, Math level 7 (3:3-0)

## ECON 2311 Economic Geography

This course is an analytical study of the historical development of economic distribution as it relates to social, cultural, political, and physical factors. It includes critical inquiry into the reasons for location of various types of economic activity, production, and marketing. It also includes critical inquiry into markets and people across time and spatial dimensions and the geographical influence on poverty, economic growth, and sustainability. Prerequisites: ECON 2301 and ECON 2302 or approval of department chair. (3:3-0)

## Education

### EDUC 1300 Learning Framework

The purpose of EDUC 1300/PSYC 1300 is to enable you to develop effective academic behaviors for college success. The course includes a balance between the research and theory in the psychology of learning, cognition, and motivation and how to apply what you learn to becoming successful in a college setting. You will understand the factors that affect learning and how to apply what you learn to the development of successful learning strategies. You will use assessment instruments, such as learning inventories, to help you identify your own strengths and weaknesses as a strategic learner. You are ultimately expected to integrate and apply the learning skills discussed across your own academic courses and program and become an effective and efficient learner. As you develop these skills, you should be able to continually draw from the theoretical models and apply this to your courses and to your life. Prerequisites: Reading level 7, Writing level 7 (3:3-0)

### EDUC 1301 Introduction to the Teaching Profession

This is an enriched, integrated pre-service course and content experience that (1) provides active recruitment and institutional support of students interested in a teaching career, especially in high need fields; (2) provides students with opportunities to participate in early field observations at all levels of P-12 schools with varied and diverse student populations; (3) provides students with support from College and school faculty, preferably in small cohort groups, for the purpose of introduction to and analysis of the culture of schooling and classrooms; (4) is aligned as applicable with State Board for Educator Certification Pedagogy and Professional Responsibilities standards; (5) includes a 30 contact hour lab component, 15 hours of which will consist of in-class activities and videos interwoven with lectures, and 15 hours of which must be in P-12 schools. Prerequisites: Reading level 6 and Writing level 6 (3:3-1)

## EDUC 2301 Introduction to Special Populations

This course provides an overview of schooling and classrooms from the perspectives of language, gender, socioeconomic status, ethnic and academic diversity, and equity with an emphasis on factors that facilitate learning. Students will be provided with opportunities to participate in early field observations of P-12 special populations. The course will be aligned as applicable with State Board for Educator Certification Pedagogy and Professional Responsibilities standards. Students will complete 16 hours of field experience with P-12 special populations. Prerequisites: Reading level 6 and Writing level 6 (3:3-1)

## Electrical Technology

### CETT 1325 Digital Fundamentals

This entry level course in digital electronics covers number systems, binary mathematics, digital codes, logic gates, Boolean algebra, Karnaugh maps, and combinational logic, with an emphasis on circuit logic analysis and troubleshooting digital circuits. (3:2-2)

### ELMT 2351 Power Generation Fundamentals

This is a study of electrical power production including identification and function of power plant equipment. Topics include the introduction of power plant operations to include basic power plant cycles, basic power plant systems, boilers, turbines, generators, field devices and instrumentation, control and electrical systems. (3:3-1)

### ELPT 1215 Electrical Calculations I

This is an introduction to mathematical applications utilized to solve problems in the electrical field. Topics include fractions, decimals, percentages, simple equations, ratio and proportion, unit conversions, and applied geometry. Electrical calculations to solve DC and AC electrical circuits are included. (2:2-0)

### ELPT 1311 Basic Electrical Theory

This course covers the basic theory and practice of electrical circuits. It includes calculations as applied to alternating and direct current, and covers electrical terminology, circuit analysis and mathematical formulas as applied to direct and alternating current circuits. (3:2-2)

## ELPT 1325 National Electric Code I

This is an introductory study of the National Electric Code (NEC) for those employed in the field requiring knowledge of the Code. Emphasis will be on wiring design, protection, methods, and materials; and equipment for general use, and basic calculations. (3:3-0)

### ELPT 1345 Commercial Wiring

This course provides instructions in commercial wiring methods. It includes overcurrent protection, raceway panel board installation, proper grounding techniques, and associated safety procedures. The National Electrical Code (NEC) is used to size branch circuits, feeders, service equipment, outlet and junction boxes, and conduit; and installation of lighting and utilization of equipment. Students gain experience in safe workplace practices, the proper use of hand tools and ladders, interpreting blueprints and specifications, bending and installation of conduit, installation of armored cable, and wiring of devices, load centers and service equipment. (3:2-2)

### ELPT 1351 Electrical Machines

This is a study of direct current (DC) motors, single-phase and polyphase alternating current (AC) motors, generators, and alternators. Emphasis will be on construction, characteristics, efficiencies, starting, and speed control. Prerequisite: ELPT 1311 (3:2-2)

### ELPT 1355 Electronic Applications

This course is a study of electronic principles and the use of electronic devices. Electronic devices include diodes, transistors, and rectifiers. Also included are zener diodes, light emitting diodes, silicon controlled rectifiers (SCRs), diacs, triacs, and supplies. Prerequisite: ELPT 1311 (3:2-2)

### ELPT 1357 Industrial Wiring

This course covers wiring methods used for industrial installations. It includes motor circuits, raceway and bus way installations, proper grounding techniques, and associated safety procedures. (3:2-2)

### ELPT 1429 Residential Wiring

This is a study of wiring methods for single family and multi-family dwellings that includes load calculations, service entrance sizing, proper grounding techniques, and associated safety procedures. (4:3-3)

# Course **Descriptions**

## **ELPT 1440 Master Electrician Exam Review I**

This is an introductory study of electrical theory, code calculations, and interpretations applicable to becoming a master electrician. It emphasizes residential, commercial, and industrial installations using the current edition of the National Electrical Code (NEC) and local ordinances. Prerequisite or co-requisite: ELPT 2325 or approval of department chair (4:4-0)

## **ELPT 1441 Motor Control**

This is study of operating principles dealing with solid-state and conventional controls along with their practical applications. It includes braking, jogging, plugging, safety wiring, ladder diagrams, relay logic, and timers. Prerequisite: ELPT 1311 or approval of department chair (4:3-3)

## **ELPT 2215 Electrical Calculations II**

This is a further study of mathematical applications used to solve problems in the electrical field. The course includes fractions, decimals, ratio and proportion, applied geometry, and utilization of right triangles to calculate electrical values. It also includes power factor correction, fault currents, neutral currents, conductor ampacity, and other advanced calculations. Prerequisite: ELPT 1215 or approval of department chair (2:2-0)

## **ELPT 2301 Journeyman Electrician Exam Review**

This course provides preparation for journeyman electricians with emphasis on calculations and the National Electrical Code (NEC). Special attention is directed toward test taking skills and practice exams as they apply to the local area journeyman exams. Prerequisite: ELPT 2325 or approval of department chair (3:3-0)

## **ELPT 2305 Transformers and Motors**

This course focuses on the operation of single- and three-phase motors and transformers. It includes transformer banking, power factor correction, and protective devices. Also included are lessons on three-phase power concepts, transformer and motor connections, transformer and motor metering, and transformer and motor troubleshooting theory. Prerequisite: ELPT 1311 or approval of the department chair (3:3-1)

## **ELPT 2319 Programmable Logic Controllers I**

This course covers the fundamental concepts of programmable logic controllers, principles of operation, and numbering systems as applied to electrical controls. It includes history, terminology, typical applications, hardware and software, and incorporates lab and project activities that address operating, monitoring programming, troubleshooting, and repairs of PLC controlled lab trainers as well as actual industrial equipment. (3:2-2)

## **ELPT 2325 National Electrical Code II**

This course includes in-depth coverage of the National Electrical Code (NEC) for those employed in fields requiring knowledge of the Code, with an emphasis on wiring protection and methods, special conditions, and advanced calculations. Prerequisite: ELPT 1325 or department chair approval (3:3-0)

## **ELPT 2337 Electrical Planning and Estimating**

This course covers planning and estimating for residential, commercial and industrial wiring systems. Statistical procedures of various methods of estimating are introduced along with a variety of electrical techniques. Prerequisite: ELPT 2325 or approval of department chair (3:2-2)

## **ELPT 2339 Electrical Power Distribution**

This is a study of design, operation, and technical details of modern power distribution systems including generating equipment, transmission lines, plant distribution, and protective devices. Includes calculations of fault current, system load analysis, rates, and power economics. Prerequisites: ELPT 1311, ELPT 2305 (3:3-1)

## **ELPT 2343 Electrical System Design**

This is a course in electrical design of commercial and/or industrial projects, including building layout, types of equipment, placement, sizing of electrical equipment, and all electrical calculations according to the requirements of the National Electrical Code (NEC). Prerequisite: ELPT 2325 or approval of department chair (3:3-0)

## **ELPT 2347 Electrical Testing and Maintenance**

This course covers proper and safe use of electrical power equipment test devices and the interpretation of test results. Includes protective relay testing and calibration, direct current (DC) testing, insulation power factor testing, and medium voltage switchgear. Prerequisites: ELPT 1311, CETT 1325 (3:2-2)

## **ELPT 2364 Practicum-Electrical and Power Transmission Installation/Installer, General**

This course provides practical, general workplace training supported by an individualized learning plan developed by the employer, College, and student. The plan relates the workplace training and experiences to the student's general and technical course of study. The guided external experiences may be paid or unpaid. The course may be repeated if topics and learning outcomes vary. Prerequisite: Approval of department chair (3:0-21)

## **ELPT 2449 Industrial Automation**

This is an advanced study of electrical control systems, applications, and interfacing utilized in industrial automation. Ladder logic diagramming and programmable logic controllers are covered as they apply to electrical controls. Prerequisite: ELPT 1441 (4:3-3)

## **ELTN 1343 Electrical Troubleshooting**

This course covers maintenance, operation, troubleshooting, and repair of circuits of various residential, commercial, and industrial electrical systems. Prerequisite: ELPT 2347 (3:2-2)

## **ENER 1330 Basic Mechanical Skills for Energy**

This course covers basic mechanical skills using hand and power tools in an industrial environment. Topics include tool use and maintenance, lubrication, measuring, threads and fasteners, bench works, basic mechanical drawings, and basic shop calculations (English and metric). Also, addresses rigging procedures to include chain falls, jacks, cable, fulcrum, port-a-power, and come-alongs. (3:2-2)

## **ENER 1350 Overview of Energy Industry**

This course is an introduction to the major sectors of the energy industry including fossil fuels, alternative energy systems, power generation facilities, and electrical transmission. It includes a comparison of energy industry careers. (3:3-0)

# **Electronics Technology**

## **CETT 1303 DC Circuits**

This is a study of the fundamentals of direct current including Ohm's law, Kirchoff's laws, and circuit analysis techniques. Emphasis is on circuit analysis of resistive networks and DC measurements. (3:2-2)



## **CETT 1305 AC Circuits**

This is a study of the fundamentals of alternating current, including series and parallel AC circuits, phasors, capacitive and inductive networks, transformers, and resonance. Prerequisite: CETT 1303 or department chair approval (3:2-2)

## **CETT 1325 Digital Fundamentals**

This entry level course in digital electronics covers number systems, binary mathematics, digital codes, logic gates, Boolean algebra, Karnaugh maps, and combinational logic, with an emphasis on circuit logic analysis and troubleshooting digital circuits. (3:2-2)

## **CETT 1329 Solid State Devices**

This course is a study of diodes, transistor characteristics and other semiconductor devices, including analysis of static and dynamic characteristics, biasing techniques, and thermal considerations. (3:2-2)

## **CETT 1345 Microprocessor**

This introductory course in microprocessor software and hardware focuses on architecture, timing sequence operation, and programming. It also reviews appropriate software diagnostic language and tools. Prerequisite: CETT 1325 or department chair approval (3:2-2)

## **CETT 1349 Digital Systems**

This course in electronics covers digital systems. Emphasis is on application and troubleshooting digital systems using counters, registers, code converters, multiplexes, analog-to-digital-to-analog circuits, and large-scale integrated circuits. Prerequisite: CETT 1325 or department chair approval (3:2-2)

## **CETT 1357 Linear Integrated Circuits**

This is a study of the characteristics, operations, stabilization, testing, and feedback techniques of linear integrated circuits. It focuses on computation, measurements, instrumentation, and active filtering. Prerequisite: CETT 1329 or department chair approval (3:2-2)

## **CETT 2449 Research and Project Design**

This course focuses on the principles of electrical/electronics design, encompassing schematics wiring diagrams, materials lists, operating characteristics, completion schedules, and cost estimates. (4:3-3)

## **CPMT 1303 Introduction to Computer Technology**

This fundamental computer procedures, hardware, and software. Emphasis is on terminology, acronyms, and hands-on activities. (3:2-2)

## **CPMT 1345 Computer Systems**

### **Maintenance**

Students will develop skill in the use of test equipment and maintenance aids through examination of the functions of components within a computer system. Prerequisite: CPMT 1303, ITSC 1305 or department chair approval. (3:2-2)

## **CPMT 1349 Computer Networking Technology**

This beginning course in computer networks focuses on networking fundamentals, terminology, hardware, software, and network architecture. It includes study of local/wide area networking concepts and networking installations and operations. Prerequisites: CPMT 1345, ITSC 1325 or department chair approval (3:2-2)

## **CPMT 2333 Computer Integration**

This is an advanced course in integration of hardware, software, and applications. A key focus is customization of computer systems for specific applications in engineering, multimedia, or data acquisition. Prerequisite: CPMT 1345, ITSC 1325 or department chair approval (3:2-2)

## **CPMT 2345 Computer System Troubleshooting**

This course focuses on principles and practices involved in computer system troubleshooting techniques and repair procedures, including advanced diagnostic test programs and the use of specialized test equipment. Prerequisites: CPMT 1345, ITSC 1325 or department chair approval. (3:2-2)

## **CPMT 2349 Advanced Computer Networking**

This is an in-depth study of network technology, with emphasis on network operating systems, network connectivity, hardware, and software. It helps students gain mastery of implementation, troubleshooting, and maintenance of LAN and/or WAN network environments. Prerequisite: CPMT 1349 or ITCC 1404 (3:2-2)

## **EECT 1307 Convergence Technologies**

This course is a study of telecommunications convergence technologies including telephone, LAN, WAN, wireless, voice, video, and Internet protocol. Prerequisite: Reading level 4 (3:2-2)

## **EECT 1340 Telecommunications Transmission Media**

This course introduces the fundamentals of telecommunications media, including installation, maintenance, and troubleshooting. Topics address media characteristics and connectorization. (3:2-2)

## **EECT 2367 Practicum, (Field Experience)**

### **Electronic Technology/Technician**

This course offers practical general training and experience in the workplace. The College, with the employer, develops an individualized plan for the student. The plan relates the workplace training and experiences to the student's general and technical course of study. The guided external experiences may be paid or unpaid. This course may be repeated if topics and learning outcomes vary. Prerequisite: CPMT 1345 or department chair approval (3:0-21)

## **EECT 2433 Telephone Systems**

This is a study of installation and maintenance of systems including telephone sets, public switched networks, local exchanges, networks, two- and four-wire systems. Topics include tip and ringing requirements and digital transmission techniques. (4:4-0)

## **EECT 2439 Communications Circuits**

This is a study of communications systems with emphasis on amplitude modulation, frequency modulation, phase modulation, and digital pulse modulation. There is discussion of several types of modulators, demodulators, receivers, transmitters, and transceivers. Prerequisite: CETT 1357 or department chair approval (4:3-3)

## **ELMT 1305 Basic Fluid Power**

This is a basic fluid power course covering pneumatic and hydraulic systems, fluid power symbols, operating theory, components, and basic electrical and manual controls. Prerequisite: Reading level 4 (3:2-2)

## **ELMT 2333 Industrial Electronics**

This is a study of devices, circuits, and systems primarily used in automatic manufacturing and/or process control, including computer controls and interfacing between mechanical, electrical, electronic, and computer equipment. It also presents programming schemes. Prerequisite: CETT 1357 or department chair approval (3:2-4)

## **ELMT 2335 Certified Electronics Technician Training**

This course is a review of electronics concepts and principles in preparation for sitting for a certification examination administered by an outside organization or agency. Prerequisite: Reading level 4 (3:2-2)

## **ELMT 2341 Electromechanical Systems**

This course covers application of electromechanical systems and emphasizes programmable control devices and solid state systems. Prerequisite: Reading level 4 (3:2-2)

# Course **Descriptions**

## **FCEL 1405 Fuel Cell and Alter/Renew Energy**

This course covers types and applications of alternative/renewable energy sources and emphasizes fuel cell applications and processes, reformation of fossil fuels, heat transfer, chemical reaction, power conditioning, combined heat and power, and distributed generation systems. Prerequisites or co-requisites: CETT 1303, and Reading level 4 (4:3-3)

## **RBTC 1355 Sensors and Automation**

This course is a study of the basic principles of industrial sensors for automated systems with an emphasis on the operation and application of position, rate, proximity, opto-electronics, ranging, and pressure switches. Prerequisite: Reading level 4 (3:2-2)

## **Emergency Medical Technology**

### **EMSP 1160 Clinical-Emergency Medical Technician-Basic**

This is a health-related work-based learning experience that enables the student to apply specialized occupational theory, skills, and concepts. Direct supervision is provided by the clinical professional. Specific detailed learning objectives are developed for the course. Continuous enrollment may be required until these are met. Prerequisites: EMSP 1501, 2238, or department chair approval. Orientation is required prior to the start of the course. 16 hours clinical. 64 field hours.(1:0-5)

### **EMSP 1260 Clinical-Emergency Medical Technology- Intermediate**

This is a health-related work-based learning experience that enables the student to apply specialized occupational theory, skills, and concepts. Direct supervision is provided by a clinical professional. Specific detailed learning objectives are developed for the course. Continuous enrollment may be required until these objectives are met. Prerequisites: EMSP 1338, 1355, 1356 or department chair approval. Orientation is required prior to the start of the course. 64 hours clinical, 64 field hours. (2:0-8)

### **EMSP 1338 Introduction to Advanced Practice**

This is an exploration of the foundations necessary for mastery of the advanced topics of clinical practice out of the hospital. The curriculum is based on Department of Transportation National Standard Curriculum. The student must meet the expected outcomes and terminal objectives of the class. Continuous enrollment may be required until these are met. Prerequisites or co-requisites: EMSP 1160, EMSP 1501 or department chair approval. Reading level 7, Writing level 7 and Math level 7. Thirty-two lecture and 32 laboratory hours. (3:2-2)

### **EMSP 1355 Trauma Management**

This is a detailed study of the knowledge and skills necessary to reach competence in the assessment and management of patients with traumatic injuries. The curriculum is based on Department of Transportation National Standard Curriculum. Students must meet the expected outcomes and terminal objectives of the class. Continuous enrollment may be required until these are met. Prerequisites or co-requisites: EMSP 1338, EMSP 1356 or department chair approval. Reading level 7, Writing level 7, Math level 7. Thirty-two lecture and 32 laboratory hours, including international trauma life support - advanced course. (3:2-2)

### **EMSP 1356 Patient Assessment and Airway Management**

This is a detailed study of the knowledge and skills required to reach competence in performing patient assessments and airway management. The curriculum is based on Department of Transportation National Standard Curriculum. Students must meet the expected outcomes and terminal objectives of the class. Continuous enrollment may be required until these are met. Prerequisites or co-requisites: EMSP 1338 and EMSP 1355 or department chair approval. Reading level 7, Writing level 7, and Math level 7. Thirty-two lecture and 32 laboratory hours. (3:2-2)

### **EMSP 1371 Anatomy and Physiology for Emergency Care**

This course is an introduction into normal anatomy and physiology of the human body with a particular emphasis and clinical correlation and application to emergency care. Included is an introduction to the pathophysiology of common injuries and illnesses found in the emergency care setting. NOTE: Completion of BOTH BIOL 2401 AND BIOL 2402 are acceptable substitutes for EMSP 1371. Prerequisites: Reading level 7, Writing level 7, and Math level 4. Forty-eight lecture hours. (3:3-0)

### **EMSP 1491 Special Topics in EMS**

This course includes topics that address recently identified current events, skills, knowledge, and/or attitudes and behaviors pertinent to the technology or occupation and relevant to the professional development of the student. Prerequisites: Reading level 7, Writing level 7, Math level 7 or department chair approval. Forty-eight lecture hours and 48 lab hours. (4:3-3)

### **EMSP 1501 Emergency Medical Technician - Basic**

This course provides the preparation for certification as an Emergency Medical Technician (EMT) This is an introduction to the level of Emergency Medical Technician (EMT-B), includes all the skills necessary to provide emergency medical care at a basic life support level with an ambulance service or other specialized services. The curriculum is based on National Emergency Medical Services Educational Standards. Students must meet the expected outcomes and terminal objectives of the class. Continuous enrollment may be required until these are met. Prerequisites: Reading level 7, Writing level 7, Math level 4. Sixty-four lecture and 64 laboratory hours. (5:4-4)

### **EMSP 2160 Clinical EMS Supervision**

This course is a health-related work-based learning experience that enables the student to apply specialized occupational theory, skills, and concepts. Direct supervision is provided by the clinical professional. Specific detailed learning objectives are developed for the course. Continuous enrollment may be required until these are met. Prerequisites: EMSP 2359 or department chair approval. Sixty-four field hours. (1:0-4)

### **EMSP 2161 Clinical-EMT-Paramedic I**

This is a health related work-based learning experience that enables the student to apply specialized occupational theory, skills and concepts. Direct supervision is provided by the clinical professional. Specific detailed learning objectives are developed for the course. Continuous enrollment may be required until these are met. Prerequisites: EMSP 2348, 2444 or department chair approval. Orientation is required prior to the start of the course. Sixty-four hours clinical. (1:0-4)

## EMSP 2162 Clinical-EMT-Paramedic II

This is a health related work-based learning experience that enables the student to apply specialized occupational theory, skills, and concepts. Direct supervision is provided by the clinical professional. Specific detailed learning objectives are developed for the course. Continuous enrollment may be required until these are met. Prerequisites: EMSP 2330, 2434 or department chair approval. Orientation is required prior to the start of the course. Eighty hours of clinically related experience. (1:0-5)

## EMSP 2168 Practicum/Field Experience- Emergency Medical Technician- Paramedic

This is a practical, general workplace training supported by an individualized learning plan developed by the employer, the College, and student. Direct supervision is provided by a health care professional. Practical/field experiences are unpaid external learning experiences. Specific detailed learning objectives are developed for the course. Continuous enrollment may be required until these are met. Prerequisite: EMSP 2243 or department chair approval. Orientation is required prior to the start of the course. One hundred-forty four field hours. (1:0-9)

## EMSP 2238 EMS Operations

This course is a detailed study of the knowledge and skills necessary to reach competence to safely manage the scene of an emergency. Curriculum is based on the National Emergency Medical Services Educational Standards. Practical field exercises will be performed, and some may require weekend participation. The student must meet the expected outcomes and terminal objectives of the class. Continuous enrollment may be required until these are met. Prerequisites: Department chair approval. Reading level 7, Writing level 7, and Math level 4. Thirty-two lecture hours and 16 laboratory hours. (2:2-1)

## EMSP 2243 Assessment Based Management

This is one of the capstone courses of the EMSP program designed to provide for teaching and evaluating comprehensive assessment-based patient care management. At the completion of the course, students will be able to integrate pathophysiological principles and assessment findings to formulate a field impression and implement a treatment plan for patients with common complaints. Students must meet the expected outcomes and terminal objectives of the class. Continuous enrollment may be required until these are met. Prerequisites or co-requisites: EMSP 2168, EMSP 2338 or department chair approval. Reading level 6, Writing level 6 and Math level 6, 24 hours lecture and 40 laboratory hours (2:0-4)

## EMSP 2330 Special Populations

This is a detailed study of the knowledge and skills necessary to access and manage ill or injured patients in diverse populations to include neonatology, pediatrics, geriatrics, and other related topics. A detailed study of the knowledge and skills necessary to reach competence in the assessment and management of ill or injured patients in non-traditional populations. The curriculum is based on National Emergency Medical Services Educational Standards. Students must meet the expected outcomes and terminal objectives of the class. Continuous enrollment may be required until these are met. Prerequisites: EMSP 2348, 2434, and 2444 or department chair approval. Reading level 7, Writing level 7, and Math level 7. Thirty-two lecture and 48 laboratory hours, including Pediatric Advanced Life Support course. (3:2-3)

## EMSP 2348 Emergency Pharmacology

This is a course covering utilization of knowledge of pharmacological concepts to demonstrate safe administration of medications in emergency settings. The course is designed to compliment Cardiology, Special Populations, and Medical Emergencies courses. The curriculum is based on the National Emergency Medical Services Educational Standards. Students must meet the expected outcomes and terminal objectives of the class. Continuous enrollment may be required until these are met. Prerequisites: EMSP 1338, 1355, 1356 or department chair approval. Reading level 7, Writing level 7, and Math level 7. Forty-eight lecture hours (3:3-0)

## EMSP 2359 EMS Supervision/ Management

This course covers instruction, literary review, group discussion, and case study on topics pertinent to the emergency medical service (EMS) field supervisor or manager. Identification and interpretation of laws and regulations affecting EMS operations; demonstration of principles of leadership and supervision; discussion and application of strategies used in financial management; explanation and exhibition of principles of personnel management; and development of strategies for evaluating and improving EMS operations. Prerequisites: EMSP 2243 and 2168 or department chair approval. Reading level 7, Writing level 7, and Math level 7. Forth-eight lecture hours. (3:3-0)

## EMSP 2434 Medical Emergencies

This is a detailed study of the knowledge and skills necessary to reach competence in the assessment and management of patients with medical emergencies. The curriculum is based on the Department of Transportation National Standard Curriculum. Students must meet the expected outcomes and terminal objectives of the class. Continuous enrollment may be required until these are met. Prerequisites: EMSP 2348, 2444, and 2330 or department chair approval. Reading level 7, Writing level 7, Math level 7. Sixty-four lecture and 16 laboratory hours (4:4-1)

## EMSP 2444 Cardiology

This course is a detailed study of the knowledge and skills necessary to reach competence in the assessment and management of patients with cardiac emergencies. The curriculum is based on Department of Transportation National Standard Curriculum. Students must meet the expected outcomes and terminal objectives of the class. Continuous enrollment may be required until these are met. Prerequisites: EMSP 2348 or department chair approval. Reading level 7, Writing level 7, and Math level 7. Forty-eight lecture and 64 laboratory hours, including Advanced Cardiovascular Life Support course. (4:3-4)

# Engineering

## ENGR 1201 Introduction to Engineering

This is an introduction to the engineering profession with emphasis on technical communication and team-based engineering design. Note: Some mechanical engineering programs will accept the course ENGR 1201 for transfer credit and as applicable to the engineering major, while others will accept the course for transfer credit only. The student is advised to check with the school to which he or she wants to transfer for specific applicability of this course to the engineering major. Prerequisite: MATH 1314 (2:2-0)

## ENGR 2301 Engineering Mechanics I - Statics

This course is a study of basic theory of engineering mechanics, using calculus, involving the description of forces, moments, and couples acting on stationary engineering structures; equilibrium in two and three dimensions; free-body diagrams; friction; centroids; centers of gravity; and moments of inertia. Prerequisite: PHYS 2425. Co-requisite: MATH 2414 (3:3-0)

# Course **Descriptions**

## **ENGR 2302 Engineering Mechanics II - Dynamics**

This course is a study of basic theory of engineering mechanics, using calculus, involving the motion of particles, rigid bodies, and systems of particles; Newton's Laws; work and energy relationships; principles of impulse and momentum; application of kinetics and kinematics to the solution of engineering problems. Prerequisite: ENGR 2301 (3:3-0)

## **ENGR 2304 Programming for Engineers**

This is an introduction to computer programming using the FORTRAN77 language for the solution of mathematical and engineering problems. Students will learn to create and compile programs using IBM-compatible personal computers. Programming projects will include numerical approximation of functions, numerical integration, solution of linear systems, and curve-fitting. Prerequisite: MATH 2413 or approval by department chair (3:3-0)

## **Engineering Design Graphics**

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### **ARCE 1421 Architectural Illustration**

This course focuses on architectural drawing and sketching emphasizing freehand drawing, perspectives, delineation in various media, and development of students' graphical expression including an introduction to various reproduction methods. (4:3-3)

### **ARCE 1452 Structural Drafting**

This course is a study of structural systems including concrete foundations and frames, wood framing and trusses, and structural steel framing systems, including detailing of concrete, wood, and steel to meet industry standards of The American Institute of Steel Construction and The American Concrete Institute. Prerequisites: DFTG 1405 and DFTG 1409 or department chair approval (4:3-3)

### **ARCE 2444 Statics and Strength of Materials**

This course focuses on internal effects of forces acting upon elastic bodies and the resulting changes in form and dimensions, including stress, shear, bending moments, and simple beam design. Prerequisite: Math 1333 or department chair approval (4:4-0)

## **ARTV 1402 Introduction to Technical Animation and Rendering**

Basic study of technical computer models and animation. Includes basic animation principles, model creation, light sources, camera positioning, rendering, importing, and modification of external files. (4:3-3)

## **ARTV 1440 Intermediate Technical Animation and Rendering**

This course provides a basic study of technical computer models and animation. Prerequisite: ARTV 1402 (4:3-3)

## **DFTG 1405 Technical Drafting**

This is an introduction to the principles of drafting to include terminology and fundamentals, including size and shape descriptions, projection methods, geometric construction, sections, auxiliary views and reproduction processes. (4:3-3)

## **DFTG 1409 Basic Computer-Aided Drafting**

This course is an introduction to computer-aided drafting with an emphasis on setup, creating and modifying geometry, storing and retrieving predefined shapes; placing, rotating, and scaling objects, adding text and dimensions, using layers, coordinate systems, and plot/print to scale. (4:3-3)

## **DFTG 1410 Specialized Basic Computer Aided Drafting (CAD)**

This is a supplemental course to Basic Computer-Aided Drafting using an alternative computer-aided drafting (CAD) software to create detail and working drawings. (4:3-3)

## **DFTG 1413 Drafting for Specific Occupations**

This is a discussion of theory and practice with drafting methods and the terminology required for non-drafting majors to prepare working drawings in their occupational fields. (4:3-3)

## **DFTG 1417 Architectural Drafting-Residential**

This course focuses on architectural drafting procedures, practices, terms, and symbols, including preparation of detailed working drawings for residential structures with emphasis on light frame construction methods. Prerequisites: DFTG 1405 or DFTG 1413, and DFTG 1409 or department chair approval (4:3-3)

## **DFTG 1445 Parametric Modeling and Design**

This course offers training with a parametric-based software for 3D design and drafting. (4:3-3)

## **DFTG 2386 Internship-Drafting and Design Technology/Technician**

This is a work-based learning experience that enables the student to apply specialized occupational theory, skills and concepts. A learning plan is developed by the College and the employer. An internship may be either paid or unpaid. Students will have one orientation class with the instructor at the start of the semester. The job description for the worksite must relate to the general curriculum of the engineering design graphics department. Department chair approval required. NOTE: 16 hours of engineering design graphics courses from the following group: ARCE 1452, ARTV 1440, DFTG 1417, DFTG 2402, DFTG 2406, DFTG 2407, DFTG 2408, DFTG 2421, DFTG 2423, DFTG 2428, DFTG 2445, DFTG 2458; eight of these credits must be earned at San Jacinto College (3:0-18)

## **DFTG 2402 Machine Drafting**

This course will include a study of production of detail and assembly drawings of machines, threads, gears, utilizing tolerances, limit dimensioning, and surface finishes. Prerequisites: DFTG 1405 and DFTG 1409 or department chair approval (4:3-3)

## **DFTG 2406 Machine Design**

This course covers the theory and practice of design and includes projects in problem solving, including press fit, bolted and welded joints, and transmission components. Prerequisite: DFTG 1409 or department chair approval (4:3-3)

## **DFTG 2407 Electrical Drafting**

This course is a study of area lighting, control systems and power layouts, electrical and safety codes, local factors and distribution requirements. Prerequisites: DFTG 1405 and DFTG 1409 or department chair approval (4:3-3)

## **DFTG 2408 Instrumentation Drafting**

This course will include a study of principles of instrumentation applicable to industrial applications, fundamentals of measurement and control devices, currently used ISA (Instrumentation Society of America) symbology, and basic flow sheet layout and drafting practices. Prerequisites: DFTG 1405 and DFTG 1409 or department chair approval (4:3-3)

## **DFTG 2417 Descriptive Geometry**

This course covers graphical solutions to problems involving points, lines, and planes in space. Prerequisite: DFTG 1405 (4:3-3)

## DFTG 2419 Intermediate Computer-Aided Drafting

This is a continuation of practices and techniques used in basic computer-aided drafting emphasizing advanced dimensioning techniques, the development and use of prototype drawings, construction of pictorial drawings, construction of 3-dimensional drawings, interfacing 2-D and 3-D environments and extracting data. This course uses MicroStation software. Prerequisite: DFTG 1410 or department chair approval (4:3-3)

## DFTG 2421 Topographic Drafting

This course focuses on the plotting of surveyor's field notes, including drawing elevations, contour lines, plan and profiles, and laying out traverses. Prerequisite: DFTG 1405 or DFTG 1409 or department chair approval (4:3-3)

## DFTG 2423 Pipe Drafting

This course is a study of pipe fittings, symbols, specifications and their applications to a piping process system, including the creation of symbols and their usage in flow diagrams, plans, elevations, and isometrics. Prerequisites: DFTG 1405 and DFTG 1409 or department chair approval (4:3-3)

## DFTG 2428 Architectural Drafting-Commercial

This course focuses on architectural drafting procedures, practices, governing codes, terms and symbols including the preparation of detailed working drawings for a commercial building, with emphasis on commercial construction methods. Prerequisites: DFTG 1405 or DFTG 1413, and DFTG 1409 or department chair approval (4:3-3)

## DFTG 2432 Advanced Computer-Aided Drafting

This course covers advanced techniques, including the use of a customized system, and presentation of advanced drawing applications, such as three-dimensional solids modeling and linking graphic entities to external non-graphic data. Prerequisite: DFTG 1409 or department chair approval (4:3-3)

## DFTG 2436 Computer-Aided Drafting Programming

This course covers the use of programming language to enhance CAD software. Prerequisite: DFTG 1409 or department chair approval (4:3-3)

## DFTG 2438 Final Project - Advanced Drafting

This is a drafting course in which students participate in a comprehensive project from conception to conclusion. Department chair approval required. NOTE: 16 credit hours of Engineering Design Graphics courses from the following group: ARCE 1452, ARTV 1440, DFTG 1417, DFTG 2402, DFTG 2406, DFTG 2407, DFTG 2408, DFTG 2421, DFTG 2423, DFTG 2428, DFTG 2445, DFTG 2458); eight of these credits must be earned at San Jacinto College. (4:3-3)

## DFTG 2440 Solid Modeling/Design

This is a computer-aided modeling course that includes development of three-dimensional drawings and models from engineering sketches and orthographic drawings and utilization of three-dimensional models in design work. Prerequisite: DFTG 1409 or department chair approval (4:3-3)

## DFTG 2445 Advanced Pipe Drafting

A continuation of pipe drafting concepts building on basic principles acquired in pipe drafting. Prerequisites: DFTG 2423 or department chair approval (4:3-3)

## DFTG 2447 Advanced Technical Animation and Rendering

This course focuses on advanced 3D modeling, rendering and animation techniques using industry standard software. It emphasizes advanced use of camera settings, lighting, and surface to create detailed environments. Prerequisite: ARTV 1440 or department chair approval (4:3-3)

## DFTG 2458 Advanced Machine Design

This course covers design process skills for the production of a complete design package, which includes jig and fixture design, extrusion dies, and injection mold design. Prerequisite: DFTG 2406 or department chair approval (4:3-3)

## English

(See College Preparatory)

## ENGL 0306 Beginning Writing Skills

This course is designed for systematic study and review of applicable grammatical forms and proper punctuation in a gradual progression from sentence structure to paragraph writing. The course offers opportunities to develop basic writing skills and to enhance critical thinking. The course includes one hour of lab weekly. This course is not applicable to any degree. Prerequisite: Writing level 4. (3:3-1)

## ENGL 0307 Preparation for College English

This course is a comprehensive review of the fundamentals of composition and grammar with emphasis on paragraph writing, beginning theme construction, and mechanical and syntactical correctness. It provides students with opportunities to develop critical reading and writing skills through reading and discussing the works of professional writers. This course is not applicable to any degree. Prerequisite: A grade of C or above in ENGL 0306 or writing score within defined range (3:3-0)

## ENGL 0308 Writing and Grammar: English for Speakers of Other Languages

This course reviews the fundamentals of composition and grammar with emphasis on logical paragraph and essay construction, clear and idiomatic English, appropriate syntactical features, and mechanical correctness. In addition, the course provides for the development of critical reading, thinking, writing, and speaking skills through the analysis and discussion of professional essays. Laboratory sessions provide group and individual practice with a variety of second language problem areas. This course is not applicable to any degree. Prerequisite: A grade of C or above in ENGL 0306 or writing score within defined range (3:3-1)

## ENGL 1111 Creative Writing Workshop

This composition course is designed for students interested in practicing and criticizing artistic expression through writing. The course also provides experience in producing San Jacinto College's literary magazines. Course may be taken a maximum of six times for credit. Prerequisite: Writing level 7 (1:1-0)

## ENGL 1301 Composition I

This course provides an intensive study of and practice in writing processes, from invention and researching to drafting, revising, and editing, both individually and collaboratively. Emphasis is on effective rhetorical choices, including audience, purpose, arrangement, and style. Focus is on writing the academic essay as a vehicle for learning, communicating, and critical analysis. Prerequisites: Reading level 7 and Writing level 7 (3:3-0)

## ENGL 1302 Composition II

This course provides an intensive study of and practice in the strategies and techniques for developing research-based expository and persuasive texts. Emphasis is on effective and ethical rhetorical inquiry, including primary and secondary research methods; critical reading of verbal, visual, and multimedia texts; systematic evaluation, synthesis, and documentation of information sources; and critical thinking about evidence and conclusions. Prerequisite: ENGL 1301 or equivalent (3:3-0)

# Course **Descriptions**

## **ENGL 2307 Creative Writing**

This elective composition course provides an opportunity for students to create imaginative works for pleasure and publication within the supportive atmosphere of a writing workshop. The workshop may emphasize a single genre, such as poetry, fiction, or drama. Alternatively, the workshop may allow individual students to write original compositions in genres of their interest in response to classroom assignments. Students analyze significant contemporary literature, finding models of successful forms and effective technique. In addition, they critique the work of classmates. Literary theory and strategies for publication are discussed. Students are also encouraged to participate as editors of the College literary magazines and to submit their best work for publication. This three-credit-hour course may be taken once for college credit. Students may elect a maximum of six hours of creative writing courses for college credit (English 1111, English 2307, and English 2308). English 2307 may also be taken through Continuing Education as a non-credit course. Prerequisite: Writing level 7 (3:3-0)

## **ENGL 2308 Creating Writing Studies**

This elective composition course provides an opportunity for students to create imaginative works for pleasure and publication within the supportive atmosphere of a writing workshop. The workshop may emphasize a single genre, such as poetry, fiction, or drama. Alternatively, the workshop may allow individual students to specialize on projects longer than those typically covered in ENGL 2307 within such literary areas as personal and narrative essay, poetry, prose fiction or drama. Students analyze significant contemporary literature, finding models of successful forms and effective techniques. Additionally, students critique the work of classmates. Literary theory and strategies for publication are discussed. Students are also encouraged to participate as editors for the college literary magazines and to submit their best work for publication. This three-credit-hour course may be taken once for college credit. Students may elect a maximum of six hours of creative writing courses for college credit (ENGL 1111, ENGL 2307, and ENGL 2308). ENGL 2308 may also be taken through Continuing Education as a non-credit course. Prerequisite: ENGL 1301 (3:3-0)

## **ENGL 2311 Technical Report Writing**

This course applies the principles of composition to actual writing situations in technical areas, stressing correctness and effectiveness in a variety of report forms, including an investigative paper on a technical topic. Prerequisite: ENGL 1301 (3:3-0)

## **ENGL 2322 A Survey of Early British Literature: The Anglo-Saxon Age Through the Neo-Classical Age**

This course offers opportunities for reading and discussing the works of major British writers as well as significant events and persons in cultural history. Students will be asked to complete a variety of writing assignments including essay examinations, short compositions, and investigative papers. Prerequisite: ENGL 1302 (3:3-0)

## **ENGL 2323 A Survey of Later British Literature: The Romantic Age Through the Present Age**

This course offers opportunities for reading and discussing the works of major Romantic, Victorian, and Modern British writers as well as significant events and personalities in the development of cultural history from the late Eighteenth Century to the present. Students will be asked to complete a variety of writing assignments including essay examinations, short compositions, and investigative papers. Prerequisite: ENGL 1302 (3:3-0)

## **ENGL 2327 A Survey of Early American Literature**

This course offers opportunities for discussing and reading works by major American writers from the Puritan Period through the Romantic Period, making an effort to identify those themes and literary forms which are characteristic of the American heritage. Students will be asked to complete a variety of writing assignments including essay examinations, short critical compositions, and investigative papers. Prerequisite: ENGL 1302 (3:3-0)

## **ENGL 2328 A Survey of Later American Literature**

This course offers opportunities for discussing and reading works by major American writers from the Realistic/Naturalistic Period to the present, making an effort to identify those themes and literary forms which are characteristic of the American heritage. Students will be asked to complete a variety of writing assignments including essay examinations, short critical compositions, and investigative papers. Prerequisite: ENGL 1302 (3:3-0)

## **ENGL 2332 A Survey of Early World Literature**

By reading, discussing, and writing about works of selected writers from a number of cultures from ancient times to the eighteenth century, the student will become aware of the diverse ways in which human beings have attempted to understand themselves and their relationship to nature, art, the supernatural, and society. The course is

especially relevant to students majoring in humanities or human studies. Students will be asked to complete a variety of writing assignments including essay examinations, short compositions, and investigative papers. Prerequisite: ENGL 1302 (3:3-0)

## **ENGL 2333 A Survey of Later World Literature**

A continuation of ENGL 2332, this course offers opportunities for the discussion of writers representing many cultures from the Eighteenth Century to the present. This course is especially relevant to students majoring in humanities or human studies. Students will be asked to complete a variety of writing assignments including essay examinations, short compositions, and investigative papers. Prerequisite: ENGL 1302 (3:3-0)

## **ENGL 2341 Literature and Film**

This course covers the study of one or more literary genres including, but not limited to, fiction, drama and film are included in this course. The course offers an analytical approach to both literature and film. Through various methods, students will learn conceptual frameworks and vocabulary for understanding and explaining how films and literature enhance our perception of society and inform our awareness and judgment. The course strives to help students critically approach culture by analyzing literary works. Prerequisite: ENGL 1302 (3:3-0)

## **ENGL 2351 Mexican-American Literature**

This is a survey course of Mexican-American/Chicano literature including fiction, non-fiction, poetry, and drama. Prerequisites: Reading level 7 and Writing level 7 (3:3-0)

## **ENGL 2370 Selected Studies in Literature**

This course offers students opportunities for intensive analysis of literary works that may be unified by theme, period, or subject matter. Students will be asked to complete a variety of writing assignments including essay examinations, short compositions, and investigative papers. The course may be repeated a maximum of two times for transfer credit provided the repeated course covers a different topic. Prerequisite: ENGL 1302 (3:3-0)

## **ENGL 2389 Academic Cooperative in Composition**

This is an instructional program designed to integrate on-campus study with practical hands-on work experience. In conjunction with class seminars, the individual student will set specific goals and objectives in the study of English language and literature. Prerequisite or co-requisite: ENGL 1302, a professor's written recommendation, and a writing sample. Reading level 7, Writing level 7 (3:1-8)

## HUMA 1301 Introduction to the Humanities I

This course is an interdisciplinary, multi-perspective assessment of cultural, political, philosophical, and aesthetic factors critical to the formation of values and historical development of the individual and of society. Generally focusing on works before 1600, this course may investigate imaginative works of literature, philosophy, art, music and other texts that mirror, interpret, and/or inform the relationship between the individual and the society. Instructors may use a thematic approach to the material and/or a linear survey of major ideas. HUMA 1301 and 1302 may be taken in any order. Prerequisite: ENGL 1301 (3:3-0)

## HUMA 1302 Introduction to the Humanities II

This course is an interdisciplinary, multi-perspective assessment of cultural, political, philosophical, and aesthetic factors critical to the formation of values and historical development of the individual and of society. Generally focusing on works after 1600, this course may investigate imaginative works of literature, philosophy, art, music and other texts that mirror, interpret, and/or inform the relationship between the individual and the society. Instructors may use a thematic approach to the material and/or a linear survey of major ideas. HUMA 1301 and 1302 may be taken in any order. Prerequisite: ENGL 1301 (3:3-0)

## English for Speakers of Other Languages

*(See College Preparatory)*

### ESOL 0311 Introductory Listening and Speaking

This course focuses on developing basic social and pre-academic speaking and listening skills which include pronouncing, describing, giving directions, and comprehending oral directions. This course does not apply toward any degree. Prerequisite: standardized test of English language proficiency. (3:3-1)

### ESOL 0312 Intermediate Listening and Speaking

This course is designed for students with some English skills who want to increase their listening, speaking, and writing communication skills. This course does not apply toward any degree. Prerequisite: completion of ESOL 0311 with a grade of C or better or minimum score on standardized test of English language proficiency (3:3-1)

### ESOL 0313 Advanced Listening and Speaking

This course develops public and academic oral language skills through active participation in group activities. Rhetorical skills such as narration and description are practiced. This course does not apply toward any degree. Prerequisite: a grade of C or better in ESOL 0312 or minimum score on standardized test of English language proficiency (3:3-1)

### ESOL 0321 ESOL Introductory Reading

This course is designed for the non-native speaker. It focuses on English language development through reading activities such as comprehension and vocabulary. This course does not apply toward any degree. Prerequisite: standardized test of English language proficiency (3:3-0)

### ESOL 0322 ESOL Intermediate Reading

This course continues language development through reading comprehension, vocabulary building and paragraph organization. This course can be taken with other skill areas of ESOL. This course does not apply toward any degree. Prerequisite: a grade of C or better in ESOL 0321 or minimum score on a standardized test of English language proficiency (3:3-0)

### ESOL 0323 Advanced Reading

This course continues language development through reading comprehension, vocabulary building, and adapting reading rate for different purposes. This course can be taken with other skill areas of ESOL. This course does not apply toward any degree. Prerequisites: a grade of C or better in ESOL 0322 or minimum score on a standardized test of English language proficiency (3:3-0)

### ESOL 0331 Introductory Writing and Grammar

This course helps students learn to comprehend and use the basic structures of English and perform simple writing tasks such as using complete sentences, filling out forms, writing invitations, and communicating through short notes. This course does not apply toward any degree. Prerequisite: standardized test of English language proficiency (3:3-1)

### ESOL 0332 Intermediate Writing and Grammar

This course introduces the development of controlled and guided paragraphs using a variety of organizational structures, logic patterns, and basic grammar. This course does not apply toward any degree. Prerequisite: a grade of C or better in ESOL 0331 or minimum score on standardized test of English language proficiency (3:3-1)

### ESOL 0333 Advanced Writing and Grammar

This course stresses the process of paragraph writing and the characteristics of effective paragraphs. The student will learn how to write controlled essays, to develop and support opinions, and to write introductions and conclusions. This course does not apply toward any degree. Prerequisite: a grade of C or better in ESOL 0332 or minimum score on standardized test of English language proficiency (3:3-1)

### ESOL 0351 Introductory Composition for Non-native Speakers

This course is designed for non-native students who need to master the rhetorical modes for academic and professional English writing and reading situations. This course will introduce them to essays, short stories, and poetry. This course does not apply toward an associate degree. Prerequisite: standardized test of English language proficiency (3:3-0)

### ESOL 0352 Intermediate Composition for Non-native Speakers

This course is designed for non-native speakers who have taken ESOL 0351 and need to master the rhetorical modes for academic and professional English writing and reading situations. This course does not apply toward the associate degree. Prerequisite: completion of ESOL 0351 with a grade of C or better, or minimum score on standardized test of English language proficiency (3:3-0)

### ESOL 0353 ESOL Advanced Composition

This course is designed for non-native speakers who have taken ESOL 0352 and need to master the rhetorical modes for academic and professional English writing and reading situations and learn to recognize the different uses of language. This course does not apply toward the associate degree. Prerequisite: completion of ESOL 0352 with a grade of C or better or minimum score on standardized test of English language proficiency (3:3-0)

## Eye Care Technology

### HPRS 1105 Medical Law/Ethics for Health Professions

This is an introduction to the relationship between legal aspects and ethics associated with the health care field. Emphasis on the ethical and legal responsibilities of health care professionals. (1:1-0)

# Course Descriptions

## **HPRS 1106 Essentials of Medical Terminology**

This course is a study of medical terminology, word origin, structure and application. (1:1-0)

## **HPRS 2200 Pharmacology for Health Professions**

This is a study of drug classifications, actions, therapeutic uses, adverse effects, routes of administration, and calculation of doses. Prerequisites: Reading level 7, Writing level 6, HPRS 1106, 1171; SRGT 1505, 1509, 1471, and 1260. (2:2-0)

## **OPTS 1166 Ophthalmic Practicum I**

This course covers practical general training and experiences in the workplace. The College with the employer develops and documents an individualized plan for the student. The plan relates the workplace training and experiences to the student's general and technical course of study. The guided external experiences may be paid or unpaid. This course may be repeated if topics and learning outcomes vary. (1:0-8)

## **OPTS 1191 Special Topics in Opticianry/Dispensing Optician**

This course covers recently identified current events, skills, knowledges, and/or attitudes and behaviors pertinent to the technology or occupation and relevant to the professional development of the student. This course was designed to be taken twice to improve student proficiency. (1:1-1)

## **OPTS 1266 Practicum**

This course is a practical, general workplace training supported by an individualized learning plan developed by the employer, college, and student. Prerequisites: OPTS 1311, 2441 (2:0-16)

## **OPTS 1311 Visual System**

This is an overview of the ophthalmic field including the anatomy and physiology of the eye, related structures, and the visual system. (3:3-0)

## **OPTS 1315 Basic Contact Lenses**

This is an introduction to contact lens theory and practice. Topics include the history, development, and manufacture of contact lenses; lens materials, designs, fitting, and care techniques; and skill necessary for the accurate measurement of lens parameters. (3:2-3)

## **OPTS 1392 Special Topics in Optical**

This course covers recently identified current events, skills, knowledges, and/or attitudes and behaviors pertinent to the technology or occupation and relevant to the professional development of the student. This course was designed to be taken twice to improve student proficiency. (3:3-1)

## **OPTS 1471 Anatomy and Physiology for Eye Care Technology**

This is an introduction to the normal structures and functions of the human body including the understanding and the relationship of the body structures in maintaining homeostasis as it is related to ophthalmic medical personnel. (4:4-0)

## **OPTS 1501 Ophthalmic Dispensing**

This is an introduction to the basic principles of frame selection, styling, refractive errors, and lens design and to the use of tools and instruments used to measure and make adjustments necessary to properly dispense spectacles. (5:3-6)

## **OPTS 2266 Ophthalmic Practicum II**

This course covers practical, general workplace training supported by an individualized learning plan developed by the employer, College, and student. Prerequisite: OPTS 1166 (2:0-16)

## **OPTS 2350 Ophthalmic Surgical Techniques**

A continuation of Ophthalmic Techniques, this course introduces the student to aseptic and non-aseptic sterilization techniques used in the surgical field and provides knowledge and practice in scrubbing techniques used when assisting during ophthalmic surgical procedures. (3:2-3)

## **OPTS 2366 Practicum**

This course is a practical, general workplace training supported by an individualized learning plan developed by the employer, college, and student. Prerequisite: OPTS 1311, 2441, 1166, 1266, 2445, and 2266 (3:0-24)

## **OPTS 2431 Advanced Ophthalmic Dispensing**

This is an advanced study of the procedures necessary to dispense eyewear. Topics include lens aberrations, magnification, tilt, reflection, absorption and transmission, advanced lens materials, high-powered prescription considerations, and partial vision. Prerequisite: OPTS 1501 (4:2-6)

## **OPTS 2441 Ophthalmic Techniques**

This course covers presentation of information and practical training in the techniques necessary to properly assist the refractionist or eye physician. Topics include visual acuity assessments and performance of various diagnostic tests. (4:2-6)

## **OPTS 2445 Advanced Ophthalmic Techniques**

This is a continuation of Ophthalmic Techniques with an introduction to principles and techniques of various diagnostic evaluations. Topics include refractometry and retinoscopy, ophthalmic photography, applanation tonometry, and advanced clinical assessments. An overview of standardized tools prevalent in the field will be covered. Prerequisite: OPTS 2441 (4:2-6)

## **POFM 1327 Medical Insurance**

This survey of medical insurance includes the life cycle of various claim forms, terminology, litigation, patient relations, and ethical issues. (3:3-0)

# Fire Protection Technology

## **FIRS 1301 Firefighter Certification I**

This is one in a series of courses in basic preparation for a new firefighter. Should be taken in conjunction with Firefighter Certification II, III, IV, V, VI, and VII to satisfy the Texas Commission on Fire Protection (TCFP) curriculum for Basic Structural Fire Suppression, Course #100. \*\*\*THIS COURSE MAY BE OFFERED ONLY BY INSTITUTIONS CERTIFIED TRAINING FACILITY BY THE TEXAS COMMISSION ON FIRE PROTECTION (TCFP)\*\*\* 32 lecture hours, 48 hours of skills development. Firefighter Training Academy. Prerequisite: Reading level 6 (3:2-3)

## **FIRS 1313 Firefighter Certification III**

This is one in a series of courses in basic preparation for a new firefighter. Should be taken in conjunction with Firefighter Certification II, III, IV, V, VI, and VII to satisfy the Texas Commission on Fire Protection (TCFP) curriculum for Basic Structural Fire Suppression, Course #100. \*\*\*THIS COURSE MAY BE OFFERED ONLY BY INSTITUTIONS CERTIFIED TRAINING FACILITY BY THE TEXAS COMMISSION ON FIRE PROTECTION (TCFP)\*\*\* 48 lecture hours, 16 hours of skills development. Firefighter Training Academy. Prerequisite: Reading level 6 (3:3-1)



## **FIRS 1319 Firefighter Certification IV**

This is one in a series of courses in basic preparation for a new firefighter. Should be taken in conjunction with Firefighter Certification II, III, IV, V, VI, and VII to satisfy the Texas Commission on Fire Protection (TCFP) curriculum for Basic Structural Fire Suppression, Course #100. \*\*\*THIS COURSE MAY BE OFFERED ONLY BY INSTITUTIONS CERTIFIED TRAINING FACILITY BY THE TEXAS COMMISSION ON FIRE PROTECTION (TCFP)\*\*\* 32 lecture hours, 32 hours of skills development. Firefighter Training Academy. Prerequisite: Reading level 6 (3:2-2)

## **FIRS 1329 Firefighter Certification VI**

This is one in a series of courses in basic preparation for a new firefighter. Should be taken in conjunction with Firefighter Certification II, III, IV, V, VI, and VII to satisfy the Texas Commission on Fire Protection (TCFP) curriculum for Basic Structural Fire Suppression, Course #100. \*\*\*THIS COURSE MAY BE OFFERED ONLY BY INSTITUTIONS CERTIFIED TRAINING FACILITY BY THE TEXAS COMMISSION ON FIRE PROTECTION (TCFP)\*\*\* 48 lecture hours, 16 hours of skills development. Firefighter Training Academy. Prerequisite: Reading level 6 (3:3-1)

## **FIRS 1407 Firefighter Certification II**

This is one in a series of courses in basic preparation for a new firefighter. Should be taken in conjunction with Firefighter Certification II, III, IV, V, VI, and VII to satisfy the Texas Commission on Fire Protection (TCFP) curriculum for Basic Structural Fire Suppression, Course #100. \*\*\*THIS COURSE MAY BE OFFERED ONLY BY INSTITUTIONS CERTIFIED TRAINING FACILITY BY THE TEXAS COMMISSION ON FIRE PROTECTION (TCFP)\*\*\* 32 lecture hours, 80 hours of skills development. Firefighter Training Academy. Prerequisite: Reading level 6 (4:2-5)

## **FIRS 1423 Firefighter Certification V**

This is one in a series of courses in basic preparation for a new firefighter. Should be taken in conjunction with Firefighter Certification II, III, IV, V, VI, and VII to satisfy the Texas Commission on Fire Protection (TCFP) curriculum for Basic Structural Fire Suppression, Course #100. \*\*\*THIS COURSE MAY BE OFFERED ONLY BY INSTITUTIONS CERTIFIED TRAINING FACILITY BY THE TEXAS COMMISSION ON FIRE PROTECTION (TCFP)\*\*\* 48 lecture hours, 48 hours of skills development. Firefighter Training Academy. Prerequisite: Reading level 6 (3:3-3)

## **FIRS 1433 Firefighter Certification VII**

This is one in a series of courses in basic preparation for a new firefighter. Should be taken in conjunction with Firefighter Certification II, III, IV, V, VI, and VII to satisfy the Texas Commission on Fire Protection (TCFP) curriculum for Basic Structural Fire Suppression, Course #100. \*\*\*THIS COURSE MAY BE OFFERED ONLY BY INSTITUTIONS CERTIFIED TRAINING FACILITY BY THE TEXAS COMMISSION ON FIRE PROTECTION (TCFP)\*\*\* 32 lecture hours, 80 hours of skills development. Firefighter Training Academy. Prerequisite: Reading level 6 (4:2-5)

## **FIRT 1303 Fire and Arson Investigation I**

This is an in-depth study of basic fire and arson investigation practices, with an emphasis on fire behavior principles related to fire cause and origin determination. This includes 48 lecture hours and 16 hours of skills development. (3:3-1)

## **FIRT 1309 Fire Administration I**

This is an introduction to the organization and management of a fire department and the relationship of government agencies to the fire service, with an emphasis on fire service leadership from the perspective of the company officer. It includes 48 lecture hours. (3:3-0)

## **FIRT 1315 Hazardous Materials I**

This is a study of the chemical characteristics and behavior of various materials. Topics include storage, transportation, handling hazardous emergency situations, and the most effective methods of hazard mitigation. It is the equivalent to Hazardous Materials Operations Level Training, and includes 48 lecture hours, and 16 hours of skills development. (3:3-1)

## **FIRT 1319 Firefighter Health and Safety**

This is a study of firefighter occupational safety and health in emergency and non-emergency situations. The student will identify and describe components of a firefighter safety and health program; explain safety practices and procedures related to emergency and non-emergency operations; and outline the components of a firefighter wellness program. It includes 48 lecture hours. (3:3-0)

## **FIRT 1327 Building Construction for the Fire Service**

This course covers the exploration of building construction and design related to fire spread suppression in various structures, and examination of potential hazards resulting from construction practices and materials. The student will identify types of building construction; recognize hazards associated with construction practices; identify fire resistive levels of building materials; and recognize signs of potential structural collapse. It includes 48 lecture hours. (3:3-0)

## **FIRT 1338 Fire Protection Systems**

This is a study of fire detection, alarm, and extinguishing systems and includes 48 lecture hours. (3:3-0)

## **FIRT 1345 Hazardous Materials II**

This is an in-depth study of mitigation practices and techniques to effectively control hazardous materials spills and leaks. It is the equivalent to Hazardous Materials Technician Level Training, and includes 48 lecture hours, and 16 hours of skills development. (3:3-1)

## **FIRT 1349 Fire Administration II**

This is an in-depth study of fire service management as pertaining to budgetary requirements, administration, organization of divisions within the fire service, and relationships between the fire service and outside agencies. It includes 48 lecture hours. Prerequisite: FIRT 1309 (3:3-0)

## **FIRT 1370 Technical Rope Rescue I**

This is an in-depth study of Technical Rope Rescue including extensive skills development. Upon successful completion of this course students should be able to identify, describe, and demonstrate rope rescue and confined space rescue procedures at the Technical Rescuer-Level I level. The content of this course meets and/or exceeds the job performance requirements specified in National Fire Protection Association 1006- Standard for Technical Rescuer Professional Qualifications, 2008 Edition including the specialty areas of rope rescue and confined space rescue. This course may be repeated in order to maintain student skill proficiency. (3:2-3)

## **FIRT 1408 Fire Inspector I**

This course is one in a series of three courses required for Fire Inspector certification. Meets the curriculum requirements of the Texas Commission on Fire Protection (TCFP) for Fire Inspector I. \*\*\*THIS COURSE MAY BE OFFERED ONLY BY INSTITUTIONS CERTIFIED AS A TRAINING FACILITY BY THE TEXAS COMMISSION ON FIRE PROTECTION\*\* (4:3-3)

# Course Descriptions

## FIRT 1440 Fire Inspector II

This course is one in a series of three courses required for Fire Inspector certification. Meets the curriculum requirements of the Texas Commission on Fire Protection (TCFP) for Fire Inspector II and Plan Examiner I. \*\*THIS COURSE MAY BE OFFERED ONLY BY INSTITUTIONS CERTIFIED AS A TRAINING FACILITY BY THE TEXAS COMMISSION ON FIRE PROTECTION\*\* (4:3-3)

## FIRT 2305 Fire Instructor I

This course prepares fire and emergency services personnel to deliver instruction from a prepared lesson plan, including the use of instructional aids and evaluation instruments to meet the Texas Commission on Fire Protection requirements for Fire Instructor I certification. It includes 48 lecture hours (3:3-0)

## FIRT 2309 Firefighting Strategies and Tactics I

This course covers analysis of the nature of fire problems and selection of initial strategies and tactics including an in-depth study of efficient and effective use of manpower and equipment to mitigate the emergency. It includes 48 lecture hours (3:3-0)

## FIRT 2331 Firefighting Strategies and Tactics II

This is a continuation of Firefighting Strategies and Tactics I with an emphasis on use of incident command in large-scale command problems and other specialized fire problems. It includes 48 lecture hours. Prerequisite: FIRT 1311 (3:3-0)

## FIRT 2333 Fire and Arson Investigation II

This is a continuation of Fire and Arson Investigation I. Topics include reports, courtroom demeanor, and expert witnesses. Forty-eight lecture hours. Sixteen hours of skills development. (3:3-1)

## FIRT 2345 Hazardous Materials III

This is a continuation of Hazardous Materials II. Topics include radioactive materials and radiation; poisons and toxicology; cryogenics; oxidizers; corrosives; flammable solids; hazards of Class A fuels, plastics and organic and inorganic peroxides and water reactivity, and polymerization and polymerizing substances. It includes 48 lecture hours and 16 hours of skills development. (3:3-1)

## FIRT 2351 Company Fire Officer

This is a capstone course covering fire ground operations and supervisory practices. It includes performance evaluation of incident commander, safety officer, public information officer, and shift supervisor duties and 48 lecture hours. (3:3-0)

## FIRT 2370 Technical Rope Rescue II

This is an in-depth study of Technical Rope Rescue including extensive skills development. Upon successful completion of this course, students should be able to identify, describe, and demonstrate rope rescue and confined space rescue procedures at the Technical Rescuer-Level I level. The content of this course meets and/or exceeds the job performance requirements specified in National Fire Protection Association 1006-Standard for Technical Rescuer Professional Qualifications, 2008 Edition including the specialty areas of rope rescue and confined space rescue. This course may be repeated in order to maintain student skill proficiency. Prerequisite: FIRT 1370 (3:2-3)

## Foreign Languages

*(See Modern Languages)*

## Geography

### GEOG 1301 Physical Geography

This course includes a study of climate, vegetation, soils, and landforms from a location perspective with an emphasis on map skills. The role of humans in altering their environment is considered, especially the human impact on climate and vegetation. Other topics include the study of latitude and longitude; time zones; earth-sun relationships and the changing seasons; along with severe weather, such as hurricanes and tornadoes. (GEOG 1301 does not satisfy the geography elementary education majors. Check with the Counseling Center.) Prerequisite: Reading level 6 (3:3-0)

### GEOG 1302 Cultural Geography

This course introduces students to the study of where and why people and activities are located on the earth's surface. Geographic concepts include spatial organization of economic, social, political, and perceptual environments in an increasingly interrelated world community. Prerequisite: Reading level 6 (3:3-0)

### GEOG 1303 World Geography

(Required of all elementary education majors)  
This course includes a survey of world regions and the geographical factors that shape them. It includes basic geography concepts; world population trends; regional economic, political, language and religious characteristics; topography, vegetation, and climate of regions; the world food problem; economic development; non-industrial cultures and cultural change; and geopolitical analysis. Prerequisite: Reading level 6 (3:3-0)

## Geology

### GEOL 1401 Earth Sciences I: Introduction to Earth Sciences

This is an introductory course to provide a survey of astronomy, geology, oceanography, and meteorology for non-science majors. Prerequisites: Reading level 7, Writing level 7, Math level 6 (4:3-3)

### GEOL 1403 Physical Geology

This is an introduction to the scope of geology, including the study of Earth's composition, structure, and internal and external processes, such as volcanic activity, earthquakes, tsunamis, and plate tectonics. Prerequisite: Reading level 7 (4:3-3)

### GEOL 1404 Historical Geology

This is the study of Earth, its origin, and the processes and events that shaped it. This course encompasses the relationship between geologic history and evolution of life. Prerequisites: GEOL 1403 and Reading level 7 (4:3-3)

### GEOL 1405 Environmental Geology

This is an overview of the interrelationships between humans and the environment, using regional examples and human land use. Field trip(s) are required. Prerequisites: GEOL 1403 or ENVR 1401, and Reading level 7 (4:3-3)

### GEOL 1447 Meteorology

This is a one-semester survey course in meteorology, intended for both science and non-science majors. The course covers a broad range of topics within the atmospheric sciences at an introductory level and includes laboratory activities. It will provide the student with a general understanding of the Earth's atmosphere and its behavior. Course objectives include being able to identify and explain observed weather phenomena, being able to describe the structure, composition, and dynamics of the atmosphere, being able to describe the reasons our atmosphere is different from atmospheres of other planets and how our atmosphere has changed and can change. This course should provide a deeper appreciation of the forces acting and motions occurring in the atmosphere to produce various weather and climate conditions. Prerequisites: MATH 1314, Reading level 7, Writing level 7, and Math level 9 (4:3-3)

## Government

### GOVT 2301 United States and Texas Politics and Constitutions

This course is an introductory survey of the United States and Texas political systems. Topics include a theoretical study of the discipline of political science, democratic and authoritarian systems, historical and environmental factors, the United States and Texas Constitutions, federalism and local units of government, public opinion, voting behavior, the electoral system, interest groups, and political parties. (GOVT 2301 satisfies the Legislative requirement of a course emphasizing the United States and Texas Constitutions). The college recommends that a student earn a minimum of six hours of history before taking government. Prerequisites: Reading level 7, Writing level 7 and GOVT 2302 (3:3-0)

### GOVT 2302 United States and Texas Government Institutions: Legislative, Executive and Judicial Branches

This course is an introductory survey of United States and Texas political systems. Topics include the executive, legislative, and judicial branches of government at both national and state levels. Other areas of investigation are civil rights, civil liberties, criminal justice, as well as economics, social, regulatory, foreign and defense policy. The College recommends that a student earn a minimum of six hours of history before taking government. Prerequisites: Reading level 7, Writing level 7 and GOVT 2301 (3:3-0)

### GOVT 2304 Introduction to Political Science

This introductory survey of the discipline of political science focuses on the history, scope, and methods of the field, and the substantive topics in the discipline. Prerequisites: Reading level 7 and Writing level 7 (3:3-0)

### GOVT 2305 Federal Government (Federal Constitution and Topics)

This course is an introductory survey of the United States political system. Topics include origin and development of the U.S. Constitution; structure and powers of the national government including the legislative, executive, and judicial branches; federalism; political participation; the national election process; public policy; civil rights and civil liberties. Prerequisites: Reading level 7, Writing level 7 (3:3-0)

### GOVT 2306 Texas Government (Texas Constitution and Topics)

This course is an introductory survey of the Texas political system. Topics include origin and development of the Texas Constitution; structure and powers of state and local government; federalism and inter-governmental relations; political participation; the election process; public policy; and the political culture of Texas. Prerequisites: Reading level 7, Writing level 7 (3:3-0)

### GOVT 2311 Mexican-American Politics

This course is a study of Mexican-American/Chicano - a politics within the American political experience. Prerequisites: Reading level 7 and Writing level 7 (3:3-0)

## Health Information Management

### HITT 1301 Health Data Content and Structure

This is an introduction to systems and processes for collecting, maintaining, and disseminating primary and secondary health related information. The instruction in delivery and organizational structure includes content of health record, documentation requirements, registries, indices, licensing, regulatory agencies, forms and screens. Prerequisites: Reading level 4, Writing level 4 (3:3-0)

### HITT 1305 Medical Terminology

This is a study of word origin and structure through the introduction of prefixes, suffixes, root words, plurals, abbreviations and symbols, surgical procedures, medical specialties, and diagnostic procedures. Prerequisites: Reading level 4, Writing level 4 (3:3-0)

### HITT 1307 Cancer Data Management I

This introduction to cancer data management includes cancer program requirements, the American College of Surgeons Cancer Program Survey process, and data collection/retrieval-abstracting coding, staging and reporting. Prerequisites: HITT 1305, HITT 1374, HPRS 2301 (3:3-0)

### HITT 1311 Health Information Systems

This is an introduction to health IT standards, health-related data structures, software applications and enterprise architecture in health care and public health. Prerequisites: Reading level 4 (3:2-2)

### HITT 1341 Coding and Classification Systems

This is an application of basic coding rules, principles, guidelines and conventions. Prerequisites: Reading level 4, Writing level 4, Math level 4 (3:2-2)

### HITT 1345 Health Care Delivery Systems

This is an introduction to organization, financing, and delivery of health care services, accreditation, licensure and regulatory agencies. Prerequisites: Reading level 4 and Writing level 4 (3:3-0)

### HITT 1353 Legal and Ethical Aspects of Health Information

This course focuses on concepts of confidentiality, ethics, health care legislation and regulations relating to the maintenance and use of health information. Prerequisites: Reading level 4, Writing level 4 (3:3-0)

### HITT 1360 Clinical-Coding

A health-related work-based learning experience that enables the coding student to apply specialized occupational theory, skills, and concepts. Direct supervision is provided by the clinical professional. Prerequisites: Reading level 4, Writing level 4, Math level 4 (3:0-9)

### HITT 1361 Clinical-CDM

This is a health-related work-based learning experience that enables the cancer data management student to apply specialized occupational theory, skills and concepts. Direct supervision is provided by the clinical professional. Prerequisites: Reading level 4, Writing level 4, Math level 4 (3:0-9)

### HITT 1374 Anatomy and Physiology

This is a general overview of the normal structure and function of human body systems. Prerequisites: Reading level 4, Writing level 4, Math level 4 (3:3-1)

### HITT 1377 Clinical-Billing and Coding

This advanced health professions work-based instruction helps students synthesize a new knowledge, apply previous knowledge, and gain experience managing the workflow in a clinical setting. Prerequisite: Reading level 4, Writing level 4, Math level 4 (3:0-9)

### HITT 1378 Medical Insurance

This course includes instruction to inform and clarify medical insurance reimbursement via coding and completion of applicable insurance forms. Accurate ICD-9-CM and CPT coding to be used for completion of insurance forms to governmental agencies, insurance companies, and third party payors. Prerequisites: Reading level 4, Writing level 4, Math level 4 (3:3-0)

# Course **Descriptions**

## **HITT 2245 Coding Certification Exam**

### **Review**

This is a review of coding competencies and skills pertinent to the technology and relevant to the professional development of the student in preparation for a coding certification exam are covered in this course. Prerequisites: Reading level 4, Writing level 4, Math level 4 (2:2-0)

## **HITT 2249 RHIT Competency Review**

This is a review of HITT competencies, skills, knowledge and/or attitudes and behavior pertinent to the technology and relevant to the professional development of the student. (2:1-2)

## **HITT 2307 Cancer Data Management II**

This is a continuation of HITT 1307 and is an intermediate Cancer Data Management course. This course includes cancer program requirements by the National Cancer Registrars Association. It includes ACoS survey process, and data collection/retrieval, abstracting, coding, and staging and reporting. Prerequisite: HITT 1307, Co-requisite: HITT 2370 (3:3-0)

## **HITT 2335 Coding and Reimbursement Methodologies**

This course focuses on the development of advanced coding technique with emphasis on case studies, health records, and federal regulations regarding perspective payment systems and methods of reimbursement. Prerequisites: Reading level 4, Writing level 4, and HITT 1341 (3:2-2)

## **HITT 2339 Health Information Organization and Supervision**

This course covers principles of organization, management, and supervision of human, fiscal, and capital resources in the health care setting. Prerequisites: Reading level 4, Writing level 4, Math level 4 (3:3-0)

## **HITT 2343 Quality Assessment and Performance Improvement**

This is a study of the many facets of quality standards and methodologies in the health information management environment. Topics include licensing, accreditation, compilation, and presentation of data in statistical formats, quality tools, utilization management, risk management, and medical staff data quality issues. Prerequisites: Reading level 4, Writing level 4 (3:3-0)

## **HITT 2346 Advanced Medical Coding**

This is an in-depth coverage of ICD and CPT coding rubrics, conventions, principles, and updates as they apply to accurate coding of complex medical/surgical cases, with emphasis on case studies. Government regulations and changes in health care reporting will be addressed. Prerequisite: Reading level 4, Writing level 4, Math level 4 (3:3-0)

## **HITT 2360 Clinical I**

This is a basic type of health profession work-based instruction that helps students synthesize new knowledge, apply previous knowledge, or gain experience managing the workflow in a clinical setting. Prerequisites: Reading level 4, Writing level 4, Math level 4 (3:0-9)

## **HITT 2361 Clinical II**

This is an advanced type of health professions work-based instruction that helps student synthesize new knowledge, apply previous knowledge, or gain experience managing the workflow in a clinical setting. Prerequisites: Reading level 4, Writing level 4, Math level 4 (3:0-9)

## **HITT 2370 Cancer Data Management III**

This is an advanced level course in Cancer Data Management to include Cancer Program requirements, the American College of Surgeons guidelines, and heavy concentration in abstracting, coding, staging and State and National reporting requirements. Prerequisites: HITT 1307. Co-requisite: HITT 2307 (3:3-0)

## **HPRS 2301 Pathophysiology**

This is a study of the pathology and general health management of diseases and injuries across the life span. Topics include etiology, symptoms, and physical and psychological reactions to diseases and injuries. Prerequisites: Reading level 7, Writing level 6, HPRS 1106, 1171; SRGT 1505, 1509, 1471, and 1260. (3:3-0)

# **History**

## **HIST 1301 American History Before 1877**

This is a survey of the social, political, economic, cultural, and intellectual history of the United States from the pre-Columbian era to the Civil War/Reconstruction period. United States History I includes the study of pre-Columbian, colonial, revolutionary, early national, slavery and sectionalism, and the Civil War/Reconstruction eras. Themes that may be addressed in United States History I include: American settlement and

diversity, American culture, religion, civil, and human rights, technological change, economic change, immigration and migration, and creation of the federal government. Prerequisites: Reading level 7 and Writing level 7 (3:3-0)

## **HIST 1302 American History Since 1877**

This is a survey of the social, political, economic, cultural, and intellectual history of the United States from the Civil War/Reconstruction era to the present. United States History II examines industrialization, immigration, world wars, the Great Depression, Cold War and post-Cold War eras. Themes that may be addressed in United States History II include: American culture, religion, civil and human rights, technological change, economic change, immigration and migration, urbanization and suburbanization, the expansion of the federal government, and the study of U.S. foreign policy. Prerequisites: Reading level 7 and Writing level 7 (3:3-0)

## **HIST 2301 History of Texas**

This is a general survey of the history of Texas under Spanish and Mexican control; the Republic, statehood, the Confederacy; reconstruction resources, the development of industries, agriculture and education. This course satisfies one-half of the legislative requirements of six semester hours in American history. Prerequisites: Reading level 7 and Writing level 7 (3:3-0)

## **HIST 2311 History of Western Civilization Before 1660 (European History)**

This is a survey of western civilization prior to 1660, including ancient and medieval background. The Renaissance, Reformation, rise of the monarchies, new discoveries, downfall of feudalism, and European expansion are also covered in the course. Prerequisites: Reading level 7 and Writing level 7 (3:3-0)

## **HIST 2312 History of Western Civilization Since 1660 (European History)**

This is a survey of world history with special emphasis on Europe from 1660 to the present. This course includes the Industrial Revolution, French Revolution, Congress of Vienna, age of Metternich, rise of democracy, Europeanization of the world, British Empire, World War I, World War II and present-day Europe. Prerequisites: Reading level 7 and Writing level 7 (3:3-0)

## **HIST 2313 History of England I**

This is a survey of the political, social, economic, military, cultural, and intellectual development of England from prehistory to 1688. Prerequisites: Reading level 7 and Writing level 7 (3:3-0)

## HIST 2314 History of England II

This is a survey of the political, social, economic, military, cultural, and intellectual development of England from 1688 to the present. Prerequisites: Reading level 7 and Writing level 7 (3:3-0)

## HIST 2321 World Civilization I

This is a survey of the political, social, economic, military, cultural, and intellectual development of ancient and medieval history with emphasis on Asian, African, and European cultures to 1600. Prerequisites: Reading level 7, Writing level 7 (3:3-0)

## HIST 2322 World Civilization II

This is a survey of the political, social, economic, military, cultural, and intellectual development of modern history and culture of Asia, Africa, Europe, and the Americas from the 1600 to the present. Prerequisites: Reading level 7, Writing level 7 (3:3-0)

## HIST 2327 Mexican-American History I

This course is a study of historical, economic, social, and cultural development of Mexican-Americans/Chicanos to 1900. Prerequisites: Reading level 7, Writing level 7 (3:3-0)

## HIST 2328 Mexican-American History II

This course is a study of historical, economic, social, and cultural development of Mexican-Americans/Chicanos from 1900 to the present. Prerequisites: Reading level 7, Writing level 7 (3:3-0)

## HIST 2381 African-American History

This course examines the historical, economic, and cultural development of African Americans. It places an emphasis on the roles of African Americans in United States history and their contributions to the social, political, and economic foundations of United States history from the colonial era to present. Prerequisites: Reading level 7, Writing level 7 (3:3-0)

## Homeland Security

### HMSY 1337 Introduction to Homeland Security

This course is an overview of homeland security including an evaluation of the profession of homeland security issues throughout Texas and the United States. The course includes an examination of the roles undertaken and methods used by government agencies and individuals to respond to those issues. Prerequisite: Reading level 4 (3:3-0)

## Instrumentation Technology

### CETT 1325 Digital Fundamentals

This entry level course in digital electronics covers number systems, binary mathematics, digital codes, logic gates, Boolean algebra, Karnaugh maps, and combinational logic, with an emphasis on circuit logic analysis and troubleshooting digital circuits. (3:2-2)

### CTEC 1401 Applied Petrochemical Technology

This course offers instruction in the basic principles of physics and its application to process facilities. Topics include physical laws and properties and how these relate to the operation of processes. Students define terms and principles of applied physics; solve problems using basic laws of physics; and apply principles of physics to the operation of plant equipment. Prerequisite: MATH 1333 (4:3-3)

### ELMT 2351 Power Generation Fundamentals

This is a study of electrical power production including identification and function of power plant equipment. Topics include the introduction of power plant operations to include basic power plant cycles, basic power plant systems, boilers, turbines, generators, field devices and instrumentation, control and electrical systems. (3:3-1)

### ELPT 1311 Basic Electrical Theory

This course covers the basic theory and practice of electrical circuits. It includes calculations as applied to alternating and direct current, and covers electrical terminology, circuit analysis and mathematical formulas as applied to direct and alternating current circuits. (3:2-2)

### ELPT 2319 Programmable Logic Controllers I

This course covers the fundamental concepts of programmable logic controllers, principles of operation, and numbering systems as applied to electrical controls. It includes history, terminology, typical applications, hardware and software, and incorporates lab and project activities that address operating, monitoring programming, troubleshooting, and repairs of PLC controlled lab trainers as well as actual industrial equipment. (3:2-2)

### ENER 1330 Basic Mechanical Skills for Energy

This course covers basic mechanical skills using hand and power tools in an industrial environment. Topics include tool use and maintenance, lubrication, measuring, threads and fasteners, bench works, basic mechanical drawings, and basic shop calculations (English and metric). Also, addresses rigging procedures to include chain falls, jacks, cable, fulcrum, port-a-power, and come-alongs. (3:2-2)

### ENER 1350 Overview of Energy Industry

This course is an introduction to the major sectors of the energy industry including fossil fuels, alternative energy systems, power generation facilities, and electrical transmission. It includes a comparison of energy industry careers. (3:3-0)

### EPCT 1349 Environmental Regulations Interpretation & Applications

This course is an in-depth study of the major federal and state environmental regulations. Prerequisite: INTC 1348 (3:3-0)

### INTC 1301 Principles of Industrial Measurements I

This course is a study of principles of measurement and devices used to measure process variables such as temperature, pressure, flow, level and basic control functions. Topics include atmospheric, absolute, gauge, differential and hydrostatic pressure. Temperature topics include filled thermal systems, thermocouples, thermistors and the resistance temperature detector. Test equipment, setup, calibration, maintenance, and safe work practices will be included. (3:2-2)

### INTC 1312 Instrumentation and Safety

This course is an overview of industries employing instrument technicians. The course covers instrument safety techniques and practices as applied to the instrumentation field. Topics include terminology, loop diagram symbols, documentation, basic measurement and control concepts, health, safety and environmental concerns, and employment opportunities. (3:2-2)

### INTC 1315 Final Control Elements

This course is a study of the various designs of final control elements including disassembly, assembly, calibration, troubleshooting, and required documentation. It includes instruction in basic techniques and calculations for proper valve sizing. Topics will include louvers, dampers, metering pumps, valve selection and an introduction to variable frequency drives as a final control element. Test equipment, setup, calibration, testing, maintenance and safe work practices will be included. (3:2-2)

# Course **Descriptions**

## **INTC 1322 Analog Controls I**

This course is a study of basic concepts related to analog measurement and control theory, including instrumentation test equipment and calibration circuits used in analog control systems. It features instruction in instrumentation calibrators and calibration circuits used for servicing and calibration of potentiometers, temperature transmitters and various transducers. Topics include terminology, electrical symbols, electrical drawings, electrical connections and fittings, wire sizes, lighting, switches, circuit breakers, fuses, enunciators, annunciators, alarms and safety shutdowns. Test equipment, setup, calibration, testing, maintenance and safe work practices will be included. Prerequisite or co-requisite: ELPT 1311 (3:2-2)

## **INTC 1341 Principles of Automatic Control**

This course is a study of the theory of basic measurements, automatic control systems and design, closed loop systems, controllers, feedback, control modes and control configurations. Topics include a study of process characteristics, control modes, control loop configurations, control loop analysis and controller tuning concepts. Computer based simulation will be used to reinforce the study learning objectives. Prerequisite: INTC 1301 (3:2-2)

## **INTC 1348 Analytical Instrumentation**

This course is a study of analytical instruments emphasizing their utilization in process applications including, but not limited to, chromatography, PH, conductivity, and spectrophotometer instruments. Topics include density, viscosity, conductivity, humidity/moisture, chromatography, spectroscopy, fugitive emissions and the flammable and explosive characteristics of solids, liquids and gases. (3:3-0)

## **INTC 1350 Digital Measurement and Controls**

This course offers a review of basic measurement control instrumentation and digital concepts including a study of the movement of digital data through common systems and employing parallel and serial transfers. Prerequisite: ELPT 1311 (3:2-2)

## **INTC 1353 Analog Controls II**

This course is a study of analog controls and electronic instrumentation systems. It introduces discrete components and basic power supplies and amplifiers. Topics include the industrial electrical distribution system, motor controls, electrical relay ladder logic and the variable frequency drive. Test equipment, setup, calibration, testing, maintenance and safe work practices will be included. Prerequisite: INTC 1322 (3:2-2)

## **INTC 1355 Unit Operations**

This course is an in-depth study of industrial processes including fluid flow and material transport, distillation, extraction, and automatic control requirements of these processes. It includes instruction in control system design and control loop adjustments and analysis. Topics will include piping systems, pumps, compressors, agitators, tanks, heat exchangers, filters, cooling towers, refrigeration, filtration, adsorption, absorption, extruding, material handling and the distribution of utilities. Startup, operation, safe work practices and shutdown of a simulated or actual operating system will be included. (3:2-2)

## **INTC 1371 Distributed Control Systems**

This course is designed to be a study of the philosophy and application of distributed control systems. Topics will include hardware, firmware, software, configuration, communications and networking requirements that are necessary to implement a distributed control strategy. It includes how the measurement, control data acquisition and data analysis provides for enterprise resource planning and management. An operating system will be used to provide hands-on experience. Prerequisites: INTC 1353 and INTC 1372 (3:2-2)

## **INTC 1372 Principles of Industrial Measurement II**

This course is designed to be a study of the physical principles and devices used to measure the process variables of level and flow. Level topics will include hydrostatic tank gauging, buoyancy, capacitance, ultrasonic, nuclear, radar and level as a function of weight. Flow topics will include variable area, differential pressure, positive displacement, turbine, magnetic, vortex shedder, mass, thermal and ultrasonic flow meters. Laboratory exercises will include calibration, repair, documentation and safe work practices associated with level and flow measurement, indicating and recording instruments. Test equipment, setup, calibration, testing, maintenance, and safe work practices will be included. Prerequisites: INTC 1301, INTC 1353 and INTC 1315 (3:2-2)

## **INTC 1375 Sample Systems**

This course is designed to foster a comprehensive understanding of sample systems used in conjunction with process analytical instrumentation. Coverage will include sample system theoretical foundations, various sample system applications, design, testing and safety procedures, along with basic troubleshooting and maintenance techniques used when working with this hardware. (3:2-2)

## **INTC 1443 Applications of Industrial Automatic Control**

This is a study of automatic process control including measuring devices, analog and digital instrumentation, signal transmitters, recorders, alarms, controllers, control valves, and process and instrument alarms, controllers, control valves, and process and instrument drawings. It includes connection and troubleshooting of loops. (4:3-3)

## **INTC 1445 Instrumentation Repair**

This course includes an analysis of the procedures necessary to isolate faults in microcomputer or programmable logic controller based process control systems including symptom analysis, schematic and print reading, and proper use of test equipment to isolate failures to the repairable unit. (4:3-3)

## **INTC 2310 Principles of Industrial Measurement II**

This course is a study of advanced principles of measurement and devices used to measure process variables and basic control functions. Topics include hydrostatic tank gauging, buoyancy, capacitance, ultrasonic, nuclear, radar, and level as a function of weight. Flow topics include variable area, differential pressure, positive displacement, turbine, magnetic vortex shedder, mass, thermal, and ultrasonic flow meters. Laboratory exercises will include calibration, repair, documentation and safe work practices associated with level and flow measurement, indicating and recording instruments. Test equipment, setup, calibration, testing, maintenance and safe work practices will be included. Prerequisite: INTC 1301 (3:2-2)

## **INTC 2330 Troubleshooting**

This course in an in-depth coverage of the techniques of troubleshooting in a complex instrumented environment. Laboratory exercises require troubleshooting upsets in chemical processes. Topics will include examples and discussions of historical, input/output and logical analysis as a methodology for solving problems. Prerequisites: INTC 1353 and INTC 2310 (3:2-2)

## **INTC 2333 Instrumentation Systems Installation**

This course covers synthesis, application, and integration of instrument installation components and includes a comprehensive final project. Prerequisites: INTC 1353 and INTC 2310 (3:2-2)

## **INTC 2336 Distributed Control and Programmable Logic**

This course is an overview of distributed control systems including configuration of programmable logic controllers, smart transmitters, and field communicators. It includes functions of digital systems in a process control environment. (3:2-2)

## **INTC 2339 Instrument and Control Review**

This course is an overview of instrument and control technology, stressing preparation for industry employment testing for the National Institute of Engineering Technologist Certification (level 2) or the Instrumentation Systems and Automatic Certified Control Systems Technician (level I) Certificate (ISA CCST). This course prepares graduating students with the background necessary to take the ISA Technician Training certification in preparation for industry employment and national testing. Prerequisites: INTC 1353 and INTC 2310 (3:3-0)

## **INTC 2345 Advanced Analyzers**

This course covers advanced topics in composition analyzers and their sample systems. The course is designed to foster a comprehensive understanding of the more advanced analyzers, such as the gas chromatographs, ultraviolet and infrared analyzers. Coverage will include sample systems for the analyzers, the design and theory of operation of each analyzer type, safety procedures along with basic troubleshooting and maintenance techniques. Prerequisites: INTC 1348 and 1375 (3:2-2)

## **INTC 2359 Distributed Control Systems**

This course is a study of philosophy and application of distributed control systems. Topics include hardware, firmware, software, configuration, communications and networking systems required to implement a distributed control strategy. Prerequisites: INTC 1353 and INTC 2310 (3:2-2)

## **INTC 2374 Physical Properties Analyzers**

This course covers the theory of operation, calibration, sample analysis, maintenance and repair of pH, ORP, conductivity, oxygen and moisture analyzers and relevant safety concepts associated with each. Prerequisites: INTC 1348 and SCIT 1414 (3:2-2)

## **INTC 2388 Internship Instrumentation Technology/Technician**

This is a work-based learning experience that enables the student to apply specialized occupational theory, skills and concepts. A learning plan is developed by the College and the employer. In this course students apply the theory, concepts, and skills involving specialized materials, tools, equipment, procedures, regulations, laws, and interactions within and among political, economic, environmental, social, and legal systems associated with the occupation and the business/industry and will demonstrate legal and ethical behavior, safety practices, interpersonal and teamwork skills, and appropriate written and verbal communication skills using the terminology for the occupation and the business/industry. Prerequisite: department chair approval (3:0-16)

## **INTC 2436 Distributed Control and Programmable Logic**

This is an overview of distributed control systems including configuration of programmable logic controllers, smart transmitters, and field communicator; functions of digital systems in a process control environment. (4:3-3)

## **OSHT 1320 Energy Industrial Safety**

This course is an overview for industrial workers of state/federal regulations and guidelines which require industrial safety training. Topics include the 29 CFR 1910, 1926, and National Fire Protection Association (NF:A) 70E standards such as confined space entry, emergency action, lock out/tag out, arc flash, and other work related subjects. Prerequisites: Reading level 6, Writing level 6, Math level 6 (3:3-0)

## **SCIT 1418 Applied Physics**

This is an introduction to physics for industrial applications including vectors, motion, mechanics, simple machines, matter, heat, and thermodynamics. Prerequisites: Reading level 7, Writing level 7, Math level 7 (4:3-3)

# **Interior Design**

## **INDS 1411 Fundamentals of Interior Design**

This is an introduction to the elements and principles of design, and interior design profession, and the interior design problem-solving process. (4:3-3)

## **INDS 1415 Materials, Methods and Estimating**

This is a study of materials, methods of construction and installation, and estimating for interior design applications. (4:3-3)

## **INDS 1445 Commercial Design I**

This is a study of design principles applied to furniture layout and space planning for commercial interiors. (4:3-3)

## **INDS 1449 Fundamental of Space Planning**

This course covers the study of residential and light commercial spaces, including programming, codes, standards, space planning, drawings and presentations. (4:3-3)

## **INDS 1451 History of Interiors I**

This course is an historical survey of design in architecture, interiors, furnishings, and decorative elements from the ancient cultures through the Italian Renaissance time period and includes a historical survey of antiquities and European styles and periods of architecture, interiors, and furnishings focusing on Egypt, Greece, Italy, Spain, and France. (4:4-0)

## **INDS 1452 History of Interiors II**

This course is a multi-cultural historical survey of design in architecture, interiors, furnishings, and decorative elements from the post-Renaissance period to present time and includes an historical survey of English and American styles and periods of architecture, interiors, and furnishing focusing on the twentieth century. (4:4-0)

## **INDS 2386 Internship-Interior Design**

This course is a work-based learning experience that enables the student to apply specialized occupational theory, skills and concepts. A learning plan is developed by the College and the employer. It offers experiences external to the College for an advanced student in a specialized field, involving a written agreement between the educational institution and a business or industry. Monitored and supervised by a workplace employee, the student achieves objectives that are developed and documented by the College and that are directly related to specific occupational outcomes. This may be a paid or unpaid experience. The course may be repeated if topics and learning outcomes vary. (3:0-9)

## **INDS 2387 Internship-Interior Design**

This course is a work-based learning experience that enables the student to apply specialized occupational theory, skills and concepts. A learning plan is developed by the College and the employer. It offers experience external to the College for an advanced student in a specialized field, involving a written agreement between the educational institution and a business or industry. Monitored and supervised by a workplace employee, the student achieves objectives that are developed and documented by the College and that are directly related to specific occupational outcomes. This may be a paid or unpaid experience. The course may be repeated if topics and learning outcomes vary. (3:0-9)

## **INDS 2405 Interior Design Graphics**

This course offers skill development in computer-generated graphics and technical drawings for interior design applications. (4:4-0)

# Course **Descriptions**

## **INDS 2407 Textiles for Interior Design**

This course covers the study of interior design textiles including characteristics, care, codes, and applications. (4:3-3)

## **INDS 2413 Residential Design I**

This course covers the study of residential spaces, including the identification of client needs, programming, standards, space planning, drawings, and presentations. (4:3-3)

## **INDS 2421 Presentation Drawing**

This is an introduction to two- and three-dimensional presentations, including drawings with one- and two-point perspectives, plans, and elevations. (4:3-3)

## **INDS 2425 Professional Practices for Interior Design**

This is a study of business practices and procedures for interior designers, including professional ethics, project management, marketing, and legal issues. (4:3-3)

## **INDS 2435 Residential Design II**

This is a comprehensive study of complex residential interior design problems, including advanced space planning, specifications, budgets, and presentation renderings. (4:3-3)

## **International Business, Logistics, and Maritime**

### **HMSY 1337 Introduction to Homeland Security**

This course is an overview of homeland security including an evaluation of the profession of homeland security issues throughout Texas and the United States. The course includes an examination of the roles undertaken and methods used by government agencies and individuals to respond to those issues. Prerequisite: Reading level 4 (3:3-0)

### **IBUS 1300 Global Logistics Management**

This course covers the study of global logistics, management processes, procedures, and regulations used in transportation, physical distribution, warehousing, inventory control, material handling, packaging, plant and warehouse location, risk management, customer service, and networks for logistics, suppliers, and information. It includes decision making and case resolution techniques to solve problems and to develop logistical and information networks for supply chain management appropriate for global corporations. (3:3-0)

### **IBUS 1301 Principles of Exports**

This course is a study of export management processes and procedures including governmental control and compliance licensing or product. The course discusses documentation, commercial invoices, and traffic procedures, emphasizing human and public relations, management of personnel, finances, and accounting. Prerequisite: Reading level 4 (3:3-0)

### **IBUS 1302 Principles of Imports**

This course covers the study of practices and processes of import management operations which may include such factors as government controls and compliance. It emphasizes the preparation and understanding of import documents such as customs invoices, packing lists, and commercial invoices. (3:3-0)

### **IBUS 1305 Introduction to International Business and Trade**

This course covers techniques of entering the international marketplace, with an emphasis on the impact and dynamics of sociocultural, demographic, economic, technological, and political-legal factors in the foreign trade environment. Topics include patterns of world trade, internationalization of the firm, and operating procedures of the multinational enterprise. Prerequisite: Reading level 4 (3:3-0)

### **IBUS 1341 Introduction to International Supply Chain Global Management**

This course is a study of international purchasing or sourcing. Topics include the advantages and the barriers of purchasing internationally, global sourcing and procurement technology, and purchasing processes. It emphasizes issues of contract administration, location, and evaluation of foreign suppliers, total cost approach, exchange fluctuations, customs procedures, and related topics. Prerequisite: Reading level 4 (3:3-0)

### **IBUS 1354 International Marketing Management**

This course includes the study and analysis of international marketing strategies using market trends, costs, forecasting, pricing, sourcing, and distribution factors. Development of an international marketing plan is included. (3:3-0)

### **IBUS 2341 Intercultural Management**

This course covers cross-cultural comparisons of demographic, economic, technological, and political-legal management and communications processes, emphasizing cultural geographic distinctions and antecedents that affect individual, group, and organizational behavior. The course may include sociocultural demographics, economics, technology, political and legal issues, negotiations, and processes of decision making in the international cultural environment. Prerequisite: Reading level 4 (3:3-0)

### **IBUS 2345 Import Customs Regulations**

This course includes the study of duties and responsibilities of the licensed customs broker such as processes for customs clearance including appraisalment, bonded warehouse entry, examination of goods, harmonized tariffs, fees, bonding, penalties, quotas, immediate delivery, consumption, and liquidation, computerized systems, laws and regulations. (3:3-0)

### **IBUS 2366 Field Experience—International Business/Trade/Commerce**

This course offers practical general training and experiences in the workplace. The College with the employer develops and documents an individualized plan for the student. The plan relates to the workplace training and experiences to the student's general and technical course of study. The guided external experiences may be paid or unpaid. Prerequisites: 12 credit hours from IBUS courses; IBUS 1301, IBUS 1302, IBUS 1305, IBUS 2341, IBUS 2345, and 12 credit hours from the following: HRPO 1311, BUSI 2301, MRKG 1311, BUSI 1311, BMGT 1313, ITSC 1309; a GPA of at least 2.0 on prerequisite courses; an interview with department chair and approval by instructor are required 60 days prior to enrolling. (3:0-21)

### **IBUS 2367 Practicum - Field Experience**

This course provides general practicum training and field experience in the workplace emphasizing key components of international business, including human resources, management, organizational structure, import and export procedures, and compliance issues. Prerequisites: IBUS 2366 and Reading level 4 (3:0-21)

### **LMGT 1319 Introduction to Business Logistics**

This course is a systems approach to managing activities associated with traffic transportation, inventory management and control, warehouse, packaging, order processing, and materials handling. Prerequisite: Reading level 4 (3:3-0)

### **LMGT 1325 Warehouse and Distribution Center Management**

This course emphasizes physical distribution and total supply chain management. It includes warehouse operations management, hardware and software operations, bar codes, organization effectiveness, just-in-time manufacturing, continuous replenishment, and third-party issues. Prerequisite: Reading level 4 (3:3-0)

### **LMGT 1345 Economics of Transportation and Distribution**

This is a study of the basic economic principles and concepts applicable to transportation and distribution. Prerequisite: Reading level 4 (3:3-0)



## **MART 1471 Introduction to Ships and Shipping**

This is an introduction to the maritime industry and ships used in the transportation of goods and services. Shipboard nomenclature, types and missions of merchant ships, shipbuilding, shipbuilding materials and methods, modes of cargo handling and their impact on ship design. Prerequisite: Reading level 4 (4:4-0)

## **LMGT 1319 Introduction to Business Logistics**

This course is a systems approach to managing activities associated with traffic transportation, inventory management and control, warehouse, packaging, order processing, and materials handling. Prerequisite: Reading level 4 (3:3-0)

## **LMGT 1325 Warehouse and Distribution Center Management**

This course emphasizes physical distribution and total supply chain management. It includes warehouse operations management, hardware and software operations, bar codes, organization effectiveness, just-in-time manufacturing, continuous replenishment, and third-party issues. Prerequisite: Reading level 4 (3:3-0)

## **LMGT 1345 Economics of Transportation and Distribution**

This is a study of the basic economic principles and concepts applicable to transportation and distribution. Prerequisite: Reading level 4 (3:3-0)

## **Journalism**

*(See Communications)*

## **Legal Assistant**

*(See Paralegal)*

## **Long Term Care**

### **LTCA 1312 Resident Care in the Long-Term Care Facility**

This course includes a study of the delivery of quality services to residents of long-term care facilities. It is an overview of the methods for accessing and implementing strategies to promote quality resident care, and includes a presentation of philosophical and ethical considerations. (3:3-0)

### **LTCA 1313 Organization and Management of Long Term Care Facilities**

This is an overview of the functional organizational structures common to long term health care facilities. It includes an examination of the departments in long term care facilities, chain of command, personnel, regulatory requirements, quality indicators, and the role of the long-term care administrator. (3:3-0)

### **LTCA 2314 Long Term Care Law**

This is an examination of the types and sources of law relating to the long term care industry. A study of federal, state, and local statutes and regulations affecting the long-term care industry is covered. (3:3-0)

### **LTCA 2315 Financial Management of Long Term Care Facilities**

This is a study of techniques and strategies for gathering and using financial information to make decisions in the long-term care facility and includes an examination of budget processes, accounting principles, financial statements, and inventory controls. Topics include the special accounting requirements of Medicare, Medicaid, and other third-party payment systems. (3:3-0)

### **LTCA 2388 Internship**

This is a work-based learning experience that enables the student to apply specialized occupational theory, skills, and concepts. A learning plan is developed by the College and the employer. (3:0-18)

### **LTCA 2488 Internship-Health Care Facilities Administration/Management**

This is a work-based learning experience that enables the student to apply specialized occupational theory, skills, and concepts. A learning plan is developed by the College and the employer. (3:0-22)

### **LTCA 2489 Internship-Health Care Facilities Administration/Management**

This is a work-based learning experience that enables the student to apply specialized occupational theory, skills, and concepts. A learning plan is developed by the College and the employer. (3:0-23)

## **Massage Therapy**

### **MSSG 1105 Hydrotherapy**

This course is a study of the use of accepted hydrotherapy and holistic health care modalities of external application of temperature for its reflexive effect. It meets the minimum 20 contact hour requirement for licensure. Prerequisites or co-requisites: Reading level 4 and courses taken in level sequence order or department chair approval, 32 contact hours (1:1-1)

### **MSSG 1109 Health and Hygiene**

This course is the study of safety and sanitation practices including universal precautions. The importance of proper body mechanics, maintaining a healthy lifestyle, maintaining the massage environment, and the advantage of therapeutic relationships is also included. It meets the minimum 20 contact hour requirement for licensure. Prerequisites or co-requisites: Reading level 4 and courses taken in level sequence order or department chair approval, 32 contact hours (1:1-1)

### **MSSG 1207 Business Practices and Professional Ethics**

This course is a study of physical and financial office practices and marketing. It includes ethical practices for massage therapists as established by law or regulatory agency. It meets the minimum 45 contact hours requirement of licensure. Prerequisite or co-requisites: Reading level 4 and courses taken in level sequence order or department chair approval, 48 contact hours (2:2-1)

### **MSSG 1411 Massage Therapy Fundamentals I**

This course is an introduction to the theory and the application of skills necessary to perform Swedish massage to meet the minimum 125 contact hour requirement for licensure. Prerequisites or co-requisites: Reading level 4 and courses taken in level sequence order or department chair approval, 128 contact hours (4:2-6)

# Course Descriptions

## **MSSG 1413 Anatomy and Physiology for Massage**

This course offers an in-depth coverage of the structure and function of the human body. It includes cell structure and function, tissues, body organization, and the integumentary, skeletal, muscular, and nervous, and endocrine systems, and emphasizes homeostasis/wellness care. It meets the minimum 75 contact hour requirement for Anatomy and Physiology for licensure. Prerequisites or co-requisites: Reading level 4 and courses taken in level sequence order or department chair approval, 80 contact hours (4:3-2)

## **MSSG 2101 Chair Massage**

This course provides therapy and practice of chair massage using proper techniques for a variety of settings. Prerequisites or co-requisites: Reading level 4 and courses taken in level sequence order or department chair approval, 16 contact hours (1:1-1)

## **MSSG 2186 Internship-Massage Therapy/Therapeutic Massage**

This is a work-based learning experience that enables the student to apply specialized occupational theory, skills, and concepts. A learning plan is developed by the College and the employer. (1:0-6)

## **MSSG 2311 Massage Therapy Fundamentals II**

This course is a continuation of Massage Therapy Fundamentals I, emphasizing specialized techniques and assessment of client needs to identify a specific plan of care. It completes the requirements for Massage Techniques for Licensure. Prerequisites or co-requisites: Reading level 4 and courses taken in level sequence order or department chair approval, 96 contact hours (3:1-5)

## **MSSG 2314 Pathology for Massage**

This course covers general discussion of pathologies as they relate to massage therapy. Includes universal precautions and their management in professional practice. It also covers etiology, signs, symptoms, and the physiological and psychological reactions to disease and injury. It meets the minimum 40 contact hour requirement for licensure. Prerequisites or co-requisites: Reading level 4 and courses taken in level sequence order or department chair approval, 48 contact hours (3:3-0)

## **MSSG 2413 Kinesiology for Massage**

This course focuses on applied study of human kinesiology. Muscle movements and dysfunctions will be discussed and palpated. It includes theory and practice of functional muscle testing. It meets the minimum 50 contact hour requirement for licensure. Prerequisites or co-requisites: Reading level 4 and courses taken in level sequence order or department chair approval, 64 contact hours (4:4-0)

# Mathematics

*(See College Preparatory)*

*Examinations for the purpose of placement are required of students planning to enroll for the first time in a MATH course. To avoid delay during registration, students are advised to take these examinations prior to the date on which they plan to register. Students may call the Campus Testing Center for the dates on which these placement examinations will be given. Students are advised that MATH 1332 and MATH 1333 courses are not necessarily designed to transfer to a senior college for mathematics credit. However, these courses may be accepted in certain technology or liberal arts degree programs. A student planning to transfer individual mathematics courses to a senior college should follow the MATH sequence of courses or have a firm commitment from a four-year institution for transfer credit. For actual selection of courses, refer to a catalog of the receiving institution and/or confer with a educational planner/counselor.*

## **MATH 0303 Basic Mathematics**

This is an arithmetic course which builds basic skills of addition, subtraction, multiplication and division with whole numbers, fractions, and decimals. Additional topics include graphing whole numbers, fractions and decimals on a number line as well as area and perimeter concepts. This course is designed specifically for students who need a review of the basic arithmetic skills or have not yet mastered them. This course is not applicable toward any degree. Prerequisite: Math level 2 (3:2-2)

## **MATH 0304 Pre-Algebra**

This is a pre-algebra course which integrates the study of integers, fractions, decimals, percents, ratio and proportion with basic algebra. Additional topics covered include: measurement, estimation, elementary statistics, reasoning skills, number relationships, order of operations, and basic geometry. The emphasis in all topics is on their application to real life situations. This course is not applicable toward any degree. Prerequisite: Math level 4 (3:3-1)

## **MATH 0305 Introductory Algebra**

This course is a study of the basic algebra of solving and graphing linear equations, inequalities, and systems. Other topics include formulas, literal equations, polynomials, integral exponents, factoring, basic operations of radicals and rational expressions. Algebraic and basic geometric applications are included. This course promotes critical thinking and problem solving techniques. This course is not applicable toward any degree. Prerequisite: a grade of C or better in MATH 0304 or Math level 6 (3:3-0)

## **MATH 0306 Intermediate Algebra**

This course is a study of intermediate algebra including sets, variation, polynomials, exponents, radicals, and functions. Studies of quadratic and rational equations and inequalities, as well as graphs of quadratics and other nonlinear equations and inequalities are also included. The course emphasizes applications in both single- and multi-step real world problems. This course is not applicable toward any degree. Prerequisite: a grade of C or better in MATH 0305 or math score within defined range (3:3-0)

## **MATH 1314 College Algebra**

This course is an in-depth study and application of polynomial, rational, radical, exponential and logarithmic functions, and systems of equations using matrices. Additional topics such as sequences, series, probability, and conics may be included. Prerequisite: A grade of C or better in MATH 0306 or Math level 9. (3:3-0)

## **MATH 1316 College Trigonometry**

This course covers circular functions, identities, trigonometric equations, inverse functions, solution of triangles, graphing, polar coordinates, and complex numbers. Prerequisite: MATH 1314 or approval by department chair (3:3-0)

## **MATH 1324 Finite Mathematics**

This course covers logic, sets, counting, probability, statistics, relations, functions, linear inequalities, matrices, introduction to linear programming and applications. Prerequisite: MATH 1314 or approval by department chair (3:3-0)

## **MATH 1325 Calculus with Applications**

This is an introduction to special concepts and techniques of calculus which are of particular importance in the social and business sciences as well as technical fields. Topics covered will include differentiation, integration, applications, sequences and series, concepts of limits, continuity, and maximum and minimum of a function. Prerequisite: MATH 1314 or approval by department chair (3:3-0)

## **MATH 1332 College Mathematics for Liberal Arts**

This course provides a broad background in the principles of mathematics necessary for understanding and appreciating topics found in other curricula. Topics include: mathematical models using polynomial, exponential and logarithmic functions; matrices; probability and statistics; logic; geometry; and mathematics of finance. Prerequisites: a grade of C or better in MATH 0306 or math score within defined range (3:3-0)

## **MATH 1333 Contemporary Mathematics for Technical Programs**

This course provides a broad background in principles and applications of mathematics found in many technical and vocational degree programs. Topics may include: a survey of equations (linear, quadratic, rational, exponential and logarithmic); geometry; trigonometry; relations and functions; statistics; matrices; and select applications. This course will satisfy the math requirement of the Associate of Applied Science degree, but does not satisfy the math requirement of the associate of arts, associate of science, or associate of arts in teaching degree. Prerequisite: a grade of C or better in MATH 0305 or Math level 7 (3:3-0)

## **MATH 1342 Statistics**

This is an introduction to the use of statistics in business and computer science. Topics include descriptive statistics, probability distributions, estimation, statistical tests, and analysis of variance (ANOVA). Additional topics selected from regression and correlation, and non-parametric statistical methods. Prerequisite: MATH 1314 (3:3-0)

## **MATH 1350 Fundamentals of Mathematics I**

This course focuses on concepts of sets, functions, numeration systems, number theory, and properties of the natural numbers, integers, rational, and real number systems with an emphasis on problem solving and critical thinking. This course is designed specifically for students who seek EC-8 teacher certification. Prerequisites: MATH 1314 (3:3-0)

## **MATH 1351 Fundamentals of Mathematics II**

This course focuses on concepts of geometry, probability, and statistics, as well as applications of the algebraic properties of real numbers to concepts of measurement, with an emphasis on problem solving and critical thinking. This course is designed specifically for students who seek EC-8 teacher certification. Prerequisite: MATH 1314 or approval by department chair (3:3-0)

## **MATH 2318 Linear Algebra**

This introductory course covers concepts of finite dimensional vector spaces, linear independence and bases, linear transformations, matrices, determinants, real quadratic forms, eigenvalues and eigenvectors, as well as models and applications of these concepts. Prerequisite: MATH 2413 (3:3-0)

## **MATH 2320 Differential Equations**

This course focuses on ordinary differential equations, including linear equations, systems of equations, equations with variable coefficients, existence and uniqueness of solutions, series solutions, singular points, transform methods, and boundary value problems; application of differential equations to real-world problems. Prerequisite: MATH 2414 (3:3-0)

## **MATH 2412 Pre-Calculus**

This course studies the applications of algebra and trigonometry to the study of elementary functions and their graphs including polynomial, rational, exponential, logarithmic, and trigonometric functions. May include topics from analytical geometry. This course meets four hours of lecture (with no lab). Prerequisites: MATH 1314 (4:4-0)

## **MATH 2413 Calculus I**

This course focuses on differentiation and integration of transcendental functions; parametric equations and polar coordinates; techniques of integration; sequences and series; improper integrals. Prerequisite: MATH 2412 or 2312 (4:4-0)

## **MATH 2414 Calculus II**

This course focuses on differentiation and integration of transcendental functions; parametric equations and polar coordinates; techniques of integration; sequences and series; improper integrals. Prerequisite: MATH 2413 (4:4-0)

## **MATH 2415 Calculus III**

This course focuses on advanced topics in calculus, including vectors, and vector-valued functions, partial differentiation, Lagrange multipliers, multiple integrals, and Jacobians; application of the line integral, including Green's Theorem, the Divergence Theorem, and Stokes Theorem. Prerequisite: MATH 2414 (4:4-0)

# Medical Assisting

## **HPRS 1106 Essentials of Medical Terminology**

This course is a study of medical terminology, word origin, structure and application. (1:1-0)

## **HPRS 1271 Medical Terminology**

This course is a continuation in the study and practical application of a medical vocabulary system. Emphasis is on building a vocabulary required for practice within allied health care professions. Co-requisite: HPRS 1106 (2:2-0)

## **MDCA 1254 Certified Medical Assisting Exam Review**

This is a preparation for the Certified Medical Assisting Exam, including a review of all three components of the CMA exam. It presents an explanation of how the exam is scored and provides opportunities to take practice exams. Prerequisite: Reading level 4 (2:1-2)

## **MDCA 1302 Human Disease/ Pathophysiology**

This is a study of anatomy and physiology with emphasis on human pathophysiology, including etiology, prognosis, medical treatment, signs and symptoms of common diseases of all body systems. Prerequisites: Reading level 4, Writing level 4, Math level 4 (3:3-0)

## **MDCA 1305 Medical Law and Ethics**

This course covers instruction in principles, procedures, and regulations involving legal and ethical relationships among physicians, patients, and medical assistants. Prerequisites: Reading level 4, Writing level 4, Math level 4 (3:3-0)

## **MDCA 1309 Anatomy and Physiology for Medical Assistants**

This course emphasizes structure and function of human cells, tissues, organs, and systems with overview of common pathophysiology. Prerequisites: Reading level 4, Writing level 4, Math level 4 (3:3-1)

## **MDCA 1310 Interpersonal and Comm. Skills**

This course emphasizes the application of basic psychological principles and the study of behavior as they apply to special populations. Topics include procedures for self-understanding and social adaptability in interpersonal communication with patients and co-workers in an ambulatory care setting. Prerequisite: Reading level 4 (3:3-0)

# Course **Descriptions**

## **MDCA 1343 Medical Insurance**

This course emphasizes accurate ICD-9 and CPT coding of office procedures for payment/reimbursement by a patient or third party. Additional topics may include managed care or medical economics. Prerequisites: Reading level 4 (3:2-2)

## **MDCA 1348 Pharmacology and Administration of Medications**

This course covers application of pharmacological principles, and focuses on drug classifications, principles and procedures of medication administration, mathematical systems and conversions, calculation of drug problems, and medico-legal responsibilities of the medical assistant. Prerequisite: Reading level 4 (3:2-2)

## **MDCA 1417 Procedures in a Clinical Setting**

This course emphasizes patient-centered assessment, examination, intervention, and treatment as directed by physicians. It includes vital signs, collection and documentation of patient information, asepsis, minor surgical procedures, and other treatments as appropriate for the medical office. Prerequisites: Reading level 4, MDCA 1421 (4:3-3)

## **MDCA 1421 Administrative Procedures**

This course focuses on medical office procedures including appointment scheduling, medical records creation and maintenance, phone communications, financial process, coding, billing, collecting, third party reimbursement, credit arrangements, and computer use in the medical office. Prerequisite: Reading level 4 (4:2-6)

## **MDCA 1560 Clinical**

This is a basic, intermediate, or advanced type of health professions work-based instruction that helps students synthesize new knowledge, apply previous knowledge, or gain experience managing the workflow. It includes practical experiences simultaneously related to theory. Close and/or direct supervision is provided by the clinical profession (faculty or preceptor), generally in a clinical setting. Clinical education is an unpaid learning experience. Prerequisites: Reading level 4 and MDCA 1417. (5:0-15)

# **Medical Imaging Technology**

## **CTMT 2336 Computed Tomography Equipment and Methodology**

This is a study of the actual operation and operational control of computed tomographic equipment, this course focuses on routine protocols, image quality, and quality control of computed tomography. Theory and application of computed tomographic equipment and the principles of patient imaging techniques utilizing the equipment are covered. Prerequisite: ARRT certified or registry eligible. (3:3-0)

## **CTMT 2360 Clinical 1-Computed Tomography Technology/Technician**

This is an advanced type of health professions work-based instruction that helps students synthesize new knowledge, apply previous knowledge, or gain experience managing the workflow. Practical experience is simultaneously related to theory. Close and/or direct supervision is provided by the clinical professional in a clinical setting. Prerequisite: ARRT certified or registry eligible. (3:0-10)

## **CTMT 2361 Clinical 2-Computed Tomography Technology/Technician**

This is a continuation of CTMT 2360. It also provides an advanced type of health professions work-based instruction that helps students synthesize new knowledge, apply previous knowledge, or gain experience managing the workflow. Practical experience is simultaneously related to theory. Close and/or direct supervision is provided by the clinical professional in clinical setting. Prerequisite: ARRT certified or registry eligible. (3:0-10)

## **DMSO 1210 Introduction to Sonography**

This is an introduction to the profession of sonography and the role of the sonographer. It emphasizes medical terminology, ethical/legal aspects, written and verbal communication, and professional issues relating to registry, accreditation, professional organizations and history of the profession. Prerequisites: acceptance into the ultrasound program (2:2-0)

## **DMSO 1260 Clinical I - Diagnostic Medical Sonography**

This is a health-related work-based learning experience that enables the student to apply specialized occupational theory, skills, and concepts. Direct supervision is provided by the clinical professional. Prerequisites: acceptance into the ultrasound program (2:0-12)

## **DMSO 1302 Basic Ultrasound Physics**

This course covers basic acoustical physics and acoustical waves in human tissue. This covers ultrasound transmission in soft tissues, attenuation of sound energy, parameters affecting sound transmission, and resolution of sound beams. Prerequisites: acceptance into the ultrasound program (3:3-1)

## **DMSO 1351 Sonographic Sectional Anatomy**

This course covers sectional anatomy of the male and female body. Includes anatomical relationships of organs, vascular structures, and body planes and quadrants. (3:3-1)

## **DMSO 1391 Special Topics in Diagnostic Medical Sonography Technician**

This course addresses recently identified current events, skills, knowledges, and/or attitudes and behaviors pertinent to the technology or occupation and relevant to the professional development of the student. This course may be taken twice for credit. (3:3-1).

## **DMSO 2243 Adv Ultrasound Princ & Instr**

This course covers theory and application of ultrasound principles. Includes advances in ultrasound technology. (2:2-1)

## **DMSO 2245 Advanced Sonography Practices**

This course covers exploration of advanced sonographic procedures and emerging ultrasound applications. (2:2-0)

## **DMSO 2353 Sonography of Superficial Structures**

This course is a detailed study of normal and pathological superficial structures as related to scanning techniques, patient history and laboratory data, transducer selection, and scanning protocols. Prerequisite: Departmental approval required. (3:3-0)

## **DMSO 2357 Advanced Ultrasound Professionalism and Registry Review**

This course covers sonographic professional principles and scope of practice including legal and ethical issues and department management procedures. Includes review and preparation. (3:3-1)

## **MAMT 2333 Anatomy/Positioning & Patient Assessment**

This course is a presentation of specialized instruction in breast imaging. Emphasis will be placed on breast anatomy, physiology, positioning, patient education, and assessment. Anatomy instruction will include surface anatomy as well as deep anatomy. Further emphasis will be

placed on routine and additional projections and positioning modifications. Prerequisite: Graduate of a 2-year accredited medical radiography program in Radiology, ARRT certification in Radiography. (3:3-1)

## **MAMT 2363 Clinical - Mammography Technology/Technician**

This course is a health-related work-based learning experience that enables the student to apply specialized occupational theory, skills, and concepts. Direct supervision is provided by the clinical professional. Prerequisite: Graduate of a 2-year accredited medical radiography program in Radiology, ARRT certification in Radiography. (3:0-10)

## **MRIT 2330 Principles of Magnetic Resonance Imaging**

This course is an in-depth coverage of magnetic resonance imaging techniques. Image quality assurance and safety protocols are emphasized. Prerequisites: ARRT registered or registry eligible, or department approval. (3:3-0)

## **MRIT 2334 Magnetic Resonance Equipment and Methodology**

This course covers skill development in the operation of magnetic resonance imaging equipment, focusing on routine procedures and safety protocols, image quality, and quality assurance. Prerequisites: RADR 2340, MRIT 2360, MRIT 2330, or departmental approval. (3:3-0)

## **MRIT 2360 Clinical 1-Magnetic Resonance Imaging Technology/Technician**

This course is a health-related work-based learning experience that enables the student to apply specialized occupational theory, skills, and concepts. Direct supervision is provided by the clinical professional. Prerequisites: ARRT registered or registry eligible or departmental approval. (3:0-18)

## **MRIT 2361 Clinical 2-Magnetic Resonance Imaging Technology/Technician**

This course is a health-related work-based learning experience that enables the student to apply specialized occupational theory, skills, and concepts. Direct supervision is provided by the clinical professional. Prerequisites: RADR 2340, MRIT 2360, MRIT 2330, or departmental approval. (3:0-18)

## **RADR 1260 Clinical-Medical Radiologic Tech I**

This is a method of instruction providing detailed education, training, work-based experience and direct patient care, generally at a clinical site (hospital, etc.). This course is an introduction to the clinical environment with specific tasks to be

accomplished during the semester enrolled. On site clinical instruction, supervision, evaluation, and placement is the responsibility of college faculty. Prerequisite: acceptance into the medical imaging/radiography program (2:0-8)

## **RADR 1309 Introduction to Radiography and Patient Care**

This course is an overview of the historical development of radiography, basic radiation protection, an introduction to medical terminology, ethical and legal issues for health care professionals, and an orientation to the profession and to the health care system. Patient assessment, infection control procedures, emergency and safety procedures, communication and patient interaction skills, and basic pharmacology are also included. Prerequisite: Acceptance to the Medical Radiography program. (3:3-0)

## **RADR 1313 Principles of Radiographic Imaging I**

This course covers radiographic image quality and the effects of exposure variables. Prerequisite: Acceptance to the Medical Radiography program. (3:3-1)

## **RADR 1317 Radiographic Anatomy and Physiology I**

This course develops the student's ability to relate basic human anatomy and physiology to the image. The localization and intensification of human anatomy on the radiographic image is emphasized. Prerequisite: acceptance into medical imaging/radiography program (3:3-1)

## **RADR 1318 Radiographic Anatomy and Physiology II**

This course is a continuation of the survey of human anatomy and physiology. The localization and identification of human anatomy on the radiographic image is emphasized. Prerequisites: RADR 1313, 1317, and 1411 (3:3-1)

## **RADR 1360 Clinical-Medical Radiologic Tech II**

This is a method of instruction providing detailed education, training, work-based experience and direct patient care, generally at a clinical site (hospital, etc.). This course is a continuation of the clinical environment with specific tasks to be accomplished during the semester enrolled. Radiographic positioning and exposure will be emphasized during evaluation of examinations done by students. On site clinical instruction, supervision, evaluation, and placement is the responsibility of the College faculty. Prerequisites: RADR 126, RADR 1309, RADR 1313, RADR 1317, RADR 1411 (3:0-16)

## **RADR 1411 Basic Radiographic Procedures**

This course includes an introduction to radiographic positioning terminology, the proper manipulation of equipment, positioning and alignment of the anatomic structure and equipment, and evaluation of images for proper demonstration of basic anatomy. Prerequisite: Acceptance to the Medical Radiography program (4:3-3)

## **RADR 2117 Radiographic Pathology**

This is an overview of the disease process and common diseases and their appearance on medical images. Prerequisites: RADR 2213 and RADR 2362 (1:1-0)

## **RADR 2213 Radiation Biology & Protection**

This course includes a study of the effects of radiation exposure on biological systems. Includes typical medical exposure levels, methods for measuring and monitoring radiation, and methods for protecting personnel and patients from excessive exposure. Prerequisites: RADR 2309, RADR 2333, and RADR 2361 (2:2-0)

## **RADR 2305 Principles of Radiographic Imaging II**

This is a continuation of Radiographic image quality and the effects of exposure variables, and the synthesis of all variables in image production. Prerequisites: RADR 1260, 1309, 1313, 1317, and 1411 (3:3-1)

## **RADR 2309 Radiographic Imaging Equipment**

This is a study of the equipment and physics of x-ray production and includes basic x-ray circuits. Also examines the relationship of conventional and digital equipment components to the imaging process. Prerequisites: RADR 1313, 1318, 1360, and 2401 (3:3-1)

## **RADR 2333 Advanced Medical Imaging**

This course covers specialized imaging modalities. Includes concepts and theories of equipment operations and their integration for medical diagnosis. Prerequisites: RADR 2360 and 2309 (3:3-0)

## **RADR 2335 Radiologic Technology Seminar**

This is a capstone course focusing on the synthesis of professional knowledge, skills, and attitudes in preparation for professional employment and lifelong learning. Prerequisites: RADR 2213 and 2362 (3:3-0)

# Course **Descriptions**

## **RADR 2340 Sectional Anatomy for Medical Imaging**

This course presents an in-depth coverage of anatomic relationships that are present under various sectional orientations. Prerequisite: ARRT registered or registry eligible within 6 months or departmental approval. (3:3-0)

## **RADR 2360 Clinical-Medical Radiologic Tech III**

This is a method of instruction providing detailed education, training, work-based experience and direct patient care, generally at a clinical site (hospital, etc.). This course is a continuation of the clinical environment with specific tasks to be accomplished during the semester enrolled. Radiographic positioning and exposure will be emphasized during evaluation of examinations done by students. On site clinical instruction, supervision, evaluation, and placement is the responsibility of College faculty. Prerequisites: RADR 1360, RADR 1318, RADR 2305, RADR 2401 (3:0-18)

## **RADR 2361 Clinical-Medical Radiologic Tech IV**

This is a method of instruction providing detailed education, training, work-based experience and direct patient care, generally at a clinical site (hospital, etc.). This course is a continuation of the clinical environment with specific tasks to be accomplished during the semester enrolled. Radiographic positioning and exposure will be emphasized during evaluation of examinations done by students. On site clinical instruction, supervision, evaluation, and placement is the responsibility of College faculty. Prerequisites: RADR 2309, RADR 2360 (3:0-18)

## **RADR 2362 Clinical-Medical Radiologic Tech V**

This is a method of instruction providing detailed education, training, work-based experience and direct patient care, generally at a clinical site (hospital, etc.). This course is a continuation of the clinical environment with specific tasks to be accomplished during the semester enrolled. Radiographic positioning and exposure will be emphasized during evaluation of examinations done by students. On site clinical instruction, supervision, evaluation, and placement is the responsibility of College faculty. Prerequisites: RADR 2333, RADR 2361 (3:0-18)

## **RADR 2363 Clinical-Medical Radiologic Tech VI**

This is a method of instruction providing detailed education, training, work-based experience and direct patient care, generally at a clinical site (hospital, etc.). This course is a continuation of the clinical environment with specific tasks to be accomplished during the semester enrolled. Radiographic positioning and exposure will be emphasized during evaluation of examinations done by students. On site clinical instruction, supervision, evaluation, and placement is the responsibility of College faculty. Prerequisites: RADR 2213, RADR 2362 (3:0-18)

## **RADR 2401 Intermediate Radiographic Procedures**

This is a continuation of the study of the proper manipulation of radiographic equipment, positioning and alignment of the anatomic structure and equipment, and evaluation of images for proper demonstration of anatomy. Prerequisites: RADR 1260, 1309, 1313, 1317, and 1411 (4:3-3)

# **Medical Laboratory Technology**

## **HPRS 1106 Essentials of Medical Terminology**

This course is a study of medical terminology, word origin, structure and application. (1:1-0)

## **HPRS 1191 Special Topics in Allied Health-Clinical Lab Assistant**

This course covers recently identified current events, skills, knowledge and/or attitudes and behaviors pertinent to the occupation and relevant to the professional development of the student. The student will learn to utilize critical thinking skills to evaluate relevant journal articles and case studies. Various professional organizations will be discussed. The value of continuing education and opportunities such education affords will be stressed. The student will be introduced to the computer resources available for the field. Prerequisite: HPRS 1391 (1:1-0)

## **HPRS 1391 Special Topics in Allied Health-Clinical Lab Assistant**

This course covers recently identified current events, skills, knowledge and/or attitudes and behaviors pertinent to the occupation and relevant to the professional development of the student. The student will learn how to perform waived tests and aid the technologists in the clinical laboratory. Topics to be addressed include microbiology, hematology, serology and urinalysis, as well as specimen processing. The importance of safety and patient confidentiality will be emphasized. The student will also learn how to screen donors for blood bank donations. Prerequisite: PLAB 1223. Prerequisite or co-requisite: PLAB 1166 (3:2-2)

## **MLAB 1201 Introduction to Clinical Laboratory Science**

This course is an introduction to clinical laboratory science including quality control, laboratory math, safety, laboratory equipment, laboratory settings, accreditation, certification, professionalism and ethics. Prerequisites: to enroll in this course, a student must have qualified to enter the medical laboratory technology program or have permission from the program director of the medical laboratory technology department. (2:2-1)

## **MLAB 1227 Coagulation**

This is a course in coagulation theory, procedures, and practical applications. It includes quality control, quality assurance, safety and laboratory procedures which rely on commonly performed manual and/or semi-automated methods. Prerequisite: MLAB 1201 (2:2-1)

## **MLAB 1231 Parasitology/Mycology**

This course is a study of the taxonomy, morphology, and pathogenesis of human parasites and fungi, including the practical application of laboratory procedures, quality control, quality assurance, and safety. Prerequisite or co-requisite: MLAB 2434 (2:2-1)

## **MLAB 1235 Immunology/Serology**

This course is an introduction to the theory and application of basic immunology, including the immune response, principles of antigen-antibody reactions, and the principles of serological procedures as well as quality control, quality assurance, and safety. Prerequisite: MLAB 1201 (2:2-1)

## **MLAB 1311 Urinalysis and Body Fluids**

This course is an introduction to the study of urine and body fluid analysis. It includes the anatomy and physiology of the kidney, physical, chemical and microscopic examination of urine, cerebrospinal fluid, and other body fluids as well as quality control, quality assurance and safety. Prerequisite: a student must enroll in the medical laboratory technology program. (3:2-2)

## **MLAB 1415 Hematology**

This is a study of blood cells in normal and abnormal conditions. It includes instruction in the theory and practical application of hematology procedures, including quality control, quality assurance, safety, manual and/or automated methods as well as blood cell maturation sequences, and normal and abnormal morphology with associated diseases. Prerequisite: a student must have been accepted into the medical laboratory technology program or have permission from the department chair, MLAB 1201. (4:3-4)

## **MLAB 2166 Practicum I-Medical Laboratory Technician**

This course covers practical general training and experiences in the workplace. The College and the employer develop and document an individualized plan for the student. The plan relates the workplace training and experiences to the student's general and technical course of study. This course may be repeated if topics and learning outcomes vary. Prerequisite: MLAB 2434 (1:0-9)

## **MLAB 2266 Practicum II-Medical Laboratory Technician**

This course covers practical general training and experiences in the workplace. The College and the employer develop and document an individualized plan for the student. The plan relates the workplace training and experiences to the student's general and technical course of study. This course may be repeated if topics and learning outcomes vary. Prerequisite: MLAB 2431 (2:0-17)

## **MLAB 2267 Practicum III-Medical Laboratory Technician**

This course covers practical general training and experiences in the workplace. The College and the employer develop and document an individualized plan for the student. The plan relates the workplace training and experiences to the student's general and technical course of study. This course may be repeated if topics and learning outcomes vary. Prerequisite: MLAB 2501 (2:0-17)

## **MLAB 2338 Advanced Topics in Medical Laboratory Technician**

This course examines the integration of all areas of the clinical laboratory and correlates laboratory test data with diagnostic applications and pathophysiology using critical thinking skills. This capstone course provides the student with the synthesis of knowledge and skills in preparation for professional employment and establishes the framework for continuous growth in the medical laboratory technology field. Prerequisites: MLAB 2434 and MLAB 2266 (3:3-0)

## **MLAB 2431 Immunohematology**

This is a study of blood antigens and antibodies. It presents quality control, basic laboratory technique and safety. It includes the principles, procedures and clinical significance of test results in genetics, blood group systems, pre-transfusion testing, adverse effects of transfusions, donor selection and components, and hemolytic disease of the newborn. Prerequisite or co-requisite: MLAB 1235 (4:3-4)

## **MLAB 2434 Microbiology**

This course covers instruction in the theory, practical application, and pathogenesis of clinical microbiology, including collection, quality control, quality assurance, safety, setup, identification, susceptibility testing, and reporting results. Prerequisite: MLAB 1201 or department chair approval (4:3-4)

## **MLAB 2501 Chemistry**

This course is an introduction to the principles and procedures of various tests performed in Clinical Chemistry. It presents the physiological basis, principle and procedure, and clinical significance of test results, including quality control and reference values. It includes basic chemical laboratory technique and safety, electrolytes, acid-base balance, proteins, carbohydrates, lipids, enzymes, endocrine function, and toxicology. Prerequisite or co-requisite: MLAB 1201 (5:3-6)

## **PLAB 1166 Practicum Phlebotomy**

This is a practical, general workplace training supported by an individual learning plan developed by the employer, the College and the student. Prerequisite: PLAB 1223. (1:0-8)

## **PLAB 1223 Phlebotomy**

This course covers skill development in the performance of a variety of blood collection methods using proper techniques and standard precautions. It includes vacuum collection devices, syringes, capillary skin puncture, butterfly needles and blood culture, and specimen collection on adults, children, and infants. It covers infection prevention, patient identification, specimen labeling, quality assurance, specimen handling, processing, accessioning, professionalism, ethics, and medical terminology. (2:2-1)

## **SCIT 1495 Special Topics in Analytical Chemistry**

This course covers current events, skills, knowledge, and/or attitudes and behaviors pertinent to the technology or occupation and relevant to the professional development of the student. It introduces basic chemistry principles, such as the periodic classification of elements, structure of matter, chemical bonding, formulas and chemical reactions. It presents properties of acids and bases and their application in the clinical setting. It also includes a brief introduction to organic chemistry, structures of carbohydrates, lipids and proteins. It relates topics to their significance in the performance of laboratory testing as well as human health and body function. Prerequisite: MLAB 1201 (4:4-0)

# Mental Health Services

## **CMSW 1341 Behavior Modification and Cognitive Disorder**

This is an in-depth study of the theories and principles of behavioral science and skill development in the methods of modifying and controlling behavior in clinical and personal settings. It covers techniques such as managing self-behavior. Topics include stimulus controls, shaping, relaxation training, reinforcement scheduling and token economics. It covers basic understanding of psychosomatic drugs and their effects on behavior in both treatment and recovery. Prerequisites: Reading level 6, Writing level 6 (3:3-0)

## **DAAC 1304 Pharmacology of Addiction**

This course covers psychological, physiological, and sociological effects of mood altering substances and behaviors, emphasizing pharmacological effects of tolerance, dependency/withdrawal, cross addiction, and drug interaction. Prerequisites: Reading level 6, Writing level 6 (3:3-0)

## **DAAC 1311 Counseling Theories**

This course covers major theories and current treatment modalities. Prerequisites: Reading level 6, Writing level 6 (3:3-0)

## **DAAC 2307 Addicted Family Intervention**

This course covers the family as a dynamics system focusing on the effects of addiction on family roles, rules, and behavior patterns. It includes the effects of mood altering substances, behaviors, and therapeutic alternatives as they relate to the family from a multicultural and transgenerational perspective. Prerequisite: DAAC 1304 (3:3-0)

# Course Descriptions

## **DAAC 2341 Counseling Alcohol and Other Drug Addictions**

This course focuses on special skills and techniques in the application of counseling skills for the Alcohol and Other Drug (AOD) client. It covers development and utilization of advanced treatment planning and management. It includes review of confidentiality and ethical issues. Prerequisites: Reading level 6, Writing level 6 (3:3-0)

## **DAAC 2366 Practicum - Substance Abuse/Addiction Counseling**

This course is a practical, general workplace training supported by an individualized learning plan developed by the employer, College, and student. Prerequisites: must complete 28 hours in the program before the practicum (3:0-21)

## **PMHS 2366 Practicum-Mental Health Services Technician**

This course is a practical, general workplace training supported by an individualized learning plan developed by the employer, College, and student. This technical course satisfies a requirement for the Mental Health Technician Certificate of Technology and Mental Health Clinical Counseling and Psychology Associate of Applied Science, but does not satisfy a psychology requirement for the associate of arts, associate of science or associate of arts in teaching degree. Prerequisites: must complete 28 hours in the program before the practicum (3:0-21)

## **PSYT 1371 Mental Health Legal and Ethical Issues**

This course covers concepts of confidentiality, ethics, mental health legislation, regulation relating to the maintenance and use of mental health and substance abuse information and mental records. Prerequisites: Reading level 6, Writing level 6 (3:3-0)

## **PSYT 1471 Basic Nursing Skills**

This course is a mastery of entry level nursing skills and competencies for a variety of health care settings. It utilizes the nursing process as the foundation for all nursing interventions specific to mental health/psychiatric facilities. Prerequisites: Reading level 6 and Writing level 6 (4:2-4)

## **PSYT 2301 Psychology of Group Dynamics**

This is a study of the patterns and dynamics of group interactions. Topics include a psychosocial approach to group behavior, structure, types, stages, roles, leadership of group activities, and facilitation. This technical course satisfies a requirement for the Mental Health Technician Certificate of Technology and Mental Health Clinical Counseling and Psychology Associate of Applied Science, but does not satisfy a psychology requirement for the associate of arts, associate of science or associate of arts in teaching degree. Prerequisite: PSYC 2301 (3:3-0)

## **PSYT 2321 Crisis Intervention**

This is a study of the principles and theories of assisting the individual in a crisis situation. Topics include coping skills to increase potential reinstatement of equilibrium to an individual's lifestyle and suicide prevention. Prerequisite: PSYC 2301 (3:3-0)

## **PSYT 2331 Abnormal Psychology**

This is a study of the theories and processes involved in the diagnosis and treatment of mental disorders. Prerequisite: PSYC 2301 (3:3-0)

## **PSYT 2339 Counseling Theories**

This is an examination of major theories of various treatment modalities. Topics include reality therapy, psychodynamics, grief therapy, person-centered therapy, rational emotive therapy, and cognitive behavioral approaches. Prerequisites: Reading level 6, Writing level 6 (3:3-0)

## **SCWK 2301 Assessment and Case Management**

This is a study of the exploration of procedures to identify and evaluate an individual's and/or family's strengths, weaknesses, problems, and needs in order to develop an effective plan of action. Topics include oral and written communications essential for assessment, screening, intervention, prevention, case management, and referral. Prerequisites: Reading level 6, Writing level 6 (3:3-0)

## **SOCW 2361 Introduction to Social Work**

This is a study of the development of the philosophy and practice of social work in the United States, survey of the fields and techniques of social work, practice, ethics, and values, roles and responsibilities and various field of social work practice. This course also includes a 40-hour integrated agency-related volunteer experience. Prerequisites: Reading level 6, Writing level 6 (3:3-0)

# Mexican American Studies

## **HUMA 1305 Intro Mexican-American Studies**

This is an introduction to the Mexican-American/Chicano culture, from its inception to the present. This is an interdisciplinary survey designed to introduce students to the salient cultural, economic, educational, historical, political, and social aspects of the Mexican-American/Chicano experience. Prerequisites: Reading level 6 and Writing level 6 (3:3-0)

## **HUMA 1311 Mexican-American Art Appreciation**

This course is an examination of Mexican-American/Chicano artistic expressions in the visual and performing arts. Prerequisite: Reading level 6 (3:3-0)

# Military Science

## **AFSC 1201 Foundations of United States Air Force I**

This course introduces the concept of war and the role the Air Force plays. Students will learn about the career opportunities available, benefits afforded an Air Force member, and develop productive life skills. Basic oral and written communication skills will be demonstrated. Course focus is on developing basic knowledge and comprehension of Air Force leadership dimensions, while gaining a big picture understanding of ROTC course, its purpose in the Air Force and its advantages for the student. (2:1-2)

## **AFSC 1202 Foundations of United States Air Force II**

This course explores the basic verbal and written communication skills and an operational understanding of the Air Force core values. Students will learn the importance of managing diversity and the concepts and consequences of harassment. The basic concepts of Air Force leadership, as well as, the concept of effective team building will be developed. Case studies will provide a tangible context for learning the Soldier's Creed and Warrior Ethos as they apply in the contemporary operating environment. (2:1-2)



## **AFSC 2201 The Evolution of USAF Air and Space Power I**

This course covers key historical events and milestones in the development of air power as a primary instrument of United States national security. Students will learn core values and competencies of leaders in the United States Air Force and tenets of leadership and ethics. (2:1-2)

## **AFSC 2202 The Evolution of USAF Air and Space Power II**

The course overviews the key terms and definitions used to describe air and space power. Students will know the milestone and historical events, leaders, and technological advancements which surround the evolution and employment of USAF air and space power. Basic verbal and written communication skills along with an operational understanding of Air Force Core Values and ethics will be demonstrated. (2:1-2)

## **MSCI 1125 Physical Readiness Training**

This is a physical conditioning class designed to promote high levels of performance on the Army Physical Fitness Test (APFT), and to improve the health, endurance, and strength of the body. This course satisfies the physical education requirement and may be repeated. This course prepares each cadet for the APFT consisting of 2 minutes of push-ups, 2 minutes of sit-ups, as well as the two mile run. This class, given by the Military Science Department, uses Army techniques and guidelines during each session. (1:0-1)

## **MSCI 1126 Physical Readiness Training**

This is a physical conditioning class designed to promote high levels of performance on the Army Physical Fitness Test (APFT), and to improve the health, endurance, and strength of the body. This course satisfies the physical education requirement and may be repeated. This course prepares each cadet for the APFT consisting of 2 minutes of push-ups, 2 minutes of sit-ups, as well as the two mile run. This class, given by the Military Science Department, uses Army techniques and guidelines during each session. (1:0-1)

## **MSCI 1131 Advanced Physical Fitness Course**

This is a senior level ROTC physical conditioning class designed to promote high levels of performance on the Army Physical Fitness Test (APFT), and to improve the health, endurance, and strength of the body. Emphasis is placed on implementations of the Army's physical fitness program through lecture and practical exercise. Students will also become familiar with Army height, weight, and body fat standards. Participate in three assessment sessions to track individual improvement and participate as leaders in the conduct of the physical training session in the vicinity of SJCD area. Prerequisite or co-requisite: MSCI 1125 (1:0-1)

## **MSCI 1210 Introduction to ROTC**

This course explores the dimensions of creative and innovative tactical leadership strategies and styles by examining team dynamics and two historical leadership theories that form the basis of the Army leadership framework. Aspects of personal motivation and team building are practiced planning, executing and assessing team exercises. While participation in the leadership labs is not mandatory during the MSL II year, significant experience can be gained in a multitude of areas and participation in the labs is highly encouraged. The focus continues to build on developing knowledge of the leadership attributes and core leader competencies through the understanding of Army rank, structure, and duties as well as broadening knowledge of land navigation and squad tactics. Case studies will provide a tangible context for learning the Soldier's Creed and Warrior Ethos as they apply in the contemporary operating environment. (2:1-2)

## **MSCI 1220 Introduction to Leadership**

This course introduces you to the personal challenges and competencies that are critical for effective leadership. You will learn how the personal development of life skills such as goal setting, time management, physical fitness, and stress management relate to leadership, officership, and the Army profession. The focus is on developing basic knowledge and comprehension of Army leadership dimensions, attributes and core leader competencies while gaining a big picture understanding of the ROTC program, its purpose in the Army, and its advantages for the student. (2:1-2)

## **MSCI 2210 Military Leadership Development Cr. 2**

This course focuses on characteristics of leadership, problem analysis, decision making, oral presentations, first aid, small unit tactics, land navigation, basic radio communication, marksmanship, fitness training, and rappelling. Fitness training required two times per week in addition to class and lab. (2:2-2)

## **MSCI 2220 Military Leadership Development Cr. 2**

This course focuses on characteristics of leadership, problem analysis, decision making, oral presentations, first aid, small unit tactics, land navigation, basic radio communication, marksmanship, fitness training, and rappelling. Fitness training required two times per week in addition to class and lab. (2:2-2)

## **MSCI 2810 Basic Camp Cr. 8**

No military obligation is associated with this course. Student will not receive credit for both basic course work and Basic Camp. Six week off-campus field training practicum. Introduces students to the Army and leadership. Prerequisite: Approval of the department chairman. (8:0-8)

# Modern Languages

## **CHIN 1411 Beginning Chinese I**

This course offers fundamental skills in listening comprehension, speaking, reading, and writing and includes basic vocabulary, grammatical structures, and culture. This course is an introduction to the Mandarin Chinese language in both written and spoken form. Students will spend three hours a week learning language patterns and forms, and two hours a week in lab activities. Students who have successfully completed two years of Chinese in high school may, with department chair approval, begin with CHIN 1412. However, students should be aware that some degrees require two semesters of beginning Chinese. Prerequisite: Reading level 6 (4:3-2)

## **CHIN 1412 Beginning Chinese II**

This course presents fundamental skills in listening comprehension, speaking, reading, and writing, including basic vocabulary, grammatical structures, and culture. This course is the second half of an introduction to the Mandarin Chinese language in written and spoken form. Students will spend three hours a week learning language patterns and forms and two hours a week in lab activities. Students who have successfully completed two years of Chinese in high school may, with department chair approval, begin with CHIN 1412. However, students should be aware that some degrees require two semesters of beginning Chinese. Prerequisite: CHIN 1411 (4:3-2)

## **CHIN 2311 Intermediate Chinese I**

This course covers a review and application skills in listening comprehension, speaking, reading and writing. It emphasizes conversation, vocabulary acquisition, reading, composition, and culture. This course is designed to give the student who has completed CHIN 1411 and CHIN 1412 increased fluency and confidence in the use of the Chinese language. Although no lab is scheduled, students will have access to tapes and other lab materials and will be encouraged to use these supplemental learning tools. Prerequisite: CHIN 1412 (3:3-0)

# Course **Descriptions**

## **CHIN 2312 Intermediate Chinese II**

This course is a review and application of skills in listening comprehension, speaking, reading and writing, emphasizing conversation, vocabulary acquisition, reading, composition, and culture. This course is a continuation of CHIN 2311. Although no lab is scheduled, students will have access to tapes and other lab materials and will be encouraged to use these supplemental learning tools. Prerequisite: CHIN 2311 (3:3-0)

## **FREN 1411 Beginning French I**

This course is an introduction to the French language in both written and spoken form. Students will spend three hours a week learning language patterns and forms and two hours a week in lab activities. Students who have successfully completed two years of French in high school may, with the department chair approval, begin with FREN 1412. However, students should be aware that some degrees require two semesters of beginning French. Prerequisite: Reading level 6 (4:3-2)

## **FREN 1412 Beginning French II**

This course continues the introduction to the French language begun in FREN 1411. Students who have had two or more years of French in high school or can demonstrate adequate proficiency may begin with this course, provided they have approval from the department chair. Students will spend three hours a week learning language patterns and forms and two hours a week in lab activities. Prerequisite: FREN 1411 (4:3-2)

## **FREN 2311 Intermediate French I**

This course is designed to give the student who has completed FREN 1411 and 1412 increased fluency and confidence in the use of the French language. Although no lab is scheduled, students will have access to tapes and other lab materials and will be encouraged to use these supplemental learning tools. Prerequisites: FREN 1411-1412 (3:3-0)

## **FREN 2312 Intermediate French II**

This course is a continuation of FREN 2311. Although no lab is scheduled, students will have access to tapes and other lab materials and will be encouraged to use these supplemental learning tools. Prerequisite: FREN 2311 (3:3-0)

## **GERM 1411 Beginning German I**

This course is an introduction to the German language in written and spoken form. Students will spend three hours a week learning language patterns and forms and two hours a week in lab activities. Students who have successfully completed two years of German in high school may, with the department chair approval, begin with GERM 1412. However, students should be aware that some degrees require two semesters of beginning German. Prerequisite: Reading level 6 (4:3-2)

## **GERM 1412 Beginning German II**

This course continues the introduction to the German language begun in German 1411. Students who have had two or more years of German in high school or can demonstrate adequate proficiency may begin with this course, provided they have approval from the department chair. Students will spend three hours a week learning language patterns and forms and two hours a week in lab activities. Prerequisite: GERM 1411 (4:3-2)

## **GERM 2311 Intermediate German I**

This course is designed to give the student who has completed GERM 1411 and 1412 increased fluency and confidence in the use of the German language. Although no lab is scheduled, students will have access to tapes and other lab materials and will be encouraged to use these supplemental learning tools. Prerequisites: GERM 1411-1412 (3:3-0)

## **GERM 2312 Intermediate German II**

This course is a continuation of GERM 2311. Although no lab is scheduled, students will have access to tapes and other lab materials and will be encouraged to use these supplemental learning tools. Prerequisite: GERM 2311 (3:3-0)

## **SPAN 1411 Beginning Spanish I**

This course is an introduction to the Spanish language in written and spoken form, enabling a beginning student to lay foundations for later study. Students will spend three hours a week learning language patterns and forms and two hours a week in lab activities. Students who have successfully completed two years of Spanish in high school may, with the department chair approval, begin with SPAN 1412. However, students should be aware that some degrees require two semesters of beginning Spanish. Prerequisite: Reading level 6 (4:3-2)

## **SPAN 1412 Beginning Spanish II**

This course continues the introduction to the Spanish language begun in Spanish 1411. Students who have had two or more years of Spanish in high school or can demonstrate adequate proficiency may begin with this course, provided they have approval from the department chair. Prerequisite: SPAN 1411 (4:3-2)

## **SPAN 1415 Essentials of Spanish for Health Professions**

This course requires intensive practice in basic grammar, pronunciation, reading and simple conversation; emphasis is placed on medical terminology. This course cannot be substituted for SPAN 1411 (4:3-2)

## **SPAN 2311 Intermediate Spanish I**

This course is designed to give the student who has completed Spanish 1411 and 1412 increased fluency and confidence in the use of the Spanish language. Although no lab is scheduled, students will have access to tapes and other lab materials and will be encouraged to use these supplemental learning tools. Prerequisites: SPAN 1411-1412 (3:3-0)

## **SPAN 2312 Intermediate Spanish II**

This course is a continuation of Spanish 2311. Although no lab is scheduled, students will have access to tapes and other lab materials and will be encouraged to use these supplemental learning tools. Prerequisite: SPAN 2311 (3:3-0)

## **SPAN 2316 Spanish on the Job I**

The primary purpose of this course is to give the student an opportunity to develop an accurate oral use of the language (in simulated on-the-job situations), based on a sound understanding of structure. Reading will be incidental to the oral objective. Prerequisite: eight hours of Spanish or approval (3:3-0)

## **SPAN 2317 Spanish on the Job II**

This course has the same objectives as SPAN 2316 but utilizes different simulated on-the-job situations. Prerequisite: eight hours of Spanish or approval (3:3-0)

# Music

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## **MUEN 1121 Instrumental Ensemble**

Membership is open to all students on the basis of audition and/or conference. Instruments may include all orchestra instruments. The instrumental ensemble meets three laboratory hours per week with special rehearsals called as needed. The course may be taken a maximum of six times for credit. (1:0-3)

## **MUEN 1122 Concert Band**

Membership is open to all students on the basis of the audition and/or conference. Performance literature represents many styles of music. Concert band meets three hours per week, with special rehearsals called as needed. This course may be repeated a maximum of six times for credit. (1:0-3)

## **MUEN 1124 Wind Ensemble**

Membership is open to all students on the basis of the audition and/or conference. Performance literature represents many styles of music, making Wind Ensemble interesting and enjoyable. The Wind Ensemble meets three hours per week, with special rehearsals called as needed. This course may be repeated a maximum of six times for credit. (1:0-3)

## MUEN 1125 Jazz Ensemble

Membership is open to all students on the basis of audition and/or conference. Instruments in the Jazz Ensemble include trumpets, trombones, saxophones, clarinets, flutes, piano, bass, guitar and drums. Performance literature represents many styles of music; big band jazz, swing, Latin jazz, and jazz/rock. The Jazz Ensemble meets three hours per week with special rehearsals as needed. This course may be repeated a maximum of six times for credit. (1:0-3)

## MUEN 1131 Small Instrumental Ensemble

Membership is open to all students on the basis of audition and/or conference. Instruments in the small instrumental ensemble may vary from semester to semester. The small instrumental ensemble meets three laboratory hours per week with special rehearsals called as needed. This course may be repeated a maximum of six times for credit. (1:0-3)

## MUEN 1141 College Choir

Membership is open to all students on the basis of audition and/or conference. The College choir performs many styles of sacred and secular literature. This course may be repeated a maximum of six times for credit. (1:0-3)

## MUEN 1143 Concert Choir

Membership is open to all students on the basis of audition. This group has a limited membership which performs serious and entertaining music throughout the semester. This course may be taken a maximum of six times for credit. (1:0-3)

## MUEN 1154 Small Vocal Ensemble

Membership is open to all students on the basis of audition and/or conference. This group has a limited membership which performs serious and entertaining music throughout the semester. Compositions performed may include for madrigals, duets, trios, quartets, sextets, or other small vocal ensembles. Students enrolled in this course are also expected to enroll in MUEN 1141 (College choir). This course may be repeated a maximum of six times for credit. (1:0-3)

## MUSI 1110 Perspective in Jazz

This course will discuss topics related to jazz with special emphasis on its development and contribution to American culture. It is structured for the student interested in jazz music. (1:1-0)

## MUSI 1159 Music Theater Production

Membership is open to all students on the basis of audition and/or conference. Students enrolled in this course will present a musical theater production at the end of this course and/or will prepare and perform quality musical theater literature. Students with leading roles also will be expected to concurrently enroll in DRAM 1120 (Rehearsal and Performance). This course may be taken a maximum of two times for credit. (1:0-4.5)

## MUSI 1163 Jazz Improvisation I

This is a course designed to provide background knowledge of basic materials and skills used in improvising jazz solos. Jazz Improvisation is structured for any student with a performing medium in music. Prerequisite: knowledge of all major scales (1:1-2)

## MUSI 1164 Jazz Improvisation II

This is a continuation of MUSI 1163. Prerequisite: MUSI 1163 or instructor approval (1:1-2)

## MUSI 1181 Class Piano I

Beginning Class Piano equips students with little or no background in music with the basic information and techniques necessary to read and perform simple music at the keyboard. Subsequent classes build upon and refine the information and techniques. (1:1-1)

## MUSI 1182 Class Piano II

This is a continuation of Class Piano I. (1:1-1)

## MUSI 1183 Class Voice I

Class Voice begins with instruction in the fundamentals of correct breathing, tone production and diction. It is a course designed for students with little or no previous training to aid in developing a pleasing tone quality produced with ease and proper enunciation. Additional semesters expand and sharpen these skills in a sequential pattern. (1:1-1)

## MUSI 1184 Class Voice II

This is a continuation of Class Voice I. (1:1-1)

## MUSI 1186 Music Composition I

This course covers techniques of composition and arranging for various combinations of instruments and voices in differing musical procedures such as tonality, modality, atonality, serialism, pandiatonicism, etc. Prerequisites: MUSI 1301 or 1211. It may be repeated for no credit. Students must have department chair approval to enroll. (1 hour.) (1:0.5-0)

## MUSI 1187 Music Composition II

This is a continuation of MUSI 1186 or 1286. Prerequisites: MUSI 1186 or 1286, or consent of the department chair. It may be repeated for no credit. (1 hour.) (1:0.5-0)

## MUSI 1188 Class Percussion I

This course includes class instruction in the fundamental techniques of playing percussion. The course is designed for the student with little or no background in music with the basic information and techniques necessary to read and perform simple repertoire. (1:1-1)

## MUSI 1192 Class Guitar I

Beginning Class Guitar is intended to develop student skills in applied music theory, sight-reading, performance and technique on the instrument. The class is for beginning to intermediate level students with limited experience. (1:1-1)

## MUSI 1193 Class Guitar II

This is a continuation of Class Guitar I. (1:1-1)

## MUSI 1211 Theory of Music I

This is a study of the fundamentals of musicianship, including aspects of notation and part-writing. Prerequisites: approval of the instructor and concurrent enrollment in appropriate ear training course and piano, unless waiver is granted by instructor. (2:3-0)

## MUSI 1212 Theory of Music II

This is a continuation of MUSI 1211. Prerequisite: MUSI 1211 or instructor approval and concurrent enrollment in ear training course and piano. (2:3-0)

## MUSI 1216 Ear Training and Sight Singing I

This course provides basic aural, visual and vocal experience in the form of dictation and sight singing. Prerequisites: approval of instructor and concurrent enrollment in appropriate theory course and piano. (2:3-0)

## MUSI 1217 Ear Training Sight Singing II

This is a continuation of MUSI 1216. Prerequisites: MUSI 1216 or instructor approval and concurrent enrollment in theory course and piano. (2:3-0)

## MUSI 1286 Music Composition I

This course covers techniques of composition and arranging for various combinations of instruments and voices in differing musical procedures such as tonality, modality, atonality, serialism, pandiatonicism, etc. Prerequisites: MUSI 1301 or 1211, or consent of the department chair. It may be repeated for no credit. Students must have department chair approval to enroll. (2 hours.) (2:1-0)

# Course **Descriptions**

## **MUSI 1287 Music Composition II**

This is a continuation of MUSI 1186 or 1286. Prerequisites: MUSI 1186 or 1286, or consent of the department chair. It may be repeated for no credit. Students must have department chair approval to enroll. (2 hours.) (2:1-0)

## **MUSI 1290 Electronic Music**

This is an introduction to the use of synthesizers, computers, sequencing, and music printing software, multi-track recorders and other MIDI (Music Instrument Digital Interface) devices in notation, arrangement, composition, and performance of music. The course may be repeated once for credit. Prerequisite: MUSI 1301, class or applied piano, or instructor approval. (2:1-2)

## **MUSI 1301 Music Fundamentals**

This course is designed to familiarize students with the meaning of musical notation through the study of scales, chords and rhythm. It is especially adapted for students preparing to become teachers, and other students who wish to gain a broader knowledge of music. (3:3-0)

## **MUSI 1306 Listening to Music**

This course offers a non-technical approach to the enjoyment of music. Emphasis is on an intelligent listening procedure with materials from standard vocal, instrumental and keyboard literature. (3:3-0)

## **MUSI 1307 Survey of Music Literature**

This is a course for music majors on the fundamentals of music terminology and standard instrumental and vocal forms. Representative composers and compositions from secular and sacred music of the major eras are studied by means of records and live performance. Prerequisites: Reading level 6 (3:3-0)

## **MUSI 1310 American Popular Music**

This is a study of the evolution of popular American music styles which have proven to be a powerful reflection of American culture. The course will provide a survey of music created, performed, and reflective of a unique American style including: Jazz, Ragtime, New Orleans style, swing and subsequent jazz styles, American folk and popular music, the American musical theater, and rock and roll. (3:3-0)

## **MUSI 2181 Class Piano III**

This is a continuation of Class Piano II. (1:1-1)

## **MUSI 2182 Class Piano IV**

This is a continuation of Class Piano III. (1:1-1)

## **MUSI 2183 Class Voice III**

This is a continuation of Class Voice II. (1:1-1)

## **MUSI 2184 Class Voice IV**

This is a continuation of Class Voice III. (1:1-1)

## **MUSI 2186 Music Composition III**

This is the third semester of compositional studies in the sequence. Prerequisites: MUSI 1187 or 1287, or consent of the department chair. It may be repeated for no credit. Students must have department chair approval to enroll. (1 hour.) (1:0.5-0)

## **MUSI 2187 Music Composition IV**

This is the fourth semester of compositional studies in the sequence. Prerequisites: MUSI 2186 or 2286, or consent of the department chair. It may be repeated for no credit. Students must have department chair approval to enroll. (1 hour.) (1:0.5-0)

## **MUSI 2211 Theory of Music III**

This is a continuation of the first-year theory course. It includes written and keyboard harmonic analysis. Prerequisites: MUSI 1212 or approval of the instructor, and concurrent enrollment in ear training course and piano. (2:3-0)

## **MUSI 2212 Theory of Music IV**

This is a continuation of MUSI 2211. Prerequisites: MUSI 2211 and concurrent enrollment in ear training course and piano. (2:3-0)

## **MUSI 2216 Ear Training and Sight Singing III**

This is a continuation of the first-year course in Ear Training and Sight Singing. Prerequisite: MUSI 1217, co-requisite: concurrent enrollment in appropriate theory course and piano. (2:3-0)

## **MUSI 2217 Ear Training and Sight Singing IV**

This is a continuation of MUSI 2216. Prerequisite: MUSI 2216, co-requisite: concurrent enrollment in appropriate theory course and piano (2:3-0)

## **MUSI 2286 Composition III**

This is the third semester of compositional studies in the sequence. Prerequisites: MUSI 1187 or 1287, or consent of the department chair, may be repeated for no credit. (2 hours.) (2:1-0)

## **Applied Music - Private Lessons**

Private instruction on instruments and in voice is available to students majoring or minoring in music and to other students who desire to gain or improve proficiency in voice or an instrument. Private lessons are offered for one credit hour at the beginning level or two-credit hours at secondary-level or concentration-level. Students

are assigned private lessons on the basis of audition and/or counseling by the music faculty. One-credit-hour private lessons meet for one-half hour per week; two-credit-hour private lessons meet for one hour per week. A maximum of 20 credit hours in applied music (all private lessons) may be applied toward a degree. A music major who is not concentrating (or majoring) in piano should enroll in class piano or in a secondary-level piano course, unless the student passes a keyboard barrier exam. Private instruction is available in voice, piano, organ, flute, oboe, clarinet, bassoon, saxophone, French horn, trumpet, baritone, trombone, tuba and percussion instruments. Private instruction in guitar, violin, viola, and string bass is also available. Courses involving private instruction in applied music have certain minimum weekly practice time requirements. For information concerning these requirements, contact the appropriate department chair.

## **Non-Destructive Testing Technology**

### **METL 1313 Introduction to Corrosion**

This course provides an introduction to internal, external, and atmospheric corrosion including terminology, causes of common problems in industry, and general remedies such as cathodic protection, protective coatings, material selection, and chemical treatments. (3:2-2)

### **METL 1405 Welding Metallurgy I**

This is a study of metallurgy and its application related to welding including studies of metal characteristics, testing, effects of alloying and heat treating, and basic properties, with an emphasis on conducting tests and metallographic techniques. (4:3-3)

### **METL 2435 Welding Metallurgy II**

This is a study in the application of metallurgy principles to processes and procedures pertaining to various metal compositions and fusions. Studies include the metallurgy and selection of filler metal groups, the nature of defects, metal fusion problems, thermal effects in metal fusion and the welding of various kinds of steel and nonferrous metals. Prerequisite: METL 1405 or approval of department chair (4:3-3)

## **NDTE 1301 Film Interpretation of Weldments**

This is the study of radiographic film interpretation, including exploration of radiographic basics, interpretation of indications, and causes of indications. Film indications are evaluated according to the structural, piping, and pressure vessel codes. (3:2-2)

## **NDTE 1405 Introduction to Ultrasonic: Level 1 & 2**

This course covers the basic theory and applications of the ultrasonic techniques of materials testing covering the theoretical material from the certification test for Ultrasonic Level I American Society of Non-Destructive Testing. (4:3-3)

## **NDTE 1410 Liquid Penetrant/Magnetic Particle Testing: Level 1 & 2**

This course is a theoretical study and practical application of the non-destructive testing techniques of penetrant and magnetic particle testing required by quality assurance and test personnel. (4:3-3)

## **NDTE 1440 Eddy Current Testing**

This course covers the general principles of Eddy Current Testing including theory, knowledge, and skills for basic examination; effects of material properties, probe types, calibration standards, and equipment selection. (4:3-3)

## **NDTE 1454 Intermediate Ultrasonics: Flaw Detection & Sizing**

This course covers applications of the ultrasonic techniques of materials testing for flaw sizing and characterization. (4:3-3)

## **NDTE 2339 Pressure Piping Inspection**

This course covers the general principles of pressure vessel inspection. It covers American Society of Mechanical Engineers (ASME) and American Petroleum Institute (API) documents that pertain to pressure piping inspection. It prepares students to take the API 570 certification examination. (3:2-2)

## **NDTE 2401 Advanced Ultrasonics: Phased Array & A.U.T.**

Emphasis is placed on examination of components and characterization of flaws using advanced techniques. Prerequisite: NDTE 1454 (4:3-3)

## **NDTE 2411 Preparation for Certified Welding Inspector Exam**

This course covers the fundamentals of welding and inspection, code interpretation and the principle portion in preparation of the certified welding inspector examination. (4:3-3)

## **NDTE 2470 Pressure Vessel Inspection**

This course will provide the general principles of pressure vessel inspection. It will also cover American Society of Mechanical Engineers (ASME) and American Petroleum Institute (API) documents that pertain to pressure vessel inspection. Emphasis will be placed on preparing students to take the API 510 certification examination. (4:3-3)

## **QCTC 1341 Statistical Process Control**

This course focuses on components of statistics including techniques of collection, presentation, analysis, and interpretation of numerical data as applied to statistical control. It stresses application of correlation methods, analysis of variance, dispersion, sampling quality control, reliability, mathematical models, and programming. Prerequisite: Math level 7 (3:2-2)

## **QCTC 1343 Quality Assurance**

This course provides information on quality assurance principles and applications and introduces the student to the quality assurance profession. (3:2-2)

## **QCTC 1446 Introduction to Testing and Inspection Systems**

This is a study of testing and inspection systems including pertinent specifications, inspection tools, gauges, instruments and mechanisms in illustrating the need for maintaining quality to establish standards. It covers the applications and methods of solving quality control and inspection problems using the appropriate testing and inspection methods such as AET, ET, LT, MT, PT, RT, UT and VT. (4:3-3)

## **QCTC 1448 Metrology and Blueprint Reading**

This is the study of the terminology, methodology, and practice of measurement systems and equipment in the calibration and use of basic measuring tools. (4:3-3)

## **QCTC 2331 Standards**

This is a study of philosophy and theory of appropriate standards, organizations, and systems integration relating to the standards criteria in society. (3:2-2)

## **WLDG 2580 Cooperative Education Welding**

This course covers career-related activities encountered in the student's area of specialization offered through an individualized agreement among the College, employer, and student. Under the supervision of the College and the employer, the student combines classroom learning with work experience. It includes a lecture component. Prerequisite: None (5:1-28)

# Nursing

## **Nursing (Associate Degree)**

### **RNSG 1108 Dosage Calculations for Nursing**

This course includes reading, interpreting and solving calculations problems encountered in the preparation of medications, and conversion of measurements within the apothecary, avoirdupois, and metric system. It is a prerequisite for program admission. (1:1-0)

### **RNSG 1140 Nursing Skills for Articulating Students**

This course is to provide validation of current skills and mastery of procedures in a variety of settings; application of a systematic problem solving process and critical thinking skills; focus on the expansion of the scientific knowledge and principles underlying nursing skills and procedures; and competency in knowledge, judgment, skills and professional values within a legal/ethical framework. This course is a prerequisite for program admission. (1:0-3)

### **RNSG 1144 Intermediate Nursing Skills**

This is a study of the concepts and principles necessary to perform intermediate or advanced nursing skills for the adult patient; and demonstrate competence in the performance of nursing procedures. Content includes knowledge, judgment, skills and professional values within a legal/ethical framework. (1:0-4)

### **RNSG 1160 Clinical Nursing Introduction**

This course is a health-related work-based experience that enables the student to apply specialized occupational theory, skills, and concepts. Direct supervision is provided by the clinical professional. This introductory level course helps students synthesize new knowledge, apply previous knowledge, or gain experience managing the workflow. Practical experience is simultaneously related to theory. Clinical education is an unpaid learning experience. (1:0-6)

### **RNSG 1166 Practicum, Nursing Transition**

This is an intermediate or advanced type of health professions work-based course that helps students gain practical experience in the discipline, enhance skills, and integrate knowledge. The emphasis is on practical work experience for which the student has already acquired the necessary theoretical knowledge and basic skills. Direct supervision is provided by the clinical professional, generally a clinical preceptor. A health practicum may be paid or unpaid learning experience. Prerequisite for Paramedic to RN includes RNSG 1413, and prerequisite or co-requisite: RNSG 2207 (1:0-7)

# Course **Descriptions**

## **RNSG 1191 Special Topics in Nursing**

This course covers recently identified current events, skills, knowledge, and/or attitudes and behaviors pertinent to the technology or occupation and relevant to the professional development of the student. Prerequisite: admission to the ADN program and approval of the department chair. Note: 1-2 credit hours available on individual basis. (1 or 2: 0-1 or 2)

## **RNSG 1209 Introduction to Nursing**

This course provides an overview of nursing and the role of the professional nurse as provider in patient-centered care, patient safety advocate, member of the health care team, and member of the profession. Content includes knowledge, judgment, skills, and professional values with a legal/ethical framework. This course lends itself to a blocked approach. Prerequisite: Admission to the ADN Mobility Program. Co-requisites: RNSG 1417 and 1260 (2:2-0)

## **RNSG 1215 Health Assessment**

This course covers development of skills and techniques required for a comprehensive nursing health assessment within a legal/ethical framework. Prerequisite: Department chair approval (2:1-2)

## **RNSG 1251 Care of the Childbearing Families**

This is a study of concepts related to the provision of perinatal nursing care for childbearing families. Content includes knowledge, judgment, skills, and professional values within a legal/ethical framework. Topics may include selected complications. (2:2-0)

## **RNSG 1260 Clinical: Concepts of Professional Nursing Practice I for Articulating Students**

This is a health related work-based learning experience that enables the student to apply specialized occupational theory, skills, and concepts. Direct supervision is provided by the clinical professional. Prerequisite: Admission to the ADN Mobility program. Co-requisites: RNSG 1209 and 1417 (2:0-12)

## **RNSG 1261 Clinical Nursing Common Concepts of Adult Health**

This course is a health-related work-based experience that enables the student to apply specialized occupational theory, skills, and concepts. Direct supervision is provided by the clinical professional. This introductory level course helps students synthesize new knowledge, apply previous knowledge, or gain experience managing the workflow. Practical experience is simultaneously related to theory. Clinical education is an unpaid learning experience. (2:0-6)

## **RNSG 1262 Clinical Nursing Complex Concepts of Adult Health**

This course is a health-related work-based learning experience that enables the student to apply specialized occupational theory, skills, and concepts. Direct supervision is provided by the clinical professional. This intermediate level course helps students synthesize new knowledge, apply previous knowledge, or gain experience managing the work flow. Practical experience is simultaneously related to theory. Clinical education is an unpaid learning experience. (2:0-6)

## **RNSG 1263 Clinical Nursing Care of the Childbearing Family**

This course is a health-related work-based learning experience that enables the student to apply specialized occupational theory, skills, and concepts. Direct supervision is provided by the clinical professional. This intermediate level course helps students synthesize new knowledge, apply previous knowledge, or gain experience managing the work flow. Practical experience is simultaneously related to theory. Clinical education is an unpaid learning experience. (2:0-6)

## **RNSG 1301 Pharmacology**

This is an introduction to the science of pharmacology with emphasis on the actions, interactions, adverse effects, and nursing implications of drug classifications. Content includes the roles and responsibilities of the nurse in safe administration of medications within a legal/ethical framework. Prerequisites: BIOL 2401, 2402, and BIOL 2420 or 2421 and Department chair approval. (3:3-0)

## **RNSG 1341 Common Concepts of Adult Health**

This course covers the basic integration of the role of the professional nurse as a provider of patient-centered care, patient safety advocate, member of health care team and member of the profession. It includes the study of common concepts of caring for adult patients and families with medical-surgical health care needs related to body systems. Emphasis on knowledge, judgment, skills and professional values within a legal/ethical framework. (3:3-0)

## **RNSG 1343 Concepts of Adult Health**

This course provides integration of previous knowledge and skills related to common adult health needs into the continued development of the professional nurse as a provider of patient-centered care, patient safety advocate, member of health care team and member of the profession in the care of adult patients and families with complex medical-surgical health care needs associated with body systems. Emphasis on complex knowledge, judgment, skills and professional values within a legal/ethical framework. (3:3-0)

## **RNSG 1413 Foundation for Nursing Practice**

This is an introduction to the role of the professional nurse as a provider of patient-centered care, patient safety advocate, member of health care team and member of the profession. Content includes fundamental concepts of nursing practice, history of professional nursing, a systematic framework for decision making and critical thinking. The mechanisms of disease and the needs and problems that can arise are discussed and how the nursing process helps manage the patient through these issues. Emphasis on knowledge, judgment, skills, and professional values within a legal/ethical framework. Prerequisite: Department chair approval. (4:3-3)

## **RNSG 1417 Concepts of Professional Nursing Practice I for Articulating Students**

This course provides the articulating student the opportunity to examine the role of the professional nurse; application of a systematic problem solving process and critical thinking skills which includes a focus on the adult population; and competency in knowledge, judgment, skill, and professional values within a legal/ethical framework. This course lends itself to either a blocked or integrated approach. Prerequisite: Admission to ADN Mobility program. Co-requisite: RNSG 1260 and 1209 (4:4-0)

## **RNSG 2121 Management of Client Care**

This course features exploration of leadership and management principles applicable to the roles of the professional nurse. Includes application of knowledge, judgment, skills, and professional values within a legal/ethical framework. (1:1-0)

## **RNSG 2161 Clinical: Concepts of Maternal/Newborn Nursing and Women's Health**

This course is a health-related work-based learning experience that enables the student to apply specialized occupational theory, skills, and concepts. Direct supervision is provided by the clinical professional. Prerequisite: RNSG 1209, 1417 and 1260. Co-requisite: RNSG 2208 (1:0-6)

## **RNSG 2163 Clinical: Concepts of Nursing Practice IIIb for Articulating Students**

This is a health-related work-based learning experience that enables the student to apply specialized occupational theory, skills, and concepts. Direct supervision is provided by the clinical professional. Prerequisite: RNSG 2213 and 2162. Co-requisite: RNSG 2271 (1:0-6)

## RNSG 2201 Care of Children and Families

This course is a study of concepts related to the provision of nursing care for children and their families, emphasizing judgment and professional values within a legal/ethical framework. Prerequisites: PSYC 2314 (2:2-0)

## RNSG 2207 Transition to Nursing Practice

This is an introduction to selected concepts related to the role of the professional nurse as provider of care, coordinator of care and member of profession. Includes review of trends and issues impacting nursing and health care today and in the future. Content includes knowledge, judgment, skills and professional values within a legal/ethical framework. Introduction to selected medical-surgical topics is included. Prerequisite: Department chair approval. (2:2-1)

## RNSG 2208 Maternal/Newborn Nursing and Women's Health

This course covers concepts related to nursing care for childbearing families and women's health issues. Content includes knowledge, judgment, skill, and professional values within a legal/ethical framework. This course lends itself to a blocked approach. Prerequisites: RNSG 1209, 1417 and 1260. Co-requisite: RNSG 2161 (2:2-0)

## RNSG 2213 Mental Health Nursing

This course covers principles and concepts of mental health, psychopathology, and treatment modalities related to the nursing care of patients and their families. This course enables the student to expand their understanding of human-environmental interactions and evolving mental health patterns within diverse cultures to promote optimal health. The student is provided with an opportunity to understand the organization of mental health patterns as they appear in normative growth and developmental perspectives as well as the alterations in the patterns with the resulting nursing implications. The progression will be from common to more complex mental health patterns as they relate to nursing practice. (2:2-0)

## RNSG 2231 Advanced Concepts of Adult Health

This course covers the application of advanced concepts and skills for the development of professional nurse's roles with adult patients and families involving multiple body systems. Emphasis on advanced knowledge, judgment, skills, and professional values within a legal/ethical framework. (2:2-1)

## RNSG 2260 Clinical Nursing Advanced Concepts of Adult Health

This course is a health-related work-based learning experience that enables the student to apply specialized occupational theory, skills, and concepts. Direct supervision is provided by the clinical professional. This intermediate health professional work-based instruction helps students synthesize new knowledge, apply previous knowledge, or gain experience managing the work flow in the care of adult clients/families with complex health needs involving multiple body systems in intermediate and critical care settings. Practical experience is simultaneously related to theory. Clinical education is an unpaid learning experience. (2:0-6)

## RNSG 2261 Clinical Nursing Mental Health

This course is a health-related work-based learning experience that enables the student to apply specialized occupational theory, skills, and concepts. Direct supervision is provided by the clinical professional. This intermediate level course helps students synthesize new knowledge, apply previous knowledge, or gain experience managing the work flow in mental health nursing. It provides applications of concepts of mental health, psychopathology, and treatment modalities related to nursing care of clients and their families. Practical experience is simultaneously related to theory. Clinical education is an unpaid learning experience. (2:0-6)

## RNSG 2262 Clinical Nursing Care of Children and Families

This course is a health-related work-based learning experience that enables the student to apply specialized occupational theory, skills, and concepts. Direct supervision is provided by the clinical professional. This intermediate health professional work-based instruction helps students synthesize new knowledge, apply previous knowledge, or gain experience managing the work flow in the provision of nursing care for the child and family. Practical experience is simultaneously related to theory. Close and/or direct supervision is provided by a clinical professional, generally in a clinical setting. Practical experience is simultaneously related to theory. Clinical education is an unpaid learning experience. (2:0-6)

## RNSG 2263 Clinical Nursing Management of Client Care

This course is a health-related work-based learning experience that enables the student to apply specialized occupational theory, skills, and concepts. Practical experience is simultaneously related to theory. Direct supervision is provided by the clinical professional. (2:0-6)

## RNSG 2271 Concepts of Nursing Practice IIIb for Articulating Students

This course provides the articulating student the opportunity to synthesize the roles of the professional nurse; application of systematic problem solving and critical thinking skills; focus on the care of patients throughout the lifespan with continued emphasis on leadership and management skills in the provision of care to small groups of adult clients and their families in multiple settings; and competency in knowledge, skills, and professional values within a legal/ethical framework. The focus of this course will be the care of the critically ill patient and nursing management. Prerequisite: RNSG 2213 and 2162. Co-requisite: RNSG 2163 (2:2-0)

## Vocational Nursing

### VNSG 1116 Nutrition

This course is the introduction to nutrients and the role of diet therapy in growth and development and the maintenance of health. Prerequisites: Reading level 7, Writing level 7, Math level 7 and/or Department Chair/Program Director approval (1:0-2)

### VNSG 1119 Leadership and Professional Development

This is a study of the importance of professional growth. Topics include the role of the licensed vocational nurse in the multidisciplinary health care team, professional organizations, and continuing education. Prerequisites: Reading level 7, Writing level 7, Math level 7 and completion of second semester VNSG courses. Course must be taken in third semester. (1:1-0)

### VNSG 1170 Clinical Prep

This course covers methods of instruction providing detailed education, training, and work-based experiences, and simulated direct patient/client care in a laboratory setting. This lab-based course prepares students for a beginning experience in nursing care of adult medical-surgical clients and is a six-week course. Prerequisites: Reading level 7, Writing level 7, Math level 7, and admission into the Vocational Nursing Program. Co-requisite: VNSG 1323. Successful completion of VNSG 1170 and VNSG 1323 are required prior to enrolling in VNSG 2331 and 1260. If unsuccessful in VNSG 1170 and/or 1323, students are ineligible to continue in VNSG 1227 and the VNSG program. Hours: 64 lab hours (1:0-4)

# Course **Descriptions**

## **VNSG 1226 Gerontology**

This course is an overview of the physical, psychosocial, and cultural aspects of the aging process which addresses disease processes of the aging patient. The course also explores the perceptions toward care of the older adult. Prerequisites: Reading level 7, Writing level 7, Math level 7 and completion of the first semester of VNSG courses. Co-requisite: Concurrent enrollment in VNSG 1262 (2:2-0)

## **VNSG 1227 Essentials of Medication Administration**

This course covers general principles of medication administration including determination of dosage, preparation, safe administration, and documentation of multiple forms of drugs. Instruction includes various systems of measurement. Prerequisites: Reading level 7, Writing level 7, Math level 7 and admission into the VNSG program. Co-requisite: VNSG 1260, 1323 and 2331 (2:2-1)

## **VNSG 1230 Maternal-Neonatal Nursing**

This course focuses on the study of the biological, psychological, and sociological concepts applicable to basic needs of the family including childbearing and neonatal care. The course utilizes the nursing process in the assessment and management of the childbearing family. Topics include physiological changes related to pregnancy, fetal development, and nursing care of the family during labor and delivery and the puerperium. Prerequisites: Reading level 7, Writing level 7, Math level 7 and completion of the second semester VNSG courses. Co-requisites: Concurrent enrollment in VNSG 1234 and 2261 required. (2:2-1)

## **VNSG 1231 Pharmacology**

This course discusses the fundamentals of medications and their diagnostic, therapeutic, and curative effects. The course also includes nursing interventions utilizing the nursing process. Prerequisites: Reading level 7, Writing level 7, Math level 7 and completion of the first semester VNSG courses. Co-requisites: Concurrent enrollment in VNSG 1329 and 1361 (2:2-1)

## **VNSG 1234 Pediatrics**

This course is the study of the care of the pediatric patient and family, using the nursing process, during health and disease with an emphasis on growth and developmental needs. Prerequisites: Reading level 7, Writing level 7, Math level 7 and completion of the second semester VNSG courses. Co-requisites: Concurrent enrollment in VNSG 1230 and 2261 required. (2:2-1)

## **VNSG 1260 Clinical I**

This course is a health-related work-based learning experience that enables the student to apply specialized occupational theory (nursing theory), skills, and concepts. Direct supervision is provided by the clinical professional. Prerequisites: Reading level 7, Writing level 7, Math level 7 and successful completion of VNSG 1323 and 1170. Co-requisites: VNSG 2331 and 1227 (2:0-8)

## **VNSG 1262 Clinical III - Practical Nurse**

This course is a health-related work-based learning experience that enables the student to apply specialized occupational theory (nursing theory), skills, and concepts with direct supervision by the clinical professional in the clinical setting. The clinical practice offers the student continued experience in the nursing care of adult medical surgical clients in a variety of clinical settings with a focus on gerontological nursing. Prerequisites: Reading level 7, Writing level 7, Math level 7 and completion of the first semester VNSG courses. Co-requisite: VNSG 1226 (2:0-8)

## **VNSG 1301 Mental Health and Mental Illness**

This course includes factors influencing mental health and mental illness including personality development, human needs and common mental mechanisms. The course also includes common mental disorders and related therapy. Prerequisites: Reading level 7, Writing level 7, Math level 7 and completion of the first semester of VNSG courses. (3:3-0)

## **VNSG 1320 Anatomy and Physiology for Allied Health**

This course is the study of the structure (anatomy) and function (physiology) of the human body, including the neuroendocrine, integumentary, musculoskeletal, digestive, urinary, reproductive, respiratory and circulatory systems. Prerequisites: Reading level 7, Writing level 7, Math level 7 and Department Chair/Program Director approval (3:3-1)

## **VNSG 1323 Basic Nursing Skills**

This course provides instruction for the mastery of basic nursing skills and competencies for a variety of health care settings using the nursing process as the foundation for all nursing interventions. Prerequisites: Reading level 7, Writing level 7, Math level 7 and admission into the VNSG program. Co-requisites: VNSG 1170 and 1227 required. (3:2-4)

## **VNSG 1329 Medical-Surgical Nursing I**

This course is the application of nursing process to the care of adult patients experiencing medical-surgical conditions in the health-illness continuum. A variety of health care settings are utilized. Prerequisites: Reading level 7, Writing level 7, Math level 7 and completion of first semester VNSG courses. Co-requisites: Concurrent enrollment in VNSG 1231 and 1361 required. (3:3-1)

## **VNSG 1332 Medical-Surgical Nursing II**

This course is the continuation of Medical-Surgical Nursing I with application of the nursing process to the care of the adult patient experiencing medical-surgical conditions along the health-illness continuum in a variety of health care settings. Prerequisites: Reading level 7, Writing level 7, Math level 7 and completion of the second semester VNSG courses. Co-requisites: Concurrent enrollment in VNSG 2260 required. (3:3-1)

## **VNSG 1361 Clinical II-Practical Nurse**

This course is a health-related work-based learning experience that enables the student to apply specialized occupational theory, skills, and concepts. Direct supervision is provided by the clinical professional. Prerequisites: Reading level 7, Writing level 7, Math level 7 and completion of the first semester VNSG courses. Co-requisites: Concurrent enrollment in VNSG 1231 and 1329 required. (3:0-12)

## **VNSG 2260 Clinical IV-Practical Nurse**

This course is a health-related work-based learning experience that enables the student to apply specialized occupational theory (nursing theory), skills, and concepts with direct supervision by a clinical professional in the clinical setting. The clinical practice offers the student continued experience in the nursing care of adult medical-surgical clients in a variety of clinical settings with a focus on medical-surgical nursing. Prerequisites: Reading level 7, Writing level 7, Math level 7 and completion of the second semester VNSG courses. Co-requisite: Concurrent enrollment in VNSG 1332 (2:0-8)

## **VNSG 2261 Clinical V-Practical Nurse**

This course is a health-related work-based learning experience that enables the student to apply specialized occupational theory (nursing theory), skills, and concepts with direct supervision by a clinical professional in the clinical setting. The



clinical practice offers the student experience in the nursing care of the maternal, newborn and pediatric patients. Prerequisites: Reading level 7, Writing level 7, Math level 7 and completion of the second semester VNSG courses. Co-requisites: Concurrent enrollment in VNSG 1230 and 1234 (2:0-8)

## VNSG 2331 Advanced Nursing Skills

This course provides instruction for the mastery of advanced level nursing skills and competencies in a variety of health care settings utilizing the nursing process as a problem-solving tool. Prerequisites: Reading level 7, Writing level 7, Math level 7 and VNSG 1170 and 1323. Co-requisites: VNSG 1227 and 1260 (3:2-4)

## Occupational Health and Safety Technology

### EPCT 1301 Hazardous Waster Operations and Emergency Response Training and Related Topics

This course covers minimum certification requirements in the Code of Federal Regulations (CFR) for a hazardous waste site worker as found in 29 CFR 1910.120 and 40 CFR 264.16. Prerequisites: Reading level 6, Writing level 6, Math level 6 (3:3-0)

### EPCT 1305 Environmental Regulations Overview

This is an introduction to the history of the environmental movement, including basic requirements for compliance with the environmental regulations. Prerequisites: Reading level 6, Writing level 6, Math level 6 (3:3-0)

### EPCT 1307 Introduction to Environmental Safety and Health Technology

This is a historical overview of environmental safety and health. The emphasis is on the use of occupational safety and health codes, and development of knowledge and skills to reinforce the attitudes and behaviors required for safe and environmentally sound work habits. It covers safety, health, and environmental issues in the performance of all jobs, tasks, and regulatory compliance issues. (3:3-0)

### EPCT 1311 Introduction to Environmental Science

This is an overview of environmental science and current global concerns, and a brief history of environmental ethics, resource use, and conservation. Includes discussion of fundamental principles of resource economics and environmental health. Prerequisites: Reading level 6, Writing level 6, Math level 6 (3:3-0)

### EPCT 1313 Contingency Planning

This is an introduction to the development of an emergency response contingency plan for a facility or community. Emphasis on analyzing the hazards, writing and implementing the contingency plans, and evaluating the effectiveness of the contingency plan. Prerequisites: Reading level 6, Writing level 6, Math level 6 (3:3-0)

### EPCT 1341 Principles of Industrial Hygiene

This course covers concepts in threshold limits, dose response, and general recognition of occupational hazards, including sampling statistics, calibration, and equipment use. Includes a study of the control of occupational hazards and sample collection and evaluation methods. Prerequisites: CHEM 1411 and MATH 1314 or MATH 1333, Reading level 6, Writing level 6, Math level 6 (3:3-0)

### EPCT 2333 Environmental Toxicology

This is a review of the research determining the systematic health effects of exposures to chemical. Includes discussion of risk factors, routes of entry, control measures, and acute and chronic effects. Prerequisites: CHEM 1411 and MATH 1314 or MATH 1333, Reading level 6, Writing level 6, Math level 6 (3:3-0)

### OSHT 1307 Construction Site Safety and Health

This is an introduction to safety requirements for construction sites including occupational health and environmental controls. Prerequisites: Reading level 6, Writing level 6, and Math level 6 (3:3-0)

### OSHT 1309 Physical Hazards Control

This is a study of the physical hazards and the methods of workplace design and redesign to control these hazards. Emphasis on the regulation codes and standards associated with the control of physical hazards. Prerequisites: Reading level 6, Writing level 6, Math level 6 (3:3-0)

### OSHT 1313 Accident Prevention, Inspection and Investigation

This course provides a basis of understanding the nature of occupational hazard recognition,

accident prevention, loss reduction, inspection techniques, and accident investigation analysis. Prerequisites: Reading level 6, Writing level 6, Math level 6 (3:3-0)

### OSHT 1320 Energy Industrial Safety

This course is an overview for industrial workers of state/federal regulations and guidelines which require industrial safety training. Topics include the 29 CFR 1910, 1926, and National Fire Protection Association (NFPA) 70E standards such as confined space entry, emergency action, lock out/tag out, arc flash, and other work related subjects. Prerequisites: Reading level 6, Writing level 6, Math level 6 (3:3-0)

### OSHT 1321 Fire Protection Systems

This is a study of fire protection systems and their applications with emphasis on the fire prevention codes and standards. Prerequisites: Reading level 6, Writing level 6, Math level 6 (3:3-0)

### OSHT 2305 Ergonomics and Human Factors in Safety

This is a study of the relationship of human behavior and ergonomics as applied to workplace safety. Prerequisite: MATH 1314 or MATH 1333, Reading level 6, Writing level 6, Math level 6 (3:3-0)

### OSHT 2309 Safety Program Management

This course examines the major safety management issues that effect the workplace including safety awareness, loss control, regulatory issues, and human behavior modifications. Prerequisites: Reading level 6, Writing level 6, Math level 6 (3:3-0)

### OSHT 2320 Safety Training Presentation Techniques

This course covers principles of developing and presenting effective industrial/business training. Emphasis on instructor qualifications and responsibilities, principles teaching including use of teaching aids and presentation skills. Prerequisites: Reading level 6, Writing level 6, and Math level 6 (3:3-0)

### OSHT 2380 Cooperative Education-Occupational Safety and Health Tech.

Career related activities encountered in the student's area of specialization are offered through a cooperative agreement between the College, employer, and student. Under supervision of the College and employer, the student combines classroom learning with work experience. Directly related to a technical discipline, specific learning objectives guide the student through the work experience. Prerequisite: department chair approval (3:1-14)

# Course **Descriptions**

## **OSHT 2401 OSHA Regulations-General Industry**

This is a study of Occupational Safety and Health Administration (OSHA) regulations pertinent to general industry. Prerequisites: Reading level 6, Writing level 6, Math level 6 (4:4-0)

## **Paralegal**

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### **LGLA 1303 Legal Research**

This course provides a working knowledge of the fundamentals of effective legal research. Topics include law library techniques, traditional hardcopy legal research, computer assisted legal research, briefs, and legal memoranda. The student will locate, read, and understand primary and secondary legal authority, design and implement effective legal research strategies; and be familiar with computer assisted legal research tools and the proper role of these tools. Prerequisite or co-requisite: LGLA 1307 (3:3-1)

### **LGLA 1305 Legal Writing**

This course presents the fundamentals of legal writing techniques. Topics include letters, case briefs, legal memoranda, trial and appellate briefs, case and fact analysis, citation forms, and legal writing styles. It is recommended you take or have taken LGLA 1303, Legal Research. Prerequisites: LGLA 1307, ENGL 1301 (3:3-0)

### **LGLA 1307 Introduction to Law and the Legal Professions**

This course provides an overview of the law and the legal professions. Topics include legal concepts, systems, and terminology; ethical obligations and regulations; professional trends and issues with particular emphasis on the paralegal. The student will develop a legal vocabulary; explain fundamental legal concepts and systems; explain the ethical obligations. Prerequisite: Reading level 4 (3:3-0)

### **LGLA 1317 Law Office Technology**

This course introduces computer technology and its applications within the law office. Topics include the use of computer technology in the delivery of legal services with particular emphasis on the paralegal's role. (3:3-1)

### **LGLA 1343 Bankruptcy**

This course presents fundamental concepts of bankruptcy law and procedure with emphasis on the paralegal's role. Topics include individual and business liquidation and reorganization. Prerequisite: Reading level 4 and Prerequisite or co-requisite: LGLA 1307 (3:3-0)

### **LGLA 1345 Civil Litigation**

This course presents fundamental concepts and procedures of civil litigation with emphasis on the paralegal's role. Topics include pretrial, trial, and post trial phases of litigation. The student will define and properly use terminology relating to civil litigation, locate, describe, and analyze sources of law relating to the civil litigation process, describe the role and ethical obligations of the paralegal in civil litigation; and draft documents commonly used in civil litigation. Prerequisite or co-requisite: LGLA 1307, Reading level 4 (3:3-0)

### **LGLA 1351 Contracts**

This course presents fundamental concepts of contract law with emphasis on the paralegal's role. Topics include formation, performance, and enforcement of contracts under the common law, the Uniform Commercial Code, and the Texas Business and Commerce Code. The student will define and properly use terminology relating to contract law, locate, describe, and analyze sources of law relating to contract law; describe the role and ethical obligations of the paralegal relating to contract law; and draft documents commonly used in contract law. Prerequisite or co-requisite: LGLA 1307 (3:3-0)

### **LGLA 1353 Wills, Trusts, and Probate Administration**

This course presents fundamental concepts of the law of wills, trusts, and probate administration with emphasis on the paralegal's role. The student will define and properly use terminology relating to wills, trusts, and probate administration; locate, describe, and analyze sources of law relating to wills, trusts, and probate administration; describe the role and ethical obligations of the paralegal in wills, trusts, and probate administration; and draft documents commonly used in wills, trusts, and probate administration. Prerequisites or co-requisites: LGLA 1307, Reading level 4 (3:3-0)

### **LGLA 1355 Family Law**

This course presents fundamental concepts of family law with emphasis on the paralegal's role. Topics include formal and informal marriages, divorce, annulment, marital property, adoption, and the parent-child relationship. The student will define and properly use terminology relating to family law, locate, describe, and analyze sources of law relating to family law; describe the role and ethical obligations of the paralegal in family law; and draft documents commonly used in family law. Prerequisites or co-requisites: LGLA 1307, Reading level 4 (3:3-0)

### **LGLA 1359 Immigration Law**

This course presents fundamental concepts of immigration law with emphasis on the paralegal's role. Topics include substantive and procedural law related to visa applications, deportation, naturalization, and citizenship. Prerequisite: Reading level 4 and prerequisite or co-requisite: LGLA 1307 (3:3-0)

### **LGLA 1391 TX and US Constitutional Law**

This course includes a study of specific limited provisions of the Texas and U.S. Constitutions affecting recent societal legal issues. Discussion includes the history and evolution of both documents. Students will analyze case law from the U.S. Supreme Court, the Texas Supreme Court and the Texas Court of Criminal Appeals analyzing both constitutions. Students will complete a written law office memorandum based on assigned facts. Prerequisite or co-requisite: LGLA 1307 (3:3-0)

### **LGLA 2303 Torts and Personal Injury Law**

This course is a study of principles, methods, and investigative techniques utilized to locate, gather, document, and manage information related to tort and personal injury law, with an emphasis on developing interviewing and investigative skills to prepare the paralegal to communicate effectively while recognizing ethical problems in this area of law. Prerequisites or co-requisites: Reading level 4, LGLA 1307 (3:3-0)

### **LGLA 2309 Real Property**

This course presents fundamental concepts of real property law with emphasis on the paralegal's role. Topics include the nature of real property, rights and duties of ownership, land use, voluntary and involuntary conveyances, and recording of and searching for real estate documents. Prerequisites or co-requisites: LGLA 1307, Reading level 4 (3:3-0)

### **LGLA 2311 Business Organizations**

This course presents basic concepts of business organizations with emphasis on the paralegal's role. Topics include law of agency, sole proprietorships, forms of partnerships, corporations, and other emerging business entities. The student will define and properly use terminology relating to business organizations; locate, describe, and analyze sources of law relating to business organizations; describe the role and ethical obligations of the paralegal relating to formation, operation, and termination of the various business entities; describe the formation, operation, and termination of business entities; and draft documents required for the formation, operation, and termination of business entities; and draft documents required for the formation, operation, and termination of business entities. Prerequisite or co-requisite: LGLA 1307 (3:3-0)

## LGLA 2313 Criminal Law and Procedure

This course introduces the criminal justice system including procedures from arrest to final disposition, principles of federal and state law, and the preparation of pleadings and motions. The student will define and properly use terminology relating to criminal law; describe sources of law relating to criminal law; locate and analyze cases and statutes relating to criminal law; describe the role and ethical obligations of the paralegal relating to criminal law; and draft documents commonly used in criminal law. Prerequisite or co-requisite: LGLA 1307, Reading level 4 (3:3-0)

## LGLA 2323 Intellectual Property

This course presents the fundamentals of intellectual property law, including creation, procurement, preparation, and filing documents related to patents, copyrights, trademarks, and processes of intellectual property litigation with emphasis on the paralegal's role. Prerequisite: Reading level 4 and prerequisite or co-requisite: LGLA 1307 (3:3-0)

## LGLA 2333 Advanced Legal Document Preparation

This course covers preparation of legal documents based on hypothetical fact situations drawn from various areas including real estate, family law, contracts, litigations, and business organizations. Prerequisites or co-requisites: LGLA 1307, Reading level 4 (3:3-0)

## LGLA 2335 Advanced Civil Litigation

This course implements advanced civil litigation techniques with emphasis on the paralegal's role and builds upon skills acquired in prior civil litigation courses. It is recommended you take or have taken LGLA 1345 Civil Litigation. Prerequisite: LGLA 1307, Reading level 4 (3:3-0)

## LGLA 2388 Internship-Paralegal/Legal Assistant

This course provides an experience external to the College for an advanced student in a specialized field involving a written agreement between the educational institution and a business or industry. Mentored and supervised by a workplace employee, the student achieves objectives that are developed and documented by the College and that are directly related to specific occupational outcomes. This may be a paid or unpaid experience. As outlined in the learning plan, the student will master the theory, concepts and skills involving the tools, materials, equipment, procedures, regulations, laws, and interactions within and among political, economic, environmental, and legal systems associated with the particular occupational and the business/industry; demonstrate ethical behavior, safety

practices, interpersonal and teamwork skills, communicating in the applicable language of the occupation and the business or industry. Prerequisites: 18 credit hours of LGLA courses and ENGL 1301 (Student must be "placed" the semester before they plan to take this course. This course may be taken a maximum two times for credit.) (3:1-15)

## Pharmacy Technician

### HPRS 1106 Essentials of Medical Terminology

This course is a study of medical terminology, word origin, structure and application. (1:1-0)

### PHRA 1301 Introduction to Pharmacy

This is an overview of the qualifications, operational guidelines, and job duties of a pharmacy technician. (3:3-0)

### PHRA 1305 Drug Classification

This is a study of disease processes, pharmaceutical drugs, abbreviations, classifications, dosages, actions in the body, and routes of administration. (3:3-0)

### PHRA 1309 Pharmaceutical Mathematics I

This course covers pharmaceutical mathematics including reading, interpreting, and solving calculation problems encountered in the preparation and distribution of drugs. (3:3-0)

### PHRA 1313 Community Pharmacy Practice I

This course is an introduction to the skills necessary to process, prepare, label and maintain records of prescriptions in a community pharmacy to include customer service, count and pour techniques, prescription calculations, drug selection and preparation, over-the-counter drugs, inventory management and legal parameters. (3:2-3)

### PHRA 1345 Compounding Sterile Preparations and Aseptic Technique

This is a study of the process of compounding sterile preparations and aseptic technique within legal and regulatory guidelines specified by USP <797> standards. Prerequisites: PHRA 1309, PHRA 1313 (3:2-3)

### PHRA 1347 Pharmaceutical Mathematics II

This course focuses on advanced concepts of Pharmaceutical Mathematics. Prerequisite: PHRA 1309 (3:3-0)

## PHRA 1349 Institutional Pharmacy Practice

This course covers fundamentals of the diverse roles and practice of pharmacy technicians in an institutional pharmacy setting. Also includes in-depth coverage of hospital pharmacy organization, work flow and personnel, medical and pharmaceutical terminology, safety techniques, data entry, packaging and labeling operations, pharmaceutical compounding, inpatient drug distribution systems, continuous quality improvement and inventory control. Prerequisite: PHRA 1313 (3:2-3)

## PHRA 1360 Clinical: Community Pharmacy

This is a health-related work-based learning experience which enables students to apply specialized occupational theory, skills and concepts under direct supervision provided by clinical professionals. Prerequisites: PHRA 1301, 1305, 1309, 1313 (3:0-10)

## PHRA 1441 Pharmacy Drug Therapy

This is a study of therapeutic agents, their classifications, properties, actions, and effects on the human body and their role in the management of disease. Provides detailed information regarding drug dosages, side effects, interactions, toxicities, and incompatibilities. Prerequisites: PHRA 1305. (4:4-0)

## PHRA 2360 Clinical: Institutional Pharmacy

This is a health-related work-based learning experience enabling students to apply specialized occupational theory, skills and concepts under direct supervision provided by clinical professionals. Prerequisites: PHRA 1345, 1347, 1349, 1360, and 1372 (3:0-10)

## Philosophy

### PHIL 1301 Introduction to Philosophy

This course provides a general overview of the historical development and the major systems of philosophic thought, the nature of man, knowledge, morality, social and political theory, and the existence of God. Prerequisites: Reading level 7, Writing level 7 (3:3-0)

### PHIL 1304 Introduction to World Religions

Introduction to World Religions is a survey course in philosophy designed to familiarize students with the major theories of world religions. Students will establish broad and multiple perspectives of religious theory and evaluate theories of religion. This course is a survey and critical examination of major theories concerning world religions. Prerequisites: Reading level 7 and Writing level 7 (3:3-0)

# Course **Descriptions**

## **PHIL 2303 Logic I**

This is a study of nature and methods of correct reasoning, deductive proof, fallacies, and arguments. Prerequisites: Reading level 7, Writing level 7 (3:3-0)

## **PHIL 2306 Introduction to Ethics**

This course offers a general overview of classical and contemporary theories concerning the good life, human conduct in society, moral and ethical standards and the nature, criteria, sources, logic, and validity of moral value judgments. Prerequisites: Reading level 7, Writing level 7 (3:3-0)

## **PHIL 2307 Introduction to Social and Political Philosophy**

This is a survey course in philosophy designed to familiarize students with the major theories concerning the organization of societies and governments. Students will establish broad and multiple perspectives of social and political theory and evaluate theories of justice and how to be a responsible member of society. Prerequisites: Reading level 7 and Writing level 7 (3:3-0)

# **Physical Education/ Health Education**

## **PHED 1101 Beginning Tennis**

This course introduces students to beginning skills and strategies in tennis. Lecture topics include history, rules, strategy (both singles and doubles), etiquette, proper care and selection of equipment and proper attire. (1:0-3)

## **PHED 1102 Advanced Tennis**

This course includes instruction of advanced techniques, development of a variety of strokes, singles and doubles strategy in game situations and USTA tournament rules and procedures. Prerequisite: PHED 1101 or department chair approval (1:0-3)

## **PHED 1104 Volleyball**

The student will receive instruction in the skills of passing, setting, spiking, service and blocking. Basic offensive and defensive strategies, rules, tournament play, and officiating will be covered. (1:0-3)

## **PHED 1105 Beginning and Intermediate Swimming**

This course offers explanation, demonstration, and practice in the five basic strokes, diving, survival skills, and basic elements of water safety. (1:0-3)

## **PHED 1106 Canoeing**

Lectures, demonstrations and practice in the basic skills and techniques of canoeing are included. Additional fee required. (1:0-3)

## **PHED 1107 Life Guarding and Life Guard Instruction**

This course provides instruction in life guarding techniques and training for life guard teachers. Successful completion leads to American Red Cross certification. (1:0-3)

## **PHED 1109 Racquetball**

This course introduces the student to the rules, terms, safety, basic skills and strategies necessary to play racquetball. (1:0-3)

## **PHED 1110 Advanced Racquetball**

This course includes instruction in advanced techniques, stroke development, offensive and defensive strategies in game situations, refereeing, serving techniques and strategies, and tournament play. Prerequisite: PHED 1109 or department chair approval (1:0-3)

## **PHED 1111 Bowling**

This course introduces the student to the basic skills and techniques of bowling. Class hours will include instruction in etiquette, selection of equipment, basic techniques, scoring, computing handicaps, league play, and a variety of tournaments. This course is conducted off-campus and requires an additional fee. (1:0-3)

## **PHED 1112 Badminton**

This course covers lectures, demonstrations and practice in the basic skills and techniques of badminton. (1:0-3)

## **PHED 1113 Golf**

Basic skills in playing golf are stressed, including rules and etiquette of the game. (1:0-3)

## **PHED 1114 Jogging**

A variety of methods and materials are presented in the area of cardiovascular and overall physical fitness. (1:0-3)

## **PHED 1116 Water Aerobics**

This is a total body fitness program including cardiovascular and muscular endurance, strength and flexibility in the water. Emphasis is placed on improving muscle tone and maintaining a healthy body weight through water fun and fitness activities. (1:0-3)

## **PHED 1117 Aerobic Activities**

This is a cardiovascular conditioning program designed to improve muscle tone and to help maintain a healthy body weight through fun and fitness activities. (1:0-3)

## **PHED 1118 Advanced Aerobics**

This course is an advanced cardiovascular conditioning program. It is designed to increase energy, mental clarity and health as part of one's lifestyle. This class will incorporate high energy and low impact movements. Some classes include bench-step aerobics. Prerequisite: PHED 1117 or department approval (1:0-3)

## **PHED 1119 Exercise for Health and Fitness**

This course is designed to provide students with an essential knowledge of exercise and fitness on health using lecture, reading, labs on health related fitness components and fitness activities. This course will provide an understanding of cardiovascular disease, risk factors and the role of exercise in prevention. Labs will include fitness testing, self assessments and maintenance programs, nutritional analysis, and individualized programs. A variety of activities will be used, including low impact aerobics, power walking, bench stepping, toning and flexibility exercises, and weights. (1:0-3)

## **PHED 1120 Basketball**

This course covers basic skills and techniques of basketball. (1:0-3)

## **PHED 1121 Slow Pitch Softball**

This course covers development of basic techniques and skills of slow-pitch softball. (1:0-3)

## **PHED 1122 Soccer**

This course covers lectures, demonstrations and practice in basic skills and techniques of soccer. (1:0-3)

## **PHED 1123 Weight Training**

This course covers lectures, demonstrations and practice in the basic skills and techniques of weight training. (1:0-3)

## **PHED 1124 Advanced Weight Training**

This course builds upon basic skills and knowledge of weight training. Topics covered include advanced lifting technique, advanced training theory, biomechanics, and in-depth understanding of the components of fitness. Prerequisite: PHED 1123 or instructor approval (1:0-3)

## **PHED 1126 Team Sports**

This course provides the student with opportunities to participate in a variety of team sports. Volleyball, basketball, flag football, soccer, softball, and floor hockey are included. (1:0-3)

## **PHED 1130 Modern Dance**

This course covers the fundamental techniques of movement and practice in beginning composition. (1:0-3)

## **PHED 1131 Advanced Modern Dance**

This course covers advanced skills and techniques in movement with emphasis on choreography. (1:0-3)

## **PHED 1133 Beginning Jazz**

This course includes basics and background in varied jazz dance forms, from blues to funky, stressing presentation and exploration to creative potential. (1:0-3)

## **PHED 1134 Yoga I**

This is an introduction to basic yoga postures, breathing, and relaxation techniques with emphasis on physical practice. (1:0-3)

## **PHED 1135 Social Dance**

This course is designed to offer students instruction in the fundamentals of social dance patterns and the more basic ballroom dance steps. (1:0-3)

## **PHED 1136 Beginning Tap Dance**

This course covers fundamentals of beginning tap movement and basic steps with emphasis on combination and techniques. (1:0-3)

## **PHED 1137 Beginning Ballet**

This is an introduction to the theory and terminology of classical ballet with emphasis on techniques including barre and centre work. (1:0-3)

## **PHED 1138 Intermediate and Advanced Ballet**

This course covers theory and terminology of pointe and pas de deux with greater emphasis on centre and allegro work. (1:0-3)

## **PHED 1139 Yoga II**

This course is an extension of Yoga I, designed to provide students with expanded knowledge of life management skills by placing emphasis on yoga's strength, flexibility and stress reduction techniques. Lectures and practice will also focus on concentration techniques, nutrition and self-assessment. Prerequisite: Yoga I or instructor approval. (1:0-3)

## **PHED 1140 Martial Arts**

Practice and training in the physical and psychological aspects of self-defense and sport is provided through vigorous flexibility, muscular endurance, and technical instruction. Technical instruction will include martial arts skills, combination tactics and sparring training using partner drills, solo work, and pad drills. (1:0-3)

## **PHED 1141 Advanced Jazz**

This course is designed for the advanced jazz student who wants to develop technical expertise beyond the beginning level of jazz. Prerequisite: PHED 1133 (1:0-3)

## **PHED 1142 Fitness Swimming**

This is a course designed to promote participation in the lifetime sport of swimming. Lectures and practice in the basic swimming strokes will be done. Daily workouts promoting cardiovascular endurance will be emphasized. Students should be good swimmers to take this class. (1:0-3)

## **PHED 1143 Fitness Walking**

This course introduces students to walking as a lifetime fitness activity. Emphasis is placed on correct form and pacing to maintain working heart rate. Other topics covered are proper shoe selection, training principles for improved cardiovascular fitness, safety, and injury prevention. (1:0-3)

## **PHED 1144 Camping**

This course includes lectures, demonstrations, practices and field trips related to camping. Other topics may be included such as hiking, backpacking and similar topics. (1:0-3)

## **PHED 1145 Kickboxing for Fitness**

Kickboxing is a fitness program designed to improve muscle tone and cardiovascular endurance through constant motion and repetition using martial arts techniques. A variety of techniques and some martial arts applications are taught. (1:0-3)

## **PHED 1151 Scuba Diving**

This is a beginning course in scuba diving. Student must furnish their own equipment and must be responsible for qualifying dives. (1:0-3)

## **PHED 1172 Varsity Cheerleading**

Varsity cheerleading is designed to prepare a cheerleading squad for advanced skill development in cheers, chants, stunts, pyramids and dance routines for the purpose of promoting school spirit at athletic events and for entertainment at halftime. Prerequisite: instructor approval (1:0-3)

## **PHED 1173 Precision Dance**

This course covers skills and techniques of precision group performance designed for the experienced performer. The course may be taken a maximum of four times for credit. Prerequisite: instructor approval (1:0-3)

## **PHED 1178 Varsity Golf**

This is a course designed for advanced golf players who are competing on a collegiate level. This course may be taken a maximum of four times for credit. Prerequisite: instructor approval (1:0-3)

## **PHED 1179 Varsity Tennis**

This is a course designed for advanced tennis players who are competing on a collegiate level. The course may be taken a maximum of four times for credit. Prerequisite: instructor approval (1:0-3)

## **PHED 1301 Foundations of Physical Education**

This is a fundamental course in physical education which provides prospective teachers with a general concept of the philosophy and interpretation of physical education and related areas of health education, recreation, and dance. Designed for students majoring in physical education, this course will not satisfy the requirements for one hour of physical education activity. Prerequisite: Reading level 6 (3:3-0)

## **PHED 1304 Personal/Community Health I**

This course covers investigation of the principles and practices in relation to personal and community health. Designed for students majoring in health education, allied health science, and elementary education, this course will not satisfy the requirements for one hour of physical education activity. Prerequisite: Reading level 6 (3:3-0)

## **PHED 1306 First Aid**

This course covers instruction in and practice of first aid techniques. Topics covered are: general procedures at an accident scene, identifying and treating wounds, poisoning, drug abuse, burns, heat related illnesses, frostbite, hypothermia, sudden illness, bone and joint injuries, shock, bandaging techniques, transport techniques, and cardiopulmonary resuscitation. This course will not satisfy the requirements for one hour of physical education activity. (3:3-0)

## **PHED 1308 Officiating Major Sports**

This course covers instruction and application in the fundamentals of sports officiating as they apply to football, volleyball, basketball, softball, track and field. Students will be required to officiate in the intramural program. This course will not satisfy the requirements for one hour of physical education activity. (3:3-0)

# Course **Descriptions**

## **PHED 1332 Recreational and Elementary Game Skills**

Students participate in basic motor skills, fitness and conditioning activities, tumbling, games and sports. This course will not satisfy one hour of physical education activity. (3:3-0)

## **PHED 1346 Drug Use & Abuse**

This course is a study of the use and abuse of drugs in today's society. It emphasizes the physiological, sociological, and psychological factors. (3:3-0)

## **PHED 2100 Varsity Conditioning I**

This course provides students with opportunities to participate in varsity team sport conditioning. (1:0-3)

## **PHED 2101 Varsity Conditioning II**

This course provides students with opportunities to participate in varsity team sport conditioning. (1:0-3)

## **PHED 2102 Varsity Conditioning III**

This course provides students with opportunities to participate in varsity team sport conditioning. (1:0-3)

## **PHED 2103 Varsity Conditioning IV**

This course provides students with opportunities to participate in varsity team sport conditioning. (1:0-3)

## **PHED 2106 Varsity Baseball I**

This course is designed for skilled baseball players who are competing on a collegiate level. (1:0-3)

## **PHED 2107 Varsity Baseball II**

This course is designed for skilled baseball players who are competing on a collegiate level. (1:0-3)

## **PHED 2108 Varsity Baseball III**

This course is designed for skilled baseball players who are competing on a collegiate level. (1:0-3)

## **PHED 2109 Varsity Baseball IV**

This course is designed for skilled baseball players who are competing on a collegiate level. (1:0-3)

## **PHED 2112 Varsity Basketball I**

This course is designed for skilled basketball players who are competing on a collegiate level. (1:0-3)

## **PHED 2113 Varsity Basketball II**

This course is designed for skilled basketball players who are competing on a collegiate level. (1:0-3)

## **PHED 2114 Varsity Basketball III**

This course is designed for skilled basketball players who are competing on a collegiate level. (1:0-3)

## **PHED 2115 Varsity Basketball IV**

This course is designed for skilled basketball players who are competing on a collegiate level. (1:0-3)

## **PHED 2118 Varsity Soccer I**

This course is designed for skilled soccer players who are competing on a collegiate level. (1:0-3)

## **PHED 2119 Varsity Soccer II**

This course is designed for skilled soccer players who are competing on a collegiate level. (1:0-3)

## **PHED 2120 Varsity Soccer III**

This course is designed for skilled soccer players who are competing on a collegiate level. (1:0-3)

## **PHED 2121 Varsity Soccer IV**

This course is designed for skilled soccer players who are competing on a collegiate level. (1:0-3)

## **PHED 2124 Varsity Softball I**

This course is designed for skilled softball players who are competing on a collegiate level. (1:0-3)

## **PHED 2125 Varsity Softball II**

This course is designed for skilled softball players who are competing on a collegiate level. (1:0-3)

## **PHED 2126 Varsity Softball III**

This course is designed for skilled softball players who are competing on a collegiate level. (1:0-3)

## **PHED 2127 Varsity Softball IV**

This course is designed for skilled softball players who are competing on a collegiate level. (1:0-3)

## **PHED 2130 Varsity Volleyball I**

This course is designed for skilled volleyball players who are competing on a collegiate level. (1:0-3)

## **PHED 2131 Varsity Volleyball II**

This course is designed for skilled volleyball players who are competing on a collegiate level. (1:0-3)

## **PHED 2132 Varsity Volleyball III**

This course is designed for skilled volleyball players who are competing on a collegiate level. (1:0-3)

## **PHED 2133 Varsity Volleyball IV**

This course is designed for skilled volleyball players who are competing on a collegiate level. (1:0-3)

## **PHED 2140 Advanced Martial Arts**

This course features advanced training in the physical and psychological aspects of street defense situations through vigorous flexibility, muscular endurance, and technical instruction and practice. Technical instruction will include martial art skills, combinations, and advanced training techniques. In addition, psychological strategies such as cognitive behavior modification, vision-motor behavior rehearsal and stress inoculation training will be taught. Prerequisite: PHED 1140 or instructor approval (1:0-3)

## **PHED 2155 Emergency Water Safety and Emergency Water Safety Instructor**

This course covers instruction in emergency water safety and teaching techniques for all levels of swimming. This course leads to American Red Cross certification. (1:0-3)

## **PHED 2356 Care and Prevention of Athletic Injuries**

This course covers prevention and care of athletic injuries with emphasis on qualities of a good athletic trainer, avoiding accidents and injuries, recognizing signs and symptoms of specific sports injuries and conditions, immediate and long-term care of injuries, and administration procedures in athletic training. (3:3-0)

# **Physical Therapist Assistant**

## **PTHA 1191 Special Topics in PTA**

This course includes topics that address recently identified current events, skills, knowledges, and/or attitudes and behaviors pertinent to the technology or occupation and relevant to the professional development of the student. Prerequisites: PTHA 2409, 1431 and 2301 (1:1-0)

## **PTHA 1201 The Profession of Physical Therapy**

This is an introduction to the profession of physical therapy and the role of the physical therapist assistant. (2:2-0)

## **PTHA 1321 Pathophysiology for the PTA**

This is a study of pathophysiology of diseases/conditions encountered in physical therapy. Prerequisites: PTHA 2409, 1431 and 2301 (3:3-0)

## **PTHA 1360 Clinical I-PTA**

This course is a health-related work-based learning experience that enables the student to apply specialized occupational theory, skills, and concepts. Direct supervision is provided by the clinical professional. Prerequisites: PTHA 1321 and 1191 (3:0-12)

## **PTHA 1405 Basic Patient Care Skills**

This course covers the application of basic patient handling, functional skills, communication, and selected data collection techniques. Prerequisite: Departmental Approval (4:3-3)

## **PTHA 1413 Functional Anatomy**

This course covers the relationship of the musculoskeletal and neuromuscular systems to normal and abnormal movement. Prerequisite: Departmental Approval (4:3-3)

## **PTHA 1431 Physical Agents**

This is a study of the biophysical principles, physiological effects, efficacy, and application of physical agents. Prerequisites: PTHA 1201, 1405 and 1413 (4:3-3)

## **PTHA 2239 Professional Issues**

This is a discussion of professional issues and behaviors related to clinical practice and preparation for transition into the workforce. Prerequisites: PTHA 1321 and 1191 (2:2-0)

## **PTHA 2301 Essentials of Data Collection**

This is a study of data collection techniques used to assist in patient/client management. Prerequisites: PTHA 1201, 1405 and 1413 (3:2-2)

## **PTHA 2409 Therapeutic Exercise**

This course covers the concepts, principles, and application of techniques related to therapeutic exercise and functional training. Prerequisites: PTHA 1201, 1405 and 1413 (4:3-3)

## **PTHA 2435 Rehabilitation Techniques**

This is a study of comprehensive rehabilitation of selected diseases and disorders. Prerequisites: PTHA 1321 and 1191 (4:3-3)

## **PTHA 2460 Clinical II-PTA**

This course is a health-related work-based learning experience that enables the student to apply specialized occupational theory, skills, and concepts. Direct supervision is provided by the clinical professional. Prerequisites: PTHA 1360, 2531 and 2435. (4:0-16)

## **PTHA 2461 Clinical III-PTA**

This course is a health-related work-based learning experience that enables the student to apply specialized occupational theory, skills, and concepts. Direct supervision is provided by the clinical professional. Prerequisites: PTHA 1360, 2531 and 2435 (4:0-16)

## **PTHA 2531 Management of Neurological Disorders**

This is a study of comprehensive rehabilitation techniques of selected neurological disorders. Prerequisites: PTHA 1321 and 1191 (5:3-4)

# Physics

## **PHYS 1401 College Physics I**

This course is designed primarily to meet the needs of the pre-professional and life science major. Problem-solving techniques without the use of calculus are developed in studying the topics of vectors, kinematics, forces, work and energy, momentum, torque, angular momentum, gravity, properties of solids and fluids, heat and thermodynamics. Prerequisites: MATH 1314 or approval by department chair and Reading level 7 (4:3-3)

## **PHYS 1402 College Physics II**

This is a continuation of PHYS 1401. The topics covered are vibration and mechanical waves, sound, electrostatics, electromagnetism, light, optics, lenses and mirrors, relativity and some quantum physics. Prerequisite: PHYS 1401 (4:3-3)

## **PHYS 1411 Astronomy I: Planetary**

Planetary astronomy is the first of a two-semester survey course in astronomy, intended for both science and non-science majors. The course examines the history of astronomy, the physics of planetary motion and astronomical observation, the solar system, stars and star and planet formation. Lab work will include computer exercises and paper and pencil exercises, laboratory experiments and assigned nighttime observations. Prerequisites: Math 1314, Reading level 7, Writing level 7, Math level 9 (4:3-3)

## **PHYS 1412 Astronomy II: Stellar/Galactic**

Stellar/Galactic is the second of a two-semester survey course in astronomy, intended for both science and non-science majors. The course examines the history of astronomy, the physical or orbital motion applied to stellar motion, and astronomical observation, the stars, stellar formation, stellar evolution, deaths of stars, galaxies, galaxy clusters, and cosmology. Lab work will include

computer exercises and paper and pencil exercises, laboratory experiments, and assigned nighttime observations. Prerequisites: Math 1314, Reading level 7, Writing level 7, Math level 9 (4:3-3)

## **PHYS 2425 University Physics I**

This course is designed primarily to meet the need of the pre-engineering student or physics major. Problem solving techniques with the use of calculus are developed in studying the topics of vectors, kinematics, forces, work and energy, momentum, torque, angular momentum, simple harmonic motion, gravity, properties of solids and fluids, heat, and thermodynamics. Prerequisites: MATH 2413 and Reading level 7, Co-requisite: MATH 2414 (4:3-3)

## **PHYS 2426 University Physics II**

In this continuation of PHYS 2425, the topics covered are mechanical waves, sound, electrostatics, electricity, dc and ac circuits, magnetism and electromagnetism, light, optics, lenses and mirrors, relativity and some quantum physics. Prerequisites: PHYS 2425 and MATH 2414 (4:3-3)

# Pipefitting

## **Non-Credit Continuing Education Courses**

### **PFPB 1001 Pipefitting Certificate: Introduction to Pipefitting: Pipefitting 1B** *(Continuing Education Course)*

This course offers instruction in pipefitting hand and power tools, threaded pipe, ladders and scaffolds, motorized equipment, excavation, underground pipe and installation, drawings and detail sheets, piping systems, and trade math. 128 contact hours

### **PFPB 1043 Pipefitting Fabrication and Blueprint Reading: Pipefitting II** *(Continuing Education Course)*

This course offers instruction in socket and butt weld pipe fabrication, rigging, pipe hangers and supports, advanced blueprint reading, standards and specifications, and advanced trade math. 128 contact hours

### **PFPB 2032 Pipefitting Standards, Specifications, Installation: Pipefitting III** *(Continuing Education Course)*

This course promotes skill development related to these areas: motorized equipment, above-ground pipe installation valves, field routing and vessel trim, spring can supports, testing piping systems and equipment, basic plumbing, planning work activities, and non-destructive testing (NDT). 72 contact hours

# Course **Descriptions**

## **PFPB 2033 Pipefitting, Advanced Fabrication and Installation: Pipefitting IV** *(Continuing Education Course)*

This course promotes skill development in these areas: advanced pipe fabrication, aligning pipe to rotating equipment, steam traps, inline specialties, special piping, hot taps, and maintaining valves. 72 contact hours

## **Plumbing**

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### **Non-Credit Continuing Education Courses**

#### **PFPB 1001 Basic Pipefitting: Installation and Rigging (Plumbing IIA)** *(Continuing Education Course)*

This course offers instruction in threaded pipe and valve installation, rigging, safety procedures, trade math, and blueprint reading. 72 contact hours

#### **PFPB 1003 Basic Plumbing Skills** *(Continuing Education Course)*

In this course students develop skills and knowledge required to install drains, sanitary sewers, water and natural gas supply lines, and fixtures commonly used in residential and light commercial buildings and facilities. 72 contact hours

#### **PFPB 1071 Plumbing Standards for Water Supplies** *(Continuing Education Course)*

This course focuses on the installation of water service from the installation of valves and faucets to connecting to water mains. It covers both residential and commercial settings. 72 contact hours

#### **PFPB 2031 Advanced Technologies and Specialized Applications for Piping Trades (Plumbing IVB)** *(Continuing Education Course)*

This course offers instruction in new plumbing techniques and materials in the pipe trades. Topics include specialized piping/fitting procedures for specific industrial applications and upgrades to techniques and practices designed to deal with federal, state, and local environmental and safety regulations. 72 contact hours

## **PFPB 2032 Pipefitting Standards, Specifications, Installation** *(Continuing Education Course)*

This course promotes skill development related to these areas: motorized equipment, above-ground pipe installation valves, field routing and vessel trim, spring can supports, testing piping systems and equipment, basic plumbing, planning work activities, and non-destructive testing (NDT). 72 contact hours

#### **PFPB 2033 Pipefitting, Advanced Fabrication and Installation (Plumbing IIIA)** *(Continuing Education Course)*

This course promotes skill development related to these areas: advanced pipe fabrication, aligning pipe to rotating equipment, stream traps, in-line specialties, special piping, hot taps, and maintaining valves. 72 contact hours

#### **PFPB 2071 Installation and Repair of Potable Water Systems** *(Continuing Education Course)*

This course focuses on the plumbing of potable water systems according to local plumbing codes. Methods of filtering and softening water systems are also discussed. 72 contact hours

## **Process Technology**

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### **CBFM 1307 Boiler Operation**

This course covers basic boiler operation with emphasis on high pressure and low pressure systems. Prerequisites: Reading level 7, Writing level 7, Math level 7 (3:3-1)

### **CTEC 1401 Applied Petrochemical Technology**

This course offers instruction in the basic principles of physics and its application to process facilities. Topics include physical laws and properties and how these relate to the operation of processes. Students define terms and principles of applied physics; solve problems using basic laws of physics; and apply principles of physics to the operation of plant equipment. Prerequisite: MATH 1333 (4:3-3)

### **CTEC 2386 Internship - Chemical Technology/Technician**

This course is designed to provide advanced students with work-based learning experience that enables the student to apply specialized occupational theory, skills and concepts. A learning plan is developed by the College and the employer. The student will be assigned an industry mentor who will work with the student's instructor to assure that student learning outcomes are achieved. The instructor will visit the work site to evaluate student progress through interviews with both the student and the industry mentor. This may be a paid or unpaid position. Prerequisite: PTAC 1410 (3:0-18)

### **CTEC 2387 Internship - Chemical Technology/Technician**

This course is designed to provide advanced students with work based learning experience that enables the student to apply specialized occupational theory, skills, and concepts in the processing industry. A learning plan is developed by the college and the employer. The student will be assigned an industry mentor who will work with the student's instructor to assure student learning outcomes are achieved. The instructor will visit the worksite to evaluate student progress through interviews with both the student and the industry mentor. This may be a paid or unpaid experience. Department chair approval required. Prerequisites: Reading level 7, Math level 7, Writing level 7 (3:0-12)

### **ELMT 2351 Power Generation Fundamentals**

This is a study of electrical power production including identification and function of power plant equipment. Topics include the introduction of power plant operations to include basic power plant cycles, basic power plant systems, boilers, turbines, generators, field devices and instrumentation, control and electrical systems. (3:3-1)

### **ENER 1330 Basic Mechanical Skills for Energy**

This course covers basic mechanical skills using hand and power tools in an industrial environment. Topics include tool use and maintenance, lubrication, measuring, threads and fasteners, bench works, basic mechanical drawings, and basic shop calculations (English and metric). Also, addresses rigging procedures to include chain falls, jacks, cable, fulcrum, port-a-power, and come-alongs. (3:2-2)



## **ENER 1370 Overview of the Energy Industry**

This is a general study of the industries involved in the production and sale of energy, including fuel extraction, refining and distribution. (3:3-0)

## **EPCT 1341 Principles of Industrial Hygiene**

This course covers concepts in threshold limits, dose response, and general recognition of occupational hazards, including sampling statistics, calibration, and equipment use. Includes a study of the control of occupational hazards and sample collection and evaluation methods. Prerequisites: CHEM 1411 and MATH 1314 or MATH 1333, Reading level 6, Writing level 6, Math level 6 (3:3-0)

## **INMT 2303 Pumps, Compressors and Mechanical Drives**

This is a study of the theory and operations of various types of pumps and compressors. Topics include mechanical power transmission systems including gears, v-belts, and chain drives. Prerequisites: Reading level 7, Writing level 7, Math level 7 (3:2-2)

## **INTC 1355 Unit Operations**

This course is an in-depth study of industrial processes including fluid flow and material transport, distillation, extraction, and automatic control requirements of these processes. It includes instruction in control system design and control loop adjustments and analysis. Topics will include piping systems, pumps, compressors, agitators, tanks, heat exchangers, filters, cooling towers, refrigeration, filtration, adsorption, absorption, extruding, material handling and the distribution of utilities. Startup, operation, safe work practices and shutdown of a simulated or actual operating system will be included. (3:2-2)

## **OSHT 1320 Energy Industrial Safety**

This course is an overview for industrial workers of state/federal regulations and guidelines which require industrial safety training. Topics include the 29 CFR 1910, 1926, and National Fire Protection Association (NFPA) 70E standards such as confined space entry, emergency action, lock out/tag out, arc flash, and other work related subjects. Prerequisites: Reading level 6, Writing level 6, Math level 6 (3:3-0)

## **PTAC 1302 Introduction to Process Technology**

This is an introduction overview to the various processing industries. (3:3-0)

## **PTAC 1308 Safety, Health, and Environment I**

This course is an overview of safety, health and environmental issues in the performance of all job tasks. (3:3-0)

## **PTAC 1332 Process Instrumentation I**

This is a study of instruments and control systems used in the process industry including terminology, process variables, symbology, control loops, and basic troubleshooting. As a part of the course, each student will identify and explain the function of the various instruments used in the process industry, diagram the process control elements in a control loop, and define and apply terms and symbols used in instrumentation. Prerequisite: MATH 1333 (3:3-1)

## **PTAC 1410 Process Technology I - Equipment**

This course is an introduction to process technology or related work experience. (4:3-3)

## **PTAC 2302 Process Sampling and Analysis**

This is a study of sampling techniques and online and laboratory analyzers. The student will demonstrate proper sampling technique; explain the operation of common online and laboratory analyzers; and utilize analytical data for process optimization. Prerequisite: college-level applied general chemistry (3:3-3)

## **PTAC 2314 Principles of Quality**

In this study of the background and application of quality concepts, topics include team skills, quality tools, statistics, economics and continuous improvement. As part of the course, students use statistical process control to collect, organize, and analyze data; describe the principles of quality control; demonstrate team skills; and apply quality tools to process systems. (3:3-0)

## **PTAC 2334 Industrial Process**

This is a study of the processes employed in petroleum refining and chemical plant operations. The student will illustrate and explain refinery processes and chemical processes typical to the area. Prerequisite: PTAC 2420 (3:3-0)

## **PTAC 2336 Process Instrumentation II**

This course provides a continued study of the instruments and control systems used in the process industries including terminology, process variables, symbology, control loops, and troubleshooting. The students will utilize instruments in the process industry; diagram the process control elements in a control loop; apply terms and

symbols used; apply advanced instrumentation principles and theories to process systems. It is not intended to give the student an understanding equal to that of an instrumentation student, but does offer an overview of how systems are used to control a process. (3:3-1)

## **PTAC 2420 Process Technology II- Systems**

This is a study of the various process systems, including related scientific principles. As a part of this course, students describe the purpose and function of common process systems; and operate each process system. Prerequisite: PTAC 1410 (4:3-3)

## **PTAC 2438 Process Technology III - Operations**

This course emphasizes activities associated with the hands-on operation of process equipment. Prerequisites: PTAC 1332 and PTAC 2420 (4:3-3)

## **PTAC 2446 Process Troubleshooting**

This course offers instruction in the different types of troubleshooting techniques, procedures, and methods used to solve process problems. Prerequisites: PTAC 2336 and PTAC 2420 (4:3-3)

## **PTRT 1301 Introduction to Petroleum Industry**

This is an introduction to the various aspects of petroleum industry including equipment, systems, instrumentation, operations, and the various scientific principles. It addresses a variety of petroleum technologies: exploration, drilling, production, transportation, marketing, and chemical processing industries. Students identify the concepts of exploration, production, refining, marketing, and transportation; and describe the terms and phrases associated with petroleum industry. (3:3-0)

## **PTRT 1401 Overview of Petroleum Industry**

This is an overview of the entire petroleum industry, including purposes and proper procedures in a variety of different petroleum technologies: exploration, drilling, production, transportation, marketing, and refining. Students will analyze relationships between finding, producing, and transporting oil and gas; and select and use terms and phrases associated with the petroleum industry. Prerequisite: PTAC 2410 (4:3-3)

# Course **Descriptions**

## **QCTC 1341 Statistical Process Control**

This course focuses on components of statistics including techniques of collection, presentation, analysis, and interpretation of numerical data as applied to statistical control. It stresses application of correlation methods, analysis of variance, dispersion, sampling quality control, reliability, mathematical models, and programming. Prerequisite: Math level 7 (3:2-2)

## **SCIT 1414 Applied General Chemistry I**

This course offers applications of general chemistry emphasizing industry-related laboratory skills and competencies including laboratory safety and report writing. It addresses supporting chemical theories including atomic and molecular structure, nomenclature, chemical reactivity, gas laws, acids and bases, and solutions, and an overview of organic chemistry. Prerequisite: MATH 1333 (4:3-3)

## **SCIT 1418 Applied Physics**

This is an introduction to physics for industrial applications including vectors, motion, mechanics, simple machines, matter, heat, and thermodynamics. Prerequisites: Reading level 7, Writing level 7, Math level 7 (4:3-3)

## **Psychology**

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### **PSYC 1300 Learning Framework**

The purpose of PSYC 1300/EDUC 1300 is to enable you to develop effective academic behaviors for college success. The course includes a balance between the research and theory in the psychology of learning, cognition, and motivation and how to apply what you learn to becoming successful in a college setting. You will understand the factors that affect learning and how to apply what you learn to the development of successful learning strategies. You will use assessment instruments, such as learning inventories, to help you identify your own strengths and weaknesses as a strategic learner. You are ultimately expected to integrate and apply the learning skills discussed across your own academic courses and program and become an effective and efficient learner. As you develop these skills, you should be able to continually draw from the theoretical models and apply this to your courses and to your life. Prerequisites: Reading level 7, Writing level 7 (3:3-0)

### **PSYC 2301 General Psychology**

This is a survey of major topics in psychology. Introduces the study of behavior and the factors that determine and affect behavior. Prerequisite: Reading level 7 (3:3-0)

### **PSYC 2306 Human Sexuality**

This course covers the physical, psychological, and sociological facets of human sexuality. The course exposes students to the various scholarly research in this interdisciplinary field. Emphasis is placed on self-awareness of one's own sexuality and adjustment, the interpersonal aspects of sexuality, and the social impact that sexual decisions and behavior have on society. This course is also listed as SOCI 2306; however, credit hours are limited to either Psychology or Sociology. Prerequisites: SOCI 1301 or PSYC 2301, Reading level 7, Writing level 7 (3:3-0)

### **PSYC 2308 Child Growth and Development**

This is a study of child growth and development with specific emphasis on the physiological and psychological changes and problems which the child may experience before reaching adolescence. Prerequisites: PSYC 2301, Reading level 7, Writing level 7 (3:3-0)

### **PSYC 2314 Lifespan Growth and Development**

This is a study of the relationship of the physical, emotional, social and mental factors of growth and development through the human lifespan. Prerequisites: PSYC 2301, Reading level 7, Writing level 7 (3:3-0)

### **PSYC 2315 Psychology of Adjustment**

This course is the study of the processes involved in adjustment of individuals to their personal and social environments. This course is designed to study the basic principles and various theories of effective behavior which underlie personal adjustment. This course probes the human dilemma, the personal and social context of behavior, the search for values and methods for personal growth. Prerequisites: PSYC 2301, Reading level 7, Writing level 7 (3:3-0)

### **PSYC 2317 Elementary Statistics**

This course is a study of the basic statistical concepts and techniques of descriptive and inferential statistics as used in psychological and educational research. Included are frequency distributions and graphs, measures of central tendency and variability, interpretation of individual scores, correlations and prediction, the logic of inferential statistics, t-test, analysis of variance, and some nonparametric statistics including chi square. Prerequisites: PSYC 2301, Reading level 7, and Writing level 7 (3:3-0)

### **PSYC 2319 Introduction to Social Psychology**

This course studies behavior of the individual in the group. The course includes group interaction, leadership, motivation, problems in attitudes, prejudice, prosocial behavior, aggression, love, environmental influences on behavior and gender identity and sexual behavior. Prerequisites: PSYC 2301, Reading level 7, and Writing level 7 (3:3-0)

## **Reading**

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*(See College Preparatory)*

### **INRW 0301 Developmental Integrated Reading and Writing-Intermediate**

This first-level course is a combined lecture/lab, performance-based course designed to develop students' critical reading and academic writing skills. The focus of the course will be on applying critical reading skills for organizing, analyzing, and retaining material and developing written work appropriate to the audience, purpose, situation, and length of the assignment. The course integrates preparation in basic academic reading skills with basic skills in writing a variety of academic essays. This is a course with a required lab. The course fulfills TSI requirements for reading and writing. Prerequisite: Reading level 4 (3:3-1)

### **INRW 0302 Developmental Integrated Reading and Writing - Advanced**

This second-level course is a combined lecture/lab, performance-based course designed to develop students' critical reading and academic writing skills. The focus of the course will be on applying critical reading skills for organizing, analyzing, and retaining material and developing written work appropriate to the audience, purpose, situation, and length of the assignment. The course integrates preparation in basic academic reading skills with basic skills in writing a variety of academic essays. This is a course with a required lab. The course fulfills TSI requirements for reading and writing. Prerequisite: Reading level 6 (3:3-1)

### **READ 0308 Basic Reading Skills**

This course is designed to improve basic reading skills. Following assessment, the student will be taught word recognition, basic vocabulary skills, and literal comprehension, such as main idea and details. This course is not applicable to any degree. Prerequisite: Reading level 2 (3:3-2)

## READ 0309 Reading Comprehension

This intermediate reading course is designed to continue the sequential process of reading with emphasis on reading comprehension and vocabulary development. Selected readings will be used for intensive work in literal and inferential meanings. This course is not applicable to any degree. Prerequisite: a grade of C or above in READ 0308 or reading score within defined range. (3:3-1)

## READ 0310 College Reading Techniques

This course is designed for the development of reading skills beyond the basic skills on an individual basis. Emphasis is placed on further development of comprehension, vocabulary, and interpretation of nonfiction articles and reading speed. This course is not applicable to any degree. Prerequisite: a grade of C or above in READ 0309 or reading score within defined range. (3:3-0)

## READ 0311 Speed Reading

This course is designed primarily for students who read at or above the 12th grade reading level. Emphasis is placed on increased comprehension, reading speed, critical reading, vocabulary expansion and reading flexibility. This course is for personal enrichment; it is not part of our sequential reading program nor does it transfer as credit toward any degree. Prerequisite: Reading level 7 (3:3-0)

# Real Estate

## RELE 1201 Principles of Real Estate I

This is a beginning overview of licensing as a real estate broker or salesperson. It includes ethics of practice as a license holder, titles to and conveyance of real estate, legal descriptions, deeds, encumbrances and liens, distinctions between personal and real property, appraisal, finance and regulations, closing procedures, and real estate mathematics. It covers at least three hours of classroom instruction on federal, state, and local laws relating to housing discrimination, housing credit discrimination, and community reinvestment. It fulfills at least 30 to 60 hours of required instruction for salesperson license. (2:2-0)

## RELE 1211 Law of Contracts

This course focuses on elements of a contract, offer and acceptance, statute of frauds, specific performance and remedies for breach, unauthorized practice of law, commission rules relating to use of adopted forms, and owner disclosure requirements. (2:2-0)

## RELE 1238 Principles of Real Estate II

This is a continuing overview of licensing as a broker or salesperson. It includes ethics of practice as a license holder, titles to and conveyance of real estate, legal descriptions, deeds, encumbrances or liens, distinctions between personal and real property, appraisal, finance and regulations, closing procedures, and real estate mathematics. It covers at least three hours of classroom instruction on federal, state, and local laws relating to housing discrimination, housing credit discrimination, and community reinvestment. It fulfills at least 30 of 60 hours of required instruction for salesperson license. (2:2-0)

## RELE 1300 Contract Forms and Addenda

This course is the study of promulgated contract forms, which shall include but is not limited to unauthorized practice of law, broker-lawyer committee, current promulgated forms, commission rules governing use forms and case studies involving use of forms. (3:3-0)

## RELE 1303 Real Estate Appraisal

This is the study of the central purposes and functions of an appraisal, social and economic determinants of value, appraisal case studies, cost, market data and income approaches to value estimates, final correlations, and reporting. It is recommended that the student should take or have taken RELE 1201. (3:3-0)

## RELE 1307 Real Estate Investments

This is a study of the characteristics of real estate investments. This includes techniques of investment analysis, time-valued money, discounted and non-discounted investment criteria, leverage, tax shelters, depreciation, and applications to property tax. It is recommended that the student should take or have taken RELE 1201. (3:3-0)

## RELE 1309 Real Estate Law

This is a study in legal concepts of real estate, land description, real property rights, estates in land, contracts, conveyances, encumbrances, foreclosures, recording procedures, and evidence of title. It is recommended that the student should take or have taken RELE 1201. (3:3-0)

## RELE 1319 Real Estate Finance

This is the study of monetary systems, primary and secondary money markets, sources of mortgage loans, federal government programs, loan applications, processes and procedures, closing costs, alternative financial instruments, equal credit opportunity laws affecting mortgage lending, Community Reinvestment Act, and the state housing agency. (3:3-0)

## RELE 1321 Real Estate Marketing

This is a study of real estate professionalism and ethics, characteristics of successful salespersons, time management, psychology of marketing, listing procedures, advertising, negotiation and closure of financing, and the Deceptive Trade Practices-Consumer Protection Act. It is recommended that the student should take or have taken RELE 1201. (3:3-0)

## RELE 1325 Real Estate Mathematics

This course covers basic arithmetic skills. Includes mathematical logic, percentages, interest, time value of money, depreciation, amortization, proration, and estimation of closing statement. (3:3-0)

## RELE 2301 Law of Agency

This is a study of law of agency including principal-agent and master-servant relationships, the authority of an agent, the termination of an agent's authority, the fiduciary and other duties of an agent, employment law, deceptive trade practices, listing or buying representation procedures, and the disclosure of an agency. (3:3-0)

## RELE 2331 Real Estate Brokerage

This course is a study of law of agency, planning and organization, operational policies and procedures, recruiting, selection and training of personnel, records and control, and real estate firm analysis and expansion criteria. It is recommended that the student should take or have taken RELE 1201. (3:3-0)

## RELE 2366 Practicum-Real Estate

This is a basic or intermediate type of non-health professions work-based instruction that provides basic career exploration or helps students gain practical experience in the discipline, enhance skills, and integrate knowledge. The emphasis is on practical work experience. Indirect supervision is provided by the work supervisor. A practicum may be paid or unpaid learning experience. The College with the employer develops and documents an individualized plan for the student. The plan relates the workplace training and experiences to the student's general and technical course of study. Prerequisite: must have a job (paid or unpaid) working in a real estate related position at least 20 hours per week (3:0-21)

# Course **Descriptions**

## **RELE 2367 Practicum-Real Estate**

This is a basic or intermediate type of non-health professions work-based instruction that provides basic career exploration or helps students gain practical experience in the discipline, enhance skills, and integrate knowledge. The emphasis is on practical work experience. Indirect supervision is provided by the work supervisor. A practicum may be a paid or unpaid learning experience. The College with the employer develops and documents an individualized plan for the student. The plan relates the workplace training and experiences to the student's general and technical course of study. Prerequisite: must have a job (paid or unpaid) working in a real estate related position at least 20 hours per week (3:0-21)

## **Respiratory Care**

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### **HPRS 1106 Essentials of Medical Terminology**

This course is a study of medical terminology, word origin, structure and application. (1:1-0)

### **RSPT 1267 Respiratory Care Practicum I**

This course offers practical, general workplace training supported by an individualized learning plan developed by the employer, College, and student. The course provides the student with the opportunity to learn about the hospital environment and the Respiratory Care department. It includes basic cardiopulmonary resuscitation, basic patient care skills, patient assessment, gas and aerosol therapy, hyperinflation therapy, chest physiotherapy, airway care, and arterial blood gas sampling and analysis. Prerequisites: HPRS 1106, RSPT 1325, 1340, 1429; Co-requisite: RSPT 1431 (2:0-16)

### **RSPT 1325 Respiratory Care Sciences**

This course is a study of physics, mathematics, and chemistry as related to respiratory care. (3:3-0)

### **RSPT 1340 Advanced Cardiopulmonary Anatomy and Physiology**

This course provides an advanced presentation of anatomy and physiology of the cardiovascular and pulmonary system. Prerequisite: BIOL 2401 or 2402 (3:3-1)

### **RSPT 1429 Respiratory Care Fundamentals I**

This course is an introduction to respiratory care fundamentals. (4:3-3)

### **RSPT 1431 Respiratory Care Fundamentals II**

This course provides continued development of knowledge and skills for respiratory care. Prerequisites: HPRS 1106, RSPT 1325, 1340, and 1429; Co-requisite: RSPT 1267. (4:3-3)

### **RSPT 2130 Respiratory Care Examination Preparation**

This course is a comprehensive review to optimize respiratory care credentialing exam success. Prerequisites: RSPT 2266 and 2353 (1:1-1)

### **RSPT 2167 Respiratory Care Practicum II**

This course offers practical, general workplace training supported by an individualized learning plan developed by the employer, College, and student. This course is designed to provide increased exposure to management of the critically ill patient. Prerequisite: RSPT 1267; Co-requisite: RSPT 2314 (1:0-10)

### **RSPT 2258 Respiratory Care Patient Assessment**

This course covers integration of patient examination techniques, including patient history and physical exam, lab studies, X-ray, pulmonary function, arterial blood gases, and invasive and noninvasive hemodynamics. Co-requisite: RSPT 2267 (2:2-1)

### **RSPT 2266 Respiratory Care Practicum III**

This course offers practical, general workplace training supported by an individualized learning plan developed by the employer, College, and student. This course provides the student with an opportunity to care for the critically ill pediatric and neonatal patient. Prerequisite: RSPT 2167; Co-requisite: RSPT 2353 (2:0-16)

### **RSPT 2267 Respiratory Care Practicum IV**

This course provides practical, general workplace training supported by an individualized learning plan developed by the employer, College, and student. The course provides the student with the opportunity to observe and study diagnostic testing of the pulmonary system. Through specialty rotations in the emergency room, emergency triage and care of the traumatically injured patient are demonstrated to the student. The student is presented the opportunity to refine skills in assessment and procedures via rotations through the adult intensive care units. Prerequisite: RSPT 2266; Co-requisite: RSPT 2258 (2:0-16)

### **RSPT 2310 Cardiopulmonary Disease**

This course covers etiology, pathogenesis, pathology, diagnosis, history, prognosis, manifestations, treatment, and detection of cardiopulmonary diseases. Prerequisite: RSPT 1340 (3:3-0)

### **RSPT 2314 Mechanical Ventilation**

This course is a study of mechanical ventilation with emphasis on ventilator classification, methods, principles, and operational characteristics. Prerequisites: RSPT 1431, 2310; Co-requisite: RSPT 2167 (3:3-1)

### **RSPT 2317 Respiratory Care Pharmacology**

This course is a study of drugs that affect cardiopulmonary systems, with an emphasis on classification, route of administration, dosages/calculations, and physiologic interactions. (3:3-0)

### **RSPT 2353 Neonatal/Pediatric Cardiopulmonary Care**

This course is a study of acute care, monitoring and management as applied to the neonatal and pediatric patient. Co-requisite: RSPT 2266 (3:3-1)

### **RSPT 2355 Critical Care Monitoring**

This course covers advanced monitoring techniques used to assess a patient in the critical care setting. Prerequisite: RSPT 2310 (3:3-1)

## **Restaurant Management**

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*(See Culinary Arts)*

## **Sheet Metal**

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### **Sheet Metal Certificate Non-Credit Continuing Education Courses**

#### **MCHN 1001 Sheet Metal I**

*(Continuing Education Course)*

This is an introduction to the materials, tools, and techniques used in the sheet metal industry. It reviews trade math problems involving measurement of lines, area, volume, weight, and geometric figures. The course focuses on types and uses of hand, layout, and cutting tools along with bending and forming machines. Students practice using material of various type and properties as they apply the principles of layout and metal forming. 72 contact hours

#### **MCHN 1049 Sheet Metal II**

*(Continuing Education Course)*

In this introduction to various types of pipe and fittings, emphasis is on principles and types of fittings for radial line development and on factors that influence bend allowances and calculations necessary for determining proper bend allowances. The course also focuses on principles of soldering roof flashings, gutters, down spouts, and sheet metal duct fabrications. 72 contact hours

## **MCHN 1053 Sheet Metal III**

*(Continuing Education Course)*

This is an introduction to the principles of airflow as applied to HVAC air distribution systems, components of HVAC, and the basic refrigeration cycle. The course introduces students to welding, brazing, and field measurements along with extensive triangulation layout, fabrication and fiberglass ductwork. 72 contact hours

## **MCHN 1071 Sheet Metal IIB**

*(Continuing Education Course)*

In this continuation of the study of various types of pipe and fittings, emphasis is on using blueprints and shop drawings to determine bend allowances and on calculations necessary for determining proper bend allowances in soldering roof flashings, gutters, down spouts, and sheet metal duct fabrications. 72 contact hours

## **MCHN 1072 Sheet Metal IIIB**

*(Continuing Education Course)*

This is a continuation to the study of triangulation layout and fabrication and fiberglass ductwork. It focuses on application of field measurements for layout and installation of duct sections and offsets. 72 contact hours

## **MCHN 2030 Sheet Metal IV**

*(Continuing Education Course)*

This course is a comprehensive review of developmental and fabrication techniques. It also provides an introduction to the concepts of shop production and organization, and to elements of air balance and specialty applications related to louvers, dampers, access doors, ventilators, and fume and exhaust systems. 72 contact hours

## **MCHN 2071 Sheet Metal IVB**

*(Continuing Education Course)*

This course offers extensive practice in the application of parallel line development, radial line development, and triangulation methods of fabrication used in the layout and fabrication of sheet metal air systems. 72 contact hours

## **Sociology**

### **SOCI 1301 Introduction to Sociology**

This is a study of the patterns of social behavior. The student is introduced to the scope and the objectives of sociology as well as to basic sociological concepts. Prerequisite: Reading level 6 (3:3-0)

### **SOCI 1306 Social Problems**

This is a study of the problems of social disorganization such as crime, delinquency, group prejudice, dependency, divorce and world social problems. Prerequisites: Reading level 7, Writing level 7 (3:3-0)

### **SOCI 2301 Intimate Relationships:**

#### **Marriage and Family**

This is a study of the issues and trends relating to courtship, mate-selection and marital adjustment, together with a comprehensive study of the family as a social institution. Prerequisites: Reading level 7 and Writing level 7 (3:3-0)

### **SOCI 2306 Human Sexuality**

This course covers the physical, psychological, and sociological facets of human sexuality. The course exposes students to the various scholarly research in this interdisciplinary field. Emphasis is placed on self-awareness of one's own sexuality and adjustment, the interpersonal aspects of sexuality, and the social impact that sexual decisions and behavior have on society. This course is also listed as PSYC 2306; however, credit hours are limited to either psychology or sociology. Prerequisites: SOCI 1301 or PSYC 2301, Reading level 7, and Writing level 7 (3:3-0)

### **SOCI 2319 Multi-Cultural Studies**

This is a study of the principal minority groups in American society and other selected cultures: their history, sociological significance, problems of inter-group relations, social movement, and related contemporary problems with particular emphasis on the ethnic components of Texas society. Prerequisites: Reading level 7, Writing level 7 (3:3-0)

### **SOCI 2336 Criminology**

This is an examination of current trends in the nature and causes of crime, indexes of crime, perspectives and methods in criminology, psychopathy and crime, culture areas and crime, processes in criminal behavior, and sociological aspects of criminal law and procedure. Prerequisites: SOCI 1301, Reading level 7 and Writing level 7 (3:3-0)

## **Speech**

### **SPCH 1145 Forensic Activities**

This course includes intensive preparation for intercollegiate competition in debate and/or speech events. The course may be taken a maximum of four times for credit. Prerequisite: Reading level 7 (1:0-3)

### **SPCH 1311 Introduction to Speech Communication**

This course introduces students to theories and practice of communication in interpersonal, small group, and public speech contexts. Prerequisite: Reading level 6 (3:3-0)

### **SPCH 1315 Public Speaking**

This is an introduction to public speaking. It includes training in principles of composition and delivery and an introduction to various types of speaking situations. Prerequisite: Reading level 6 (3:3-0)

### **SPCH 1318 Interpersonal Communications**

This course covers the theory and practice of person-to-person interaction, including the study of listening, verbal communication and non-verbal communication. Prerequisite: Reading level 6 (3:3-0)

### **SPCH 1321 Business and Professional Speech**

This is a course designed to develop the student's ability to communicate effectively in situations that arise in business and professional life. Topics will include communication theory; the research, organization and presentation of business speeches; small group discussion; and interviewing. Prerequisite: Reading level 6 (3:3-0)

### **SPCH 1342 Voice and Diction**

This course covers instruction in the development of effective habits in the use of the speaking voice. It covers the study of English phonetics, phrasing, intonation and voice production. Training is given to enable the student to listen intelligently to the sound of his/her own voice. Students cannot receive credit for both SPCH 1342 and DRAM 2336. Prerequisite: Reading level 6 (3:3-0)

### **SPCH 2333 Discussion and Small Group Communication**

This course includes discussion and small group theories and techniques as they relate to group processes and interaction. Prerequisite: Reading level 7 (3:3-0)

### **SPCH 2335 Argumentation and Debate**

This course includes instruction in the principles of argumentation and debate; analysis and discussion of current public questions in briefing, strategy and refutation. Students will not receive credit for both SPCH 2335 and SPCH 2336. Prerequisite: Reading level 7 (3:3-0)

### **SPCH 2336 Forensics**

This is open to students in interpretation and forensics as related to competition and public performance. Students will not receive credit for both SPCH 2335 and SPCH 2336. Prerequisite: Reading level 7 (3:3-0)

# Course **Descriptions**

## **SPCH 2341 Oral Interpretation**

This course covers an introduction to oral interpretation of literature, including preparation and reading of printed material, and practical experience in storytelling and choral speaking. Instruction in techniques and analysis of literature will be read aloud. It covers the techniques of oral reading. Students cannot receive credit for both SPCH 2341 and DRAM 2341. Prerequisite: Reading level 6 (3:3-0)

## **Surgical Technology**

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### **HPRS 1106 Essentials of Medical Terminology**

This course is a study of medical terminology, word origin, structure and application. (1:1-0)

### **HPRS 1171 Medical Terminology**

This course is a continuation in the study and practical application of a medical vocabulary system. Emphasis is on building a vocabulary required for practice within allied health care professions. Co-requisite: HPRS 1106 (1:1-0)

### **HPRS 2200 Pharmacology for Health Professions**

This is a study of drug classifications, actions, therapeutic uses, adverse effects, routes of administration, and calculation of doses. Prerequisites: Reading level 7, Writing level 6, HPRS 1106, 1171; SRGT 1505, 1509, 1471, and 1260. (2:2-0)

### **HPRS 2301 Pathophysiology**

This is a study of the pathology and general health management of diseases and injuries across the life span. Topics include etiology, symptoms, and physical and psychological reactions to diseases and injuries. Prerequisites: Reading level 7, Writing level 6, HPRS 1106, 1171; SRGT 1505, 1509, 1471, and 1260. (3:3-0)

### **SRGT 1260 Clinical I Surgical**

This is a method of instruction providing detailed education, training and work-based experience and direct patient/client care, generally at a clinical site. Specific detailed learning objectives are developed for each course by the faculty. On-site clinical instruction, supervision, evaluation and placement is the responsibility of the College faculty. Clinical experiences are unpaid external learning experiences. Course may be repeated if topics and learning outcomes vary. Introductory level. Prerequisites: Reading level 7, Writing level 6, and prerequisites or co-requisites: SRGT 1505 and SRGT 1509 (2:0-8)

### **SRGT 1261 Clinical III Surgical**

This is a method of instruction providing detailed education, training and work-based experience and direct patient/client care, generally at a clinical site. Specific detailed learning objectives are developed for each course by the faculty. On-site clinical instruction, supervision, evaluation and placement is the responsibility of the College faculty. Clinical experiences are unpaid external learning experiences. The course may be repeated if topics and learning outcomes vary. Advanced level. Prerequisites: SRGT 1201, 1260, 1360, 1471, 1505, 1509, 1541; HPRS 2200, 2301. Prerequisites or co-requisites: SRGT 1542, 2130 (2:0-12)

### **SRGT 1360 Clinical II Surgical**

This is a method of instruction providing detailed education, training and work-based experience and direct patient/client care, generally at a clinical site. Specific detailed learning objectives are developed for each course by the faculty. On-site clinical instruction, supervision, evaluation and placement is the responsibility of the College faculty. Clinical experiences are unpaid external learning experiences. The course may be repeated if topics and learning outcomes vary. Intermediate level. Prerequisites: Reading level 7, Writing level 6, and co-requisite: SRGT 1541 (3:0-14)

### **SRGT 1471 Anatomy and Physiology for Surgical Technology**

This course will introduce a foundation for anatomy and physiology which focuses on relations to surgical intervention and perioperative care. Prerequisites: Reading level 7, Writing level 6, HPRS 1106 and 1171 (4:4-0)

### **SRGT 1505 Introduction to Surgical Technology**

This is an orientation to surgical technology theory, surgical pharmacology and anesthesia, technological sciences and patient care concepts. Prerequisites: Reading level 7, Writing level 6, HPRS 1106, 1171 (5:5-1)

### **SRGT 1509 Fundamentals of Perioperative Concepts and Techniques**

This course is an in-depth coverage of perioperative concepts such as aseptic/sterile principles and practices, infectious processes, wound healing, and creation and maintenance of the sterile field. Prerequisites: Reading level 7, Writing level 6, HPRS 1106, 1171 (5:4-3)

### **SRGT 1541 Surgical Procedures I**

This is an introduction to surgical procedures and related pathologies with emphasis on surgical procedures related to general, obstetrics/gynecology, genitourinary, otorhinolaryngology and orthope-

dic surgical specialties incorporating instruments, equipment, and supplies. Prerequisites: Reading level 7, Writing level 6, HPRS 1106, 1171; SRGT 1505, 1509, 1471 and 1260. (5:5-0)

### **SRGT 1542 Surgical Procedures II**

This is an introduction to surgical procedures and related pathologies with emphasis on surgical procedures related to thoracic, peripheral vascular, plastic/reconstructive, ophthalmology, cardiac, and neurological surgical specialties incorporating instruments, equipment, and supplies. Prerequisites: HPRS 1106, 1171, 2200, 2301; SRGT 1505, 1509, 1260, 1360, 1471, and 1541. (5:5-0)

### **SRGT 2130 Professional Readiness**

This course is a transition into the professional role of the surgical technologist. Includes professional readiness for employment, attaining certification, and maintaining certification status. Prerequisites: HPRS 1106, 1171, 2200, 2301; SRGT 1505, 1509, 1471, 1260, 1360, and 1541.(1:1-0)

## **Theatre and Film** *(Formerly Drama)*

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### **DRAM 1120 Theatre Practicum I**

This course is open to all students interested in the theatre. Credit is earned for acting, technical work, or other participation. Practicum in theatre with emphasis on technique and procedures with experience gained in play productions. Course may be taken a maximum of four times for credit. (1:0-6)

### **DRAM 1121 Theatre Practicum II**

This course is open to all students interested in the theatre. Credit is earned for acting, technical work, or other participation. This is a practicum in theatre with emphasis on technique and procedures with experience gained in play productions. (1:0-6)

### **DRAM 1161 Musical Theatre I**

This course is open to all students interested in musical theatre and offers credit for acting, technical work or other participation in a musical. (1:0-5)

### **DRAM 1162 Musical Theatre II**

This course is open to all students interested in musical theatre and offers credit for acting, technical work or other participation in a musical. This course may be taken a maximum of four times. (1:0-5)

## **DRAM 1310 Theatre**

This is an introduction to the basic practices, history, theories and styles of the theatre, and includes a survey of major fields of theatrical art. Elementary stage techniques are studied along with fundamental acting techniques. (3:3-0)

## **DRAM 1322 Stage Movement**

This course covers principles, practices, and exercises in body techniques and stage movement; emphasis on character movement and body control. (3:3-0)

## **DRAM 1330 Stagecraft I**

This is an introduction to the theory and practical applications of theatre lighting, set design and construction techniques. Students are provided the opportunity to participate in actual production situations as members of stage crews. Workshop hours will be scheduled as required. (3:3-0)

## **DRAM 1341 Stage Makeup**

This course will instruct the student actor in the theory and practice of stage makeup, encompassing all forms of corrective and character application. Enrollment is open to all students without prerequisite. (3:3-0)

## **DRAM 1342 Introduction to Costuming**

Costuming will focus on the design and building of stage costumes for production. Students will learn to sketch costume designs and will be responsible for a full costume plot for a production. Students will also learn to sew and construct costumes as well as work within a given costuming budget. (3:2-2)

## **DRAM 1351 Acting I**

This is introduction to the basic skills and techniques of acting, with character analysis and development. It includes characterization and lab work in scenes from great dramatic literature. Rehearsal will be scheduled as required. (3:3-0)

## **DRAM 1352 Acting II**

This is a continuation and consolidation of the gains made in DRAM 1351. Rehearsal will be scheduled as required. (3:3-0)

## **DRAM 2120 Theatre Practicum III**

This course is open to all students interested in theatre. Credit is earned for acting, technical work, or other participation. Practicum in theatre with emphasis on technique and procedures with experience gained in play productions. (1:0-6)

## **DRAM 2121 Theatre Practicum IV**

This course is open to all students interested in the theatre. Credit is earned for acting, technical work, or other participation. Practicum in theatre with emphasis on technique and procedures with experience gained in play productions. (1:0-6)

## **DRAM 2331 Stagecraft II**

This is an advanced study of the theory and practical applications of theatre lighting, set design, construction techniques, and stage sound. Students are provided the opportunity to participate in actual production situations as members of stage crews. Workshop hours will be scheduled as required. (3:3-0)

## **DRAM 2336 Voice for the Theatre**

This course is an application of the performer's use of the voice as a creative instrument of effective communication. It encourages an awareness of the need for vocal proficiency and employs techniques designed to improve the performer's speaking abilities. Course may include the study of I.P.A. and stage dialects. Prerequisite: Reading level 6 (3:3-0)

## **DRAM 2351 Acting III**

This course includes the development of basic skills and techniques of acting for the purpose of exploring performance and its relationship to various acting environments. Emphasis is placed on acting choices that affect character and script analysis in regards to acting for the camera. A comparative study of stage acting vs. acting for the camera, using interdisciplinary approach of art, music, philosophy, and theater is included. Emphasis is also placed on methods of relaxation, communication, and the cybernetic approach to film/video acting. (3:3-2)

## **DRAM 2366 Film Appreciation I**

This course includes a comparative study of the different genres of motion pictures, with an emphasis on the evaluation and appreciation of the motion picture structure within each genre. Film production, acting, writing, and special effects will be discussed. Full length movies will be watched in their entirety during a two-hour lab. Visual, oral, and written evaluations of each movie are required. (3:2-2)

## **DRAM 2367 Film Appreciation II**

This course places emphasis on the analysis of the visual and aural aspects of selected motion pictures, dramatic aspects of narrative films, and historical growth and sociological effects of film as an art. (3:2-2)

# **Truck Driving (Commercial)**

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## **Non-Credit Continuing Education Courses**

### **CVOP 1013 Commercial Vehicle Operator I**

CVOP 1013 is the first of two 126-clock hour courses in Commercial Truck Driving. This course is designed to familiarize students with the basic operations of a tractor-trailer combination. It consists of thirty (30) hours of classroom lecture and demonstration, and ninety (90) hours of hands-on tractor-trailer operation. Co-requisite: CVOP 1040

### **CVOP 1040 Commercial Vehicle Operator II**

CVOP 1040 is the second and final 120-clock hour course in Commercial Truck Driving. This course is designed to provide classroom instruction in loading and unloading, plus hands-on practice in routine equipment maintenance and making driver's daily log book entries. Several long-haul trips are taken, and the Department of Transportation (DOT) written and driving exams are administered. Co-requisite: CVOP 1013

# **Vision Care Technology**

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*(See Eye Care Technology)*

# **Visual Communication**

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*(See Art and Visual Communication)*

# Course **Descriptions**

## **Welding**

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### **WLDG 1305 Art Metals**

This course covers the fundamentals of conceptualizing and producing utilitarian items in ferrous and non-ferrous metals. Includes skill development through the techniques of sinking, raising, repousse, and piercing to create objects from sheet and stock materials. Also covers welding, brazing, soldering, tinning, polishing, and tool making. (3:2-2)

### **WLDG 1308 Metal Sculpture**

This course covers techniques and methods of oxy-acetylene and electric welding and cutting to produce metal sculptures. Includes skill development in material forming, welding, brazing, and finishing techniques. Also covers work ethics, artistic styles, and professionalism. (3:2-2)

### **WLDG 1528 Introduction to Shielded Metal Arc Welding (SMAW)**

This is an introduction to the shielded metal arc welding process. Emphasis placed on power sources, electrode selection, oxy-fuel cutting, and various joint designs. Instruction is provided on SMAW fillet welds in various positions. (5:3-5)

### **WLDG 1530 Introduction to Gas Metal Arc Welding (GMAW)**

This course covers principles of gas metal arc welding, setup and use of Gas Metal Arc Welding (GMAW) equipment, and safe use of tools and equipment. Instruction provided in various joint designs. (5:3-5)

### **WLDG 1534 Introduction to Gas Tungsten Arc Welding (GTAW)**

This is a study of the principles of gas tungsten welding, including setup, GTAW equipment, and safe use of tools and equipment. Instruction is provided in various positions and joint designs. (5:3-5)

### **WLDG 2543 Advanced Shielded Metal Arc Welding (SMAW)**

This course covers advanced topics based on accepted welding codes. Training is provided with various electrodes in shielded metal arc welding with open V-groove joints in all positions. (5:3-5)

### **WLDG 2551 Advanced Gas Tungsten Arc Welding (GTAW)**

This course covers advanced topics in GTAW welding, including welding in various positions and directions. (5:3-5)

### **WLDG 2553 Advanced Pipe Welding**

This course covers advanced topics involving welding of pipe using the shielded metal arc welding process. Topics include electrode selection, equipment setup, and safe shop practices, with an emphasis on weld positions 5G and 6G using various electrodes. (5:3-5)

### **WLDG 2580 Cooperative Education Welding**

This course covers career-related activities encountered in the student's area of specialization offered through an individualized agreement among the College, employer, and student. Under the supervision of the College and the employer, the student combines classroom learning with work experience. It includes a lecture component. Prerequisite: None (5:1-28)

## **Non-Credit Continuing Education Courses Welding Certificate**

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### **WLDG 1028 Introduction to Shielded Metal Arc Welding (SMAW)**

This introduction to shielded metal arc welding process emphasizes power sources, electrode selection, oxy-fuel cutting, and various joint designs. Instruction also covers SMAW fillet welds in various positions. 128 contact hours

### **WLDG 1034 Introduction to Gas Tungsten Arc (GTAW) Welding**

This is an introduction to the principles of gas tungsten arc welding (GTAW), setup/use of GTAW equipment, and safe use of tools and equipment. Welding instruction covers various positions on joint design. 128 contact hours

### **WLDG 1035 Introduction to Pipe Welding**

This introduction to welding of pipe using the shielded metal arc welding process, includes electrode selection, equipment set-up, and safe shop practices, with an emphasis on weld positions 1G and 2G, using various electrodes. 128 contact hours

### **WLDG 2043 Advanced Shielded Metal Arc Welding (SMAW)**

Training is provided with various electrodes in shielded metal arc welding processes with open V-groove joint positions based on accepted welding codes. 128 contact hours

### **WLDG 2051 Advanced Gas Tungsten Arc Welding (GTAW)**

This course focuses on advanced topics in GTAW welding, including welding in various positions and directions. 128 contact hours

### **WLDG 2053 Advanced Pipe Welding**

This course focuses on advanced topics involving welding of pipe using the shielded metal arc welding process. Topics include electrode selection, equipment setup, and safe shop practices, with an emphasis on weld positions 5G and 6G using various electrodes. 128 contact hours.