ARTS 2317 Painting II  
3 Hours (2-4)  
Continuation of Arts 2316 with emphasis on individual student’s expression. Prerequisite: ARTS 2316.

ARTS 2323 Drawing III  
3 Hours (2-4)  
A life drawing course in which the student learns the structure and action of the human figure.

ARTS 2324 Drawing IV  
3 Hours (2-4)  
A continuation of Art 2323 with emphasis on the student’s individual expression. Prerequisite: ARTS 2323.

ARTS 2326 Sculpture I  
3 Hours (2-4)  
An exploration of various sculptural approaches in which the student works in a variety of media including additive and subtractive techniques.

ARTS 2327 Sculpture II  
3 Hours (2-4)  
A continuation of Arts 2326 with emphasis on student’s individual expression. Prerequisite: ARTS 2326.

ARTS 2333 Printmaking I  
3 Hours (2-4)  
An introduction for the student into the basic printmaking processes including etching, monotype, and relief.

ARTS 2334 Printmaking II  
3 Hours (2-4)  
Opportunities for specialization and experimentation by the student in printmaking processes. Prerequisite: ARTS 2333.

ARTS 2341 Art Metals I  
3 Hours (2-4)  
Basic techniques for the student working with nonferrous metals.

ARTS 2342 Art Metals II  
3 Hours (2-4)  
Further investigation by the student of advanced techniques and processes. Prerequisite: ARTS 2341.

ARTS 2346 Ceramics I  
3 Hours (2-4)  
An introduction for the student to basic ceramic processes.

ARTS 2347 Ceramics II  
3 Hours (2-4)  
Opportunities for specialization by the student in ceramic processes. Prerequisite: ARTS 2346.

ARTS 2348 Digital Arts I  
3 Hours (2-4)  
An introduction to graphic design principles and typography with emphasis upon digital imaging. The course enables students to explore the creation and manipulation of images with a computer. Course content includes use of digital camera, flatbed and film scanners, Adobe Photoshop software, and printer.

ARTS 2349 Digital Arts II  
3 Hours (2-4)  
Advanced graphic design principles and techniques with emphasis upon digital imaging. The course enables students to explore more expressive and interpretive use of imagery and to practice commercial application as well. Course increases students’ exposure to software programs beyond Adobe Photoshop. Prerequisite: ARTS 2348.

ARTS 2356 (also COMM 1318) Photography I  
3 Hours (2-4)  
An introductory course for beginners in black and white photography. Students learn basic techniques of camera functions, film development, print processing and design fundamentals.

ARTS 2357 (also COMM 1319) Photography II  
3 Hours (2-4)  
A continuation of ARTS 2356 with emphasis on photography applied to publications. Students work with more complex subjects and techniques in order to communicate their ideas through photographic images. Prerequisite: COMM 1318 or ARTS 2356.

ARTS 2366 Watercolor I  
3 Hours (2-4)  
Exploration of the potentials of water based media by the student with emphasis on color and composition.

ARTS 2367 Watercolor II  
3 Hours (2-4)  
This course is an extension of Art 2366 and subject to all the conditions of that course. Prerequisite: ARTS 2366.

ARTV 1302 Introduction to Technical Animation and Rendering  
3 Hours (2-4)  
This course introduces the basic terminology and concepts associated with the development of computer modules used in technical computer animation. Topics include basic animation principles, model creation, light sources, camera positioning, rendering as well as importing and modification of external files. Course projects reflect current practices in the architectural, engineering, or construction disciplines. Prerequisite: DFTG 2340 Software: 3D Studio, Max Design.

ARTV 1340 Intermediate Technical Animation and Rendering  
3 Hours (2-4)  
3-D modeling and rendering techniques including lighting, staging, camera, and special effects. Emphasizes 3-D modeling building blocks using primitives to create simple and complex architectural/mechanical models. Execute conceptual ideas through 3-D modeling and rendering; demonstrate digital lighting and camera operations on constructed objects; and complete 3-D computer animation sequences. Prerequisite: ARTV 1302 Software: 3D Studio, Max Design.

AUMT 1305 Introduction and Theory of Automotive Technology  
3 Hours (2-4)  
An introduction to the automotive industry including automotive history, safety practices, shop equipment and tools, vehicle subsystems, service publications, fasteners, professional responsibilities, automobile maintenance, and light repair.

AUMT 1306 Automotive Engine Removal and Installation  
3 Hours (2-4)  
Fundamentals of engine inspection, removal and installation procedures. May be taught manufacturer specific. Prerequisite: AUMT 1305 or instructor approval. Capstone Course.
AUMT 1307 Automotive Electrical Systems
3 Hours (2-4)
An overview of automotive electrical systems including topics in operational theory, testing, diagnosis, charging and starting systems, and electrical accessories. Emphasis on electrical schematic diagrams and service manuals. May be taught manufacturer specific. Co-requisite: AUMT 1305 or instructor approval.

AUMT 1310 Automotive Brake Systems
3 Hours (2-4)
Operation and repair of drum/disc type brake systems. Emphasis on safe use of modern equipment. Topics include brake theory, diagnosis, and repair of power, manual, anti-lock brake systems, and parking brakes. May be taught manufacturer specific. Co-requisite: AUMT 1305 or instructor approval.

AUMT 1316 Suspension and Steering
3 Hours (2-4)
Theory and operation of automotive suspension and steering systems including tire and wheel problem diagnosis, component repair, and alignment procedures. May be taught manufacturer specific. Prerequisite: AUMT 1305 or instructor approval.

AUMT 1319 Automotive Engine Repair
3 Hours (2-4)
Fundamentals of engine operation, diagnosis and repair including lubrication systems and cooling systems. Emphasis on overhaul of selected engines, identification and inspection, measurements, and disassembly, repair, and reassembly of the engine. May be taught manufacturer specific. Prerequisite: AUMT 1305 or instructor approval.

AUMT 1345 Automotive Heating and Air Conditioning
3 Hours (2-4)
Theory of automotive air conditioning and heating systems. Emphasis on the basic refrigeration cycle and diagnosis and repair of system malfunctions. Covers EPA guidelines for refrigerant handling and new refrigerant replacements. May be taught manufacturer specific. Prerequisite: AUMT 1305 or instructor approval.

AUMT 1380 Cooperative Education - Auto/Automotive Mechanic/Technician
3 Hours (1-0-20)
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 the employer, the student combines classroom learning with work experience. Directly related to a technical discipline, specific learning objectives guide the student through the paid work experience. This course may be repeated if topics and learning outcomes vary. Enrollment must be approved by the instructor.

AUMT 2301 Automotive Management
3 Hours (3-1)
Instruction in human relations, customer relations, and customer satisfaction. Emphasis on management techniques and building relationships between the service department and the customer.

AUMT 2313 Manual Drive Train and Axle
3 Hours (2-4)
A study of automotive clutches, clutch operation devices, standard transmissions, transaxles and rear axles, and differentials with emphasis on the diagnosis and repair of transmissions and drive lines. May be taught manufacturer specific. Prerequisite: AUMT 1305 or instructor approval.

AUMT 2317 Engine Performance Analysis I
3 Hours (2-4)
Theory, operation, diagnosis, and repair of basic engine dynamics, ignition systems, and fuel delivery systems. Use of basic engine performance diagnostic equipment. May be taught manufacturer specific. Prerequisite: AUMT 1307 or instructor approval.

AUMT 2321 Automotive Electrical Lighting and Accessories
3 Hours (2-4)
Repair of automotive electrical subsystems, lighting, instrumentation, and accessories. Emphasis on accurate diagnosis and proper repair methods using various troubleshooting skills and techniques. May be taught manufacturer specific. Prerequisite: AUMT 1307 or instructor approval.

AUMT 2325 Automatic Transmission and Transaxle
3 Hours (2-4)
A study of the operation, hydraulic principles, and related circuits of modern automatic transmission and automatic transaxles. Diagnosis, disassembly, and assembly procedures with emphasis on the use of special tools and proper repair techniques. May be taught manufacturer specific. Prerequisite: AUMT 1307 or instructor approval.

AUMT 2334 Engine Performance Analysis II
3 Hours (2-4)
Diagnosis and repair of emission systems, computerized engine performance systems, and advanced ignition and fuel systems; and proper use of advanced engine performance diagnostic equipment. May be taught manufacturer specific. Prerequisite: AUMT 2317 or instructor approval.

AUMT 2428 Automotive Service
4 Hours (2-4)
Mastery of automotive vehicle service and component systems repair. Emphasis on mastering current automotive competencies covered in related theory courses. Maybe taught manufacturer specific.

AUMT 2437 Automotive Electronics
4 Hours (3-4)
Topics address electrical principles, semiconductor and integrated circuits, digital fundamentals, microcomputer systems, and electrical test equipment as applied to automotive technology. May be taught manufacturer specific. Prerequisite: AUMT 1307 or instructor approval.

AUMT 2455 Automotive Engine Machining
4 Hours (2-4)
An in-depth study of precision engine rebuilding, cylinder reconditioning, and crack repair. Instruction in machines and equipment necessary to complete an engine repair. Maybe taught manufacturer specific.

AVIM 1301 Introduction to Aviation Management
3 Hours (3-0)
An introduction to small aviation business management. Emphasis on financial marketing, human resources, and administrative and information systems essential for successful business operations.

BCIS 1405 Business Computer Applications
4 Hours (3-3)
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. This course is designed for business majors who plan to transfer to a four year school.
TMGT 3353 International Business
3 Hours (3-0)
This course provides an overview of the international business environment and conditions affecting firms conducting business overseas. Special emphasis will be placed on managerial functions and elements of the management process in a firm operating under foreign economic, technological and political, social, and cultural environments.

TMGT 3354 Leadership
3 Hours (3-0)
This course examines the nature and scope of leadership as it relates to applied technology and workforce training environments; the techniques for leadership, empowerment and team building are emphasized.

TMGT 3355 Mediation and Negotiation
3 Hours (3-0)
This course examines the nature of conflict and the methods to resolve conflict with an emphasis on collaborative problem solving and mediation. The theory and practice of negotiations are also studied, and students are given the opportunity to practice negotiation and mediation techniques through case study. Ethical decision making throughout these processes is addressed.

TMGT 3356 Oil and Gas Industry
3 Hours (3-0)
This course introduces the student to the development of multiple-use resource management strategies and the role of public policy in energy resource management. Topics include legal, regulatory, and operational requirements of energy production, refining, and transportation enterprises.

TMGT 3357 Introduction to Public Administration
3 Hours (3-0)
This course examines the origin and development of public administration as a discipline and profession. The purpose of this course is to provide students with a broad introduction to the field of Public Administration by providing introductory knowledge of the public sector, its practices, and its tools. Students will learn some of the concepts, issues, and challenges facing public administrators in federal, state, and local governments.

TMGT 3358 Network Security Management
3 Hours (3-0)
This course provides a strategic overview of network security management, including a review of the types of network security problems, best practices, cost analysis of different types of network security and network security policies. Prerequisite: ITNW 1454 or instructor permission.

TMGT 3391 Information Technology in Enterprise Management
3 Hours (3-0)
The use of information technology in commercial and industrial enterprises. Topics include the use of computers and software in communication, accounting, inventory management, production, automation, sales, and financial forecasting.

TMGT 4303 Electronic Commerce
3 Hours (3-0)
This course addresses issues including the digital economy, electronic commerce (EC) marketing, EC models and applications, and building and implementing EC systems. The course will cover the underlying technologies used in the implementation of electronic commerce systems. It identifies the practical skills needed and tools to design and develop effective systems and interfaces. Architectures and interdependence of systems and software that support EC and the state of the art in successful EC systems will also be discussed.

TMGT 4320 Organizational Design and Management Seminar
3 Hours (3-0)
Students work in teams on instructor-approved industry-specific projects; teams will formulate an implementation plan using technology management skills to identify problems and formulate solutions. Each team will make a formal presentation for peer review. Prerequisites: Senior classification or approval of program director.

TMGT 4385 Organizational Management Internship
3 Hours (0-0-18)
This internship course is designed to provide organizational management students a broad exposure to the operations of a company or public service agency and knowledge of the structure, goals, and work procedures of the organization by participating in planned and supervised activities. Students will have the opportunity to combine academic learning with practical experience while pursuing their organizational management degree. Prerequisites: Senior classification or approval of program director.

TMGT 4386 Organizational Management Internship
3 Hours (0-0-18)
This internship is a repeat of TMGT 4385 but with approved job-specific learning objectives. Prerequisites: TMGT 4385 and instructor permission.

TMGT 4396 Project Management
3 Hours (3-0)
A study of risk assessment and management techniques, methods, and models used in industry to minimize and control risks in a high technology industrial environment. Instructional topics include project management risks, program schedule, and cost risks. Prerequisites: Senior classification or approval of program director.

VHPA 1341 Auto Parts Counter Sales
3 Hours (3-0)
Skill development in communications, sales, and merchandising of auto parts to vehicle owners and repair technicians with an emphasis on customer relations, communication, sales, and merchandising skills.

VNSG 1126 Gerontology
1 Hour (1-0-0)
This course is an overview of the normal physical, psychosocial, and cultural aspects of the aging process including common disease processes of aging and exploration of attitudes toward care of the older adult.

VNSG 1136 Mental Health
1 Hour (1-0-0)
This course is an introduction to the principles and theories of positive mental health and human behaviors, including emotional responses, coping mechanisms, and therapeutic communication skills.

VNSG 1219 Leadership and Professional Development
2 Hours (2-0-0)
This course is a study of the importance of professional growth and development of added nursing skills. Topics will include the role of the licensed vocational nurse in the multi-disciplinary health care team, professional organizations, and continuing education.
### Course Descriptions

Numbers in parentheses identify the number of classroom and lab hours per week. For example, (3-2) indicates three hours in the classroom plus two hours in the lab. When present, a third number indicates clinical, practicum or internship hours.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABDR 1431</td>
<td>Basic Refinishing</td>
<td>4 Hours (2-4)</td>
<td>An introduction to current refinishing products, shop safety, and equipment used in the automotive refinishing industry. Emphasis on surface preparation, masking techniques, and refinishing of trim and replacement parts.</td>
</tr>
<tr>
<td>ABDR 1458</td>
<td>Intermediate Refinishing</td>
<td>4 Hours (2-4)</td>
<td>Expanded training in mixing and spraying of automotive topcoats. Emphasis on formula ingredient, reducing, thinning, and special spraying techniques. Introduction to partial panel refinishing techniques and current industry paint removal techniques. Prerequisite: ABDR 1431</td>
</tr>
<tr>
<td>ABDR 2449</td>
<td>Advanced Refinishing</td>
<td>4 Hours (2-4)</td>
<td>Skill development in multi-stage refinishing techniques. Further development in identification of problems and solutions in color matching and partial panel refinishing. Prerequisite: ABDR 1458</td>
</tr>
<tr>
<td>ACCT 2401</td>
<td>Principles of Accounting I</td>
<td>4 Hours (3-3)</td>
<td>This course is designed to present a general knowledge of accounting principles and procedures for the sole proprietorship and partnership form of business organization. Topics and problems include the complete accounting cycle, accounting systems and special purpose journals, internal controls and merchandising transactions, and the preparation of financial statements in accordance with generally accepted accounting principles. The student will study short-term liquid assets, including uncollectible accounts and notes receivable; several methods of inventory valuation and their effect upon operations; current liabilities and payroll accounting, including employer payroll taxes; the acquisition, depreciation (several methods), and disposal of plant property and equipment; intangible assets; and natural resources. Also studied are the accrual and cash bases of accounting and the effects of inflation and price-level changes.</td>
</tr>
<tr>
<td>ACCT 2402</td>
<td>Principles of Accounting II</td>
<td>4 Hours (3-3)</td>
<td>A continuation of ACCT 2401, this course includes the study of corporate financial accounting data for cost control and management decision making. The student is required to learn accounting methodology used by corporations to account for stocks, bonds, treasury stock, and investments. The student will learn how to prepare all the corporate financial statements. The student will use financial statement analysis to determine a firm’s liquidity, profitability, and solvency, and to track trends. The student will learn the basics of manufacturing cost accounting and product costing, as well as basic planning and control tools such as break-even and marginal analysis. The course of study will include the planning and budgeting function, including cash budgeting and the use of standard costs for cost control. The student will learn the variable costing method, incremental cost analysis, and the use of present value and other techniques to analyze alternatives such as capital expenditures, make-or-buy, sales mix and other managerial accounting decision making techniques. Prerequisite: ACCT 2401 or instructor permission.</td>
</tr>
<tr>
<td>ACNT 1329</td>
<td>Accounting Payroll and Business Tax Accounting</td>
<td>3 Hours (3-0)</td>
<td>A study of payroll procedures, taxing entities, and reporting requirements of local, state, and federal taxing authorities in a manual and computerized environment. Students will calculate employee payroll, employer related taxes and prepare related tax forms; and maintain payroll records required under current laws.</td>
</tr>
<tr>
<td>ACNT 1331</td>
<td>Federal Income Tax: Individual</td>
<td>3 Hours (3-0)</td>
<td>A study of the federal tax law for preparation of individual income tax returns. Students will prepare federal income tax forms and related schedules for individuals.</td>
</tr>
<tr>
<td>ACNT 1392</td>
<td>Special Topics in Accounting Technician</td>
<td>3 Hours (3-0)</td>
<td>Topics 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. Special topics include: Governmental &amp; Not-for-Profit Accounting, Auditing, and Intermediate Accounting. Prerequisite: ACCT 2402 or instructor permission.</td>
</tr>
<tr>
<td>ACNT 1403</td>
<td>Introduction to Accounting I</td>
<td>4 Hours (3-3)</td>
<td>A study of analyzing, classifying, and recording business transactions in a manual and computerized environment. Emphasis on understanding the complete accounting cycle and preparing financial statements, bank reconciliations, and payroll. Students will define accounting terminology; analyze and record business transactions in a manual and computerized environment; complete the accounting cycle; prepare financial statements; and apply accounting concepts related to cash and payroll. Co-requisite: ITSW 1404 or instructor permission.</td>
</tr>
<tr>
<td>ACNT 1411</td>
<td>Introduction to Computerized Accounting</td>
<td>4 Hours (3-3)</td>
<td>Introduction to utilizing the computer in maintaining accounting records with primary emphasis on a general ledger package. Students will utilize an application software to perform accounting tasks; maintain records and prepare and analyze reports for a business entity; complete a comprehensive project; and explain the components of general ledger software. Prerequisite ACNT 1403 or ACCT 2401 or instructor permission.</td>
</tr>
<tr>
<td>ACNT 1413</td>
<td>Computerized Accounting Applications</td>
<td>4 Hours (3-3)</td>
<td>Use of the computer to develop and maintain accounting records and to process common business applications for managerial decision-making. Students will utilize general ledger, spreadsheet and/or database software for accounting and management applications; and complete a comprehensive project. Prerequisite: ACCT 2401 or ACNT 1403 or instructor permission.</td>
</tr>
</tbody>
</table>
MATH 2420 Differential Equations
4 Hours (4-0)
This course is designed to produce student proficiency in first order equations, linear differential equations, differential operators, Laplace transforms, and the applications of differential equations. It also introduces power series methods, linear systems, and numerical methods. Prerequisite: Requires a “C” or greater in MATH 2415. Course fee.

MCHN 1320 Precision Tools and Measurement
3 Hours (3-0)
An introduction to the modern science of dimensional metrology. Emphasis on the identification, selection, and application of various types of precision instruments associated with the machining trade. Practice of basic layout and piece part measurements while using standard measuring tools.

MRKG 1311 Principles of Marketing
3 Hours (3-0)
Introduction to the marketing mix functions and process. Includes identification of consumer and organizational needs and explanation of environmental issues. Students will identify the marketing mix components in relation to market segmentation; explain the environmental factors which influence consumer and organizational decision-making processes; and outline a marketing plan.

MUAP 1166, 1167 Woodwind Instruments I, II
1 Hour (2-1)

MUAP 1168 Brass Instruments
1 Hour (2-1)

MUAP 1169, 1170, 2169, 2170 Brass Instruction I, II, III, IV
1 Hour (0-2)

MUAP 1171, 1172, 2171, 2172 String Instruction I, II, III, IV
1 Hour (0-2)

MUAP 1173, 1174, 2173, 2174 Percussion Instruction I, II, III, IV
1 Hour (0-2)

MUAP 1175, 1176, 2175, 2176 Woodwind Instruction I, II, III, IV
1 Hour (0-2)

MUAP 1177, 1178, 2177, 2178 Keyboard Instruction I, II, III, IV
1 Hour (0-2)

Intermediate piano. A series of courses designed to provide students with the skills necessary to perform artistically at the piano in a variety of performance settings. One 30-minute private lesson per week. Prerequisite: Instructor’s permission.

MUAP 1188 Percussion Instruments
1 Hour (2-1)

MUAP 1190, 2190 String Instruments I, II
1 Hour (2-1)

MUAP 1269, 1270, 2269, 2270 Brass Instruction I, II, III, IV
2 Hours (0-2)

MUAP 1269, 1270, 2269, 2270 String Instruction I, II, III, IV
2 Hours (0-2)

MUAP 1271, 1272, 2271, 2272 Percussion Instruction I, II, III, IV
2 Hours (0-2)

MUAP 1273, 1274, 2273, 2274 Percussion Instruction I, II, III, IV
2 Hours (0-2)

MUAP 1275, 1276, 2275, 2276 Woodwind Instruction I, II, III, IV
2 Hours (0-2)

MUAP 1277, 1278, 2277, 2278 Keyboard Instruction I, II, III, IV
2 Hours (0-2)

Advanced Piano. Prerequisite: MUSI 2178 or instructor’s permission.

MUAP 1279, 1280, 2279, 2280 Keyboard Instruction I, II, III, IV
2 Hours (0-2)

MUAP 1279, 1280, 2279, 2280 Keyboard Instruction I, II, III, IV
2 Hours (0-2)

MUAP 1279, 1280, 2279, 2280 Keyboard Instruction I, II, III, IV
2 Hours (0-2)

MUAP 1240 Instrumental Techniques
2 Hours (2-2)

MUEN 1121, 1122, 2121, 2122 Wind Ensemble I, II, III, IV
1 Hour (0-5)

MUEN 1123, 1124, 2123, 2124 Band I, II, III, IV
1 Hour (0-5)

MUEN 1125, 1126, 2125, 2126 Orchestra I, II, III, IV
1 Hour (0-5)

MUEN 1131, 1132, 2131, 2132 Studio Ensemble I, II, III, IV
1 Hour (0-4)

MUEN 1133, 1134, 2133, 2134 Brass Ensemble I, II, III, IV
1 Hour (0-4)

MUEN 1135, 1136, 2135, 2136 String Ensemble I, II, III, IV
1 Hour (0-4)

MUEN 1137, 1138, 2137, 2138 Woodwind Ensemble I, II, III, IV
1 Hour (0-4)

MUEN 1139, 1140, 2139, 2140 Percussion Ensemble I, II, III, IV
1 Hour (0-4)

MUEN 1141, 1142, 2141, 2142 Chamber Singers I, II, III, IV
1 Hour (0-5)

MUEN 1143, 1144, 2143, 2144 Chorale I, II, III, IV
1 Hour (0-5)

MUEN 1145, 1146, 2145, 2146 Women’s Choir I, II, III, IV
1 Hour (0-5)
ITCC 2410 Cisco Exploration 4 – Accessing the WAN
4 Hours (3-3)
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. Describes 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 VRF basics are introduced. Discuss the special network services required by converged applications and an introduction to quality of service (QoS). Students will describe the impact of applications (Voice Over IP and Video Over IP) on a network; implement basic switch security (port security, trunk access, management vlan other than vlan1, etc.); configure, verify, and troubleshoot DHCP and DNS operation on a router (CLI/SDM); describe today’s increasing network security threats and explain the need to implement a comprehensive security policy to mitigate the threats; configure and apply ACLs based on network filtering requirements (CLI/SDM); configure and apply an ACLs to limit telnet and SSH access to the router using (SDM/CLI); configure NAT for given network requirements using (CLI/SDM); configure and verify a basic WAN serial connection; configure and verify Frame Relay on Cisco routers; and describe VPN technology (importance, benefits, role, impact, components). Prerequisite: ITCC 2408.

ITNC 2336 Distributed Control and Programmable Logic
3 Hours (2-2)
An overview of distributed control systems including configuration of programmable logic controllers, smart transmitters, and field communicators. Functions of digital systems in a process control environment. Students will configure programmable logic controllers (PLC’s) to perform various tasks; explain how programmable logic controllers control the process environment; operate and troubleshoot digital systems. Pre-requisite: ELMT 1371 or Instructor permission.

ITNW 1351 Fundamentals of Wireless LANs
3 Hours (3-1)
A course in the designing, planning, implementing, operating, and troubleshooting of wireless LANs (WLANs). Includes WLAN design, installation, and configuration; and WLAN security issues and vendor interoperability strategies. The class will explain wireless technologies, topographies, and standards; design, install, configure, monitor, maintain, and troubleshoot wireless solutions; and implement wireless security using MAC filtering, WEP, LEAP, EAP, and 802.1x technologies. Prerequisite: ITCC 1401 or ITNW 1425.

ITNW 1380 Cooperative Education - Business Systems Networking and Telecommunications
3 Hours (1-0-20)
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. Includes a lecture component. 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 occupation and the business/industry; demonstrate ethical behavior, safety practices, interpersonal and teamwork skills, communicating in the applicable technical language of the occupation and the business or industry. Prerequisite: 12 semester credit hours or instructor permission.

ITNW 1425 Fundamentals of Networking Technologies
4 Hours (3-2)
Instruction in networking technologies and their implementation. Topics include the OSI reference model, network protocols, transmission media, and networking hardware and software. Students will identify and use network transmission media; explain the OSI model; identify the characteristics of network topologies and protocols; identify the functions of a network operating system and distinguish between centralized, client/server, and peer-to-peer systems; and distinguish between Local Area Networks (LANs) and Wide Area Networks (WANs) and identify the components used to expand a LAN into a WAN.

ITNW 1445 Implementing and Supporting Servers
4 Hours (3-3)
Implement, administer, and troubleshoot information systems that incorporate servers in a networked computing environment. Students will configure peripherals and devices; set up servers; configure directory replication; manage licensing; create and manage system policies, and profiles; administer remote servers and disk resources; create and share resources; implement fault-tolerance; configure servers for interoperability; install and configure Remote Access Service (RAS); and identify and monitor performance bottlenecks and resolve configuration problems.

ITSC 1191 Special Topics in Computer and Information Sciences, General
1 Hour (1-0)
Topics 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 repeated multiple times to improve student proficiency. The Student will learn to use the Internet including performing simple searches, learn how to use the Microsoft Office Suite of application software, and learn how to organize files and folders.

ITSC 1407 UNIX Operating System I
4 Hours (3-3)
A study of 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. The student will demonstrate proper use of basic UNIX commands; define and apply terminal emulation; use the system editor to create script files; create and manage user accounts; and effectively manage the user file system.

ITSC 1409 Integrated Software Applications I
4 Hours (3-3)
Introduction to business productivity software suites using word processing, spreadsheets, databases, and/or presentation software. Students will use word processing, spreadsheet, database, and/or presentation software; and integrate applications to produce documents.

ITSC 2437 UNIX Operating System II
4 Hours (3-3)
Continued study of the UNIX operating system commands. Includes topics such as CGI and scripting languages. Students will solve intermediate problems using UNIX commands such as SED, AWK, and GREP from the command line and in the basic scripts; and develop CGI script using a scripting language. Prerequisite: ITSC 1407 or instructor permission.
BCIS 2390 Systems Analysis & Design
3 Hours (3-0)
Analysis of business information needs and preparation of specifications and requirements for appropriate data system solutions. Includes instruction in information requirements analysis, specification development and writing, prototype evaluation, and network application interfaces.

BIOL 1322 Nutrition & Diet Therapy
3 Hours (3-0)
Study of the chemical, physical, and sensory properties of food; nutritional quality; and food use and diet applications. May not be used as a core science requirement.

BIOL 1406 Biology for Science Majors I
4 Hours (3-3)
This general biology course (first semester) is devoted to principles shared by all organisms. These principles are cell biology, energy, genetics, evolution, and ecology.

BIOL 1407 Biology for Science Majors II
4 Hours (3-3)
This general biology course (second semester) is devoted to particular organisms. Much of the emphasis is on vertebrate biology. The principles studied are diversity, plant biology, animal biology, and behavior. Dissection required. Prerequisite: BIOL 1406.

BIOL 1408 Introduction to Biology I
4 Hours (3-3)
Fundamental principles of living organisms including physical and chemical properties of life, organization, and function. Concepts of reproduction, genetics, and the scientific method are included. This course is suitable as a required lab sciences for non-biology majors and may not be substituted for BIOL 1406.

BIOL 1409 Introduction to Biology II
4 Hours (3-3)
Fundamental principles of living organisms including evolutionary adaptation and classification. Concepts of evolution, ecology, and the scientific method are included. This course is suitable as a required lab science for non-biology majors and may not be substituted for BIOL 1407. Prerequisite: BIOL 1408

BIOL 1424 Systematic Botany
4 Hours (3-3)
Introduction to the identification, classification, and evolutionary relationships of vascular plants with emphasis on flowering plants. Includes the importance of herbaria, collection techniques, and the construction and use of taxonomic keys.

BIOL 2289 Academic Cooperative
2 Hours (2-3)
An instructional program designed to integrate on-campus study with practical hands-on work experience in the biological sciences/life sciences. In conjunction with class seminars, the individual student will set specific goals and objectives in the study of living organisms and their systems. Prerequisite: BIOL 1406 and 1407 or BIOL 2401 and 2402.

BIOL 2106 Environmental Biology Lab
1 Hour (0-3)
This course is designed to enable students to become proficient in human interaction with and effect upon plant and animal communities. Conservation, pollution, energy, and other contemporary ecological problems. Co-requisite: BIOL 2306.

BIOL 2306 Environmental Biology
3 Hours (3-0)
This course is designed to enable students to become proficient in human interaction with and effect upon plant and animal communities. Conservation, pollution, energy, and other contemporary ecological problems. Co-requisite: BIOL 2106.

BIOL 2401 Anatomy and Physiology I
4 Hours (3-4)
This course is designed to produce student proficiency in body organization, the skeletal system, the muscular system, and the nervous system. Laboratory work will include dissection of a mammal. Dissection required. Prerequisite: BIOL 1406 highly recommended.

BIOL 2402 Anatomy and Physiology II
4 Hours (3-4)
This course is designed to enable students to become proficient in the following biological systems: the circulatory system with special emphasis on the blood and heart, the respiratory system, the digestive system, and the reproductive system. Laboratory work will include dissection of a mammal. Dissection required. Prerequisite: Requires “C” or greater in BIOL 2401.

BIOL 2416 Genetics
4 Hours (3-4)
This course is designed to enable students to become familiar with the following topics in genetics: the physical basis and the chemical basis of heredity, the laws of heredity and variation, mitotic and meiotic cell division, and the study of human diseases that are caused by genetic defects. Prerequisite: BIOL 1406 and 1407 or BIOL 2401 and 1402.

BIOL 2421 Microbiology for Science Majors
4 Hours (3-4)
The study of the morphology, physiology, and taxonomy of representative groups of pathogenic and nonpathogenic microorganisms. Pure cultures of microorganisms grown on selected media are used in learning laboratory techniques. Includes a brief preview of food microbes, public health, and immunology. Prerequisite: BIOL 1406 or BIOL 2401 or CHEM 1405 or CHEM 1411 or permission of instructor.

BMGT 1301 Supervision
3 Hours (3-0)
The role of the supervisor. Includes managerial functions as applied to leadership, counseling, motivation, and human relations skills. Students will explain the role, characteristics, and skills of a supervisor; identify the principles of management at the supervisory level; identify and discuss the human relations skills necessary for supervision; explain motivational techniques; and cite examples of how motivational techniques can be used by a supervisor in a working environment.

BMGT 1305 Communications in Management
3 Hours (3-0)
Basic theory and processes of communication skills necessary for the management of an organization’s workforce. Students will explain the communication process; identify and remedy major communication barriers; describe how communication contributes to effective management.
All degrees with the exception of the AAS require students to complete the Core Curriculum. The Core Curriculum was established by the Texas legislature and the Texas Higher Education Coordinating Board to facilitate the transfer of courses between state supported institutions of higher education in Texas and to provide students with the basis of a liberal education. In order to obtain most degrees from a state supported institution in Texas, a student must complete the Core Curriculum. Thus, once a student has completed the Core Curriculum at one institution, it has been completed at all state supported institutions. Courses are chosen from the following areas. Consult degree programs for specific requirements. The required number of semester credit hours is noted in parenthesis beside each area.

### 010 - Communications (9)
ENGL 1301 and 1302, one course chosen from SPCH 1311, 1315, 1318, or 1321

### 020 - Mathematics (3)
MATH 1314, MATH 1316, MATH 1324, MATH 1342, MATH 2412, MATH 2413, MATH 2414, MATH 2415

### 030 - Natural Sciences (8)
BIOL 1406, BIOL 1407, BIOL 1408, BIOL 1409, BIOL 1424, BIOL 2401, BIOL 2402, BIOL 2421, CHEM 1405, CHEM 1411, CHEM 1412, GEOL 1401, GEOL 1403, GEOL 1404, GEOL 1405, GEOL 1447, PHYS 1401, PHYS 1402, PHYS 1403, PHYS 1404, PHYS 1415, PHYS 1417, PHYS 2425, PHYS 2426

### 040 - Humanities (3)
ENGL 2321, ENGL 2322, ENGL 2323, ENGL 2326, ENGL 2327, ENGL 2328, ENGL 2331, ENGL 2332, ENGL 2333, ENGL 2342, ENGL 2343, FREN 2311, FREN 2312, GERM 2311, GERM 2312, HUMA 1301, HUMA 1302, LATI 2311, LATI 2312, PHIL 1301, PHIL 2303, PHIL 2306, SPAN 2311, SPAN 2312

### 050 - Visual and Performing Arts (3)
ARTS 1301, ARTS 1303, ARTS 1304, DRAM 1310, DRAM 2361, DRAM 2362, DRAM 2366, MUSI 1306, MUSI 1308, MUSI 1309, MUSI 1310

### 060 - 070 - 080 - Social and Behavioral Sciences (15)

#### U.S. History (6):
HIST 1301, HIST 1302, HIST 2301

#### Government/Political Science (6):
GOVT 2301, GOVT 2302

#### Other Social/Behavioral Sciences (3):
ANTH 2302, ANTH 2351, COMM 2300, ECON 2301, ECON 2302, GEOG 1303, HIST 2311, HIST 2312, PSYC 2301, SOCI 1301, SOCI 1306

### 090 - Fitness and Wellness (1)
KINE 1100, KINE 1101, KINE 1102, KINE 1103, KINE 1104, KINE 1105, KINE 1106, KINE 1107, KINE 1108, KINE 1109, KINE 1110, KINE 1113, KINE 1117, KINE 1118, KINE 1119, KINE 1120, KINE 1125, KINE 1126.

**Total**: 42 semester credit hours