civilization and its impact upon society and the environment. The origin of landscape architectural styles and their characteristics will be explored. An introductory look at personalities of landscape designers through the ages and their influence upon the American landscape. Fall

HORT355 $ Alt (3)
(was AGRI355)
Landscape Site Design
Concentrates on landscape accessories and hardscapes (curbing, sidewalks, driveways, terraces, pools, walls, fences). Lab includes practice in creating specification plans for hardscapes. Weekly: 2 lectures and 3 hours lab. Recommended: HORT135. Fall

HORT359 $ Alt (3)
(merges AGRI260, 370)
Greenhouse Environment and Construction
Controlling the plant environment to enhance plant growth and optimal development through temperature, humidity, light, nutrients sanitation and carbon dioxide levels. Structures, coverings and mechanical systems used are explored to produce the most cost-effective horticultural crops. Weekly: 2 hours lecture and 3 hours lab. Fall

HORT360 $ Alt (3)
(was AGRI360)
Arboriculture
Care of shade and ornamental trees living under environmental stress of urbanization, their legal protection and value. Includes tree anatomy and physiology, soils nutrition and water relations, transplanting, diseases and insect control, mechanical injury and pruning to develop a healthy tree. Weekly: 2 lectures and 3 hours lab. Fall

HORT365 $ Alt (3)
(was AGRI365)
Urban Landscape Design
Designing landscapes to meet the environmental challenges and conditions of urban settings. Circulation patterns for conducting business, aesthetic and functional aspects of design for corporate/institutional, governmental agencies and municipal areas. Weekly: 2 lectures and 3 hours lab. Recommended: HORT135. Spring

HORT367 Alt (3)
(was AGRI367)
Golf Course Supervision
Management and culture for modern golf courses and country clubs. Topics include integration of turfgrass agronomics with the administrative components of budgeting, supervision and personnel management, country club organizational structures, and design of construction and environmental issues. Golf course history, U.S. golf association rules and U.S. Golf Course Superintendents' Association certification program will be covered. Spring

HORT378 $ Alt (4)
(merges AGRI368, 369)
Integrated Pest/Disease Management
Study of significant diseases and pests of agricultural and horticultural plant materials, including life cycles and influence of environmental conditions; determination of effective control methods for crop, ornamental and turfgrass production. Fall

HORT417 $ (was AGRI417)
Advanced Turfgrass Management
Principles of advanced turfgrass management based on turf genera, cultivar, vegetative seed identification and optimal use criteria; detailed analysis of soil fertility management and research results; development of comprehensive management plan incorporating principles of integrated pest management into a cultural program to optimize the performance based on use systems. Use systems studied include golf courses, parks, lawns, athletic fields, bowling greens, cricket fields, and grass tennis courts. Spring

HORT429 $ (3)
(merges AGRI345, 429)
Computer Landscape Design
Principles and practices of computer-aided landscape design, including creating scale perimeter plot plans, using drawing tools, plant/site relationships, plant selection and use leading to a computer-generated landscape drawing. Laboratory emphasizes skill development and proficiency in integrating software and hardware to create CAD-generated landscape designs. Prior landscape drawing course work is recommended. Fall, Spring

HORT448 $ Alt (4)
(merges AGRI409, 425)
Advanced Design and Graphics
Landscape design concepts relating to the more challenging problems of residential design. Field application of grading relating to contours, specifications, exploring deck design, planting combinations, and exercises in graphics and rendering for presentations. Weekly: 2 lectures and 3 hours lab. Recommended: HORT135. Spring

ENGINEERING, COMPUTER SCIENCE, AND ENGINEERING TECHNOLOGY

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Gunnar Lovhoiden
Roberto Ordzànez
Stephen Thorman
James Wolfer

Undergraduate Programs

COMPUTING

Two emphases are available in Computing--Computer Science and Software Systems.

Computer Science focuses on a study of the computing as well as on its role in an application area. Areas of interest include artificial intelligence, compilers, computer architectures, computer graphics, computer networks, operating systems, program development, and analytical theory. A degree in Computing with the Computer Science emphasis prepares students for graduate study, employment in computer systems/networks, administration/development, software development/maintenance, and for careers in education.

Software Systems is an applied study of computing, focusing on the development and maintenance of software in an application area. A minor in an application area is included as part of the degree. Typical minors might include one of

Academic Programs Credits

| BS: Computing | 40 |
| Computer Science Emphasis | 40 |
| Software Systems Emphasis | 40 |
| Minor in Computer Science | 20 |
| BS in Engineering Program | 40 |
| First two years on Andrews campus and | 40 |
| final years at Walla Walla College, | 40 |
| College Place, WA | 40 |
| BSET: Engineering Technology | 40 |
| Computer Engineering Technology | 40 |
| Mechatronics Engineering | 40 |
| Technology | 40 |
| Minor in Engineering Technology | 40 |
| MS: Software Engineering | 32 |
| MSA in Engineering Management | 40 |
| See the School of Business | 40 |
BS: Computing
Major requirements—40
Common core—15
CPTR125, 151, 152, 275, 461

Computer Science Emphasis
Required courses—12
CPTR425, 436 or 437, 462, 485 or 487
Cognate requirement—32-34
MATH141, 142, 281, 286, 355; STAT340 (20)
ELCT335 (4)
BIOL165, 166 (10)
CHEM131, 132 (8)
PHYS141, 142 (8)
PHYS241, 242, 271, 272 (10)
or ELCT141, 142 (8)

Software Systems Emphasis
Required courses—12
CPTR427, 460, 466; INFS428
Cognate requirements—32-34
MATH182, 215, 355; STAT340 (12)
Minor in an adviser-approved application area (20-22)
Major electives—13
Chosen from CPTR courses in consultation with an adviser. A minimum of 12 upper division credits required.

Minor in Computing—20
Required courses—12
CPTR125, 151, 152, 275;
Minor electives—8
Chosen from CPTR courses in consultation with an adviser.

Notes:
No course grade below a C- may apply to a major or minor in Computing.
A minimum GPA of 2.25 may apply to a major or minor in Computing.
A secondary-education endorsement is available for students seeking either a major or minor in Computing. In such cases, CPTR459 must be taken. Consult the School of Education for further information.

Graduate Programs

MS: Software Engineering
Software Engineering is an applied study of computing focusing on the software development process through the application and synthesis of principles from computer science and related fields. Emphasis is placed on practical results balanced by scientific foundation. Supervised "real-world" projects are a requirement for this degree.

Admission requirements. In addition to meeting the general graduate admission requirements on p. 33 of the bulletin, students applying for admission to the MS: Software Engineering program must show evidence that they have taken academic course work and/or demonstrate proficiency in the following areas:
Calculus
Computer Organization and Assembler
Discrete Mathematics
Elementary Data Structures

Probability or Statistics
Programming proficiency in two computer languages (including C or C++)

Degree requirements—32
A minimum of 32 semester credits. At least 18 credits chosen from 500- and 600-level graduate courses. Completion of the following requirements:
Foundation—6
CPTR427 and 460 are required unless previously taken at the undergraduate level.
Core courses—10
CPTR560, 561, 562, 637
Project or Thesis—6
Two projects (CPTR698) or a single thesis (CPTR699) is required. Thesis option if selected must involve software development.
Electives—10-16
a. Systems (Choose at least two)
CPTR461, 462, 550, 555, 556, 565
b. General
Complete any acceptable 400-600 level CPTR courses chosen in consultation with an adviser.

MSA with Engineering Management Emphasis
See graduate programs for the School of Business.

Courses
See inside front cover for symbol code.

COMPUTING AND SOFTWARE ENGINEERING

CPTR125 Introduction to Computer Programming
Programming in a selected language (BASIC, FORTRAN, Pascal, COBOL). May be repeated for a total of three unique languages. Satisfies general education requirements for computing majors. Only 3 credits of CPTR125 may apply toward a computing major or minor. Prerequisites: Math placement exam score of 2.0 (4.0 FORTRAN) and keyboarding skills of 20+wpm.
Fall, Spring

CPTR151 Computer Science I (Choose at least two)
A continuation of CPTR151 examines program specifications, design, coding, correctness, and style with additional coverage of pointers and arrays, and an in-depth study of recursion and data structures. Includes simple lists, stacks, queues, and files, and an overview of computer ethics.
Prerequisites: CPTR151. Fall, Spring

CPTR152 Computer Science II (Choose at least two)
A continuation of CPTR151 examines program specifications, design, coding, correctness, and style with additional coverage of pointers and arrays, and an in-depth study of recursion and data structures. Includes simple lists, stacks, queues, and files, and an overview of computer ethics.

CPTR275 $ (3)
(was CPTR255, 265)

Computer Organization and Assembler
Covers data representation, number base conversion, representation for integer fractions and floating numbers, Boolean algebra, truth table digital logic and circuit representations of basic computer and assembler instructions, introduction to computer architecture, interrupt schemes; an introduction to system software including assemblers, loaders and linkers, and operating systems. Includes assembly language programming using a macro-assembler. Prerequisite: CPTR152. Fall

CPTR295 (1-3)

Directed Computer Language Study
Directed study of computer language in consultation with the instructor. Normally, the language is not included in other courses taught by the department. A programming project may be required. Prerequisites: CPTR151 or equivalent.

CPTR416 $ 7 (3)

Internet Technologies
A study of current technologies and their effects, including on-line software, e-commerce, various scripting languages, human-computer interfacing, perception, and related issues. Prerequisite: CPTR151. Summer

CPTR425 $ 7 (3)
(was CPTR426, 456)

Survey and Analysis of Programming Languages
Survey of current programming languages, including structure, runtime systems, the specification of syntax, and semantics. Definition of syntax for formal languages with emphasis on context-free languages. Techniques for scanning and parsing programming languages. Automated grammar analysis parsers. A major programming project is required. Prerequisite: CPTR275. Fall

CPTR427 $ 7 (3)

Object-Oriented Design and Programming
Emphasizes the study of object-oriented analysis and design methodologies and the application of these to the development of advanced software. Includes survey of object-oriented programming languages and environments. A major programming project is required. Prerequisite: CPTR152. Fall

CPTR436 $ Alt 7 (3)

Numerical Methods and Analysis
A study of common numerical techniques applicable on the computer. Includes interpolation, extrapolation, approximation techniques, numerical methods for linear problems, root finding, function fitting, numerical integration, location of extremes, efficiency of numerical algorithms, and minimization of computational error. Prerequisites: FORTRAN and MATH215 or 281. Spring

CPTR437 $ Alt 7 (3)

Formal Theory of Computation
Includes set productions, Turing machines, and recursive functions. Recursive and recursively enumerable sets. Undecidability results of computation. Prerequisites: CPTR152 and MATH235, 281 or 355. Spring

CPTR459 Alt (2)

Secondary Methods: Computer Science
Considers computer science programs in the secondary school and presents information and materials for teaching computer science in secondary school. Topics include organization and maintenance of equipment, publications, legal issues, dealing with diversity of abilities, problem-solving skills, and strategies for debugging programs. Prerequisite: CPTR275.

CPTR460 $ ? (3)

Software Engineering
Surveys basic software engineering topics associated with the processes, documents, and products of the entire software life cycle. Topics include software evolution, project organization, and management, feasibility studies, product definition, design, implementation, and testing issues, and the role of the software engineer within the life cycle. Prerequisite: CPTR152. Fall

CPTR461 $ ? (3)

Operating Systems I

CPTR462 $ Alt ? (3)

Operating Systems II
Continuation of Operating Systems I with emphasis on comparing different systems. A major project including contemporary operating system development is required. Prerequisite: CPTR461. Spring

CPTR466 (2)

Software Engineering Group Project
The implementation of a group project and the study of topics related to the group project, including CASE tools, 4GL’s, and graphical user interfaces. Emphasizes written documents and oral presentations associated with group project rather than lecture. Prerequisite: CPTR460. Spring

CPTR475 $ ? (1-4)

Topics in
Selected topics of current interest in computer science such as Robotics, advanced languages, or others. Repeatable with different subjects. Prerequisite: CPTR275 or other depending upon the topic.

CPTR485 $ Alt ? (3)

Computer Graphics
Introduction to computer graphics examining raster and/or vector images, 2D and 3D images, polygons, transformations, segments, widowing, clipping, hidden line removal. Prerequisites: CPTR152 and MATH215 or 281. Fall

CPTR487 $ Alt ? (3)

Artificial Intelligence
Provides the conceptual basis for understanding current trends in Artificial Intelligence. Topics include both symbolic and numeric processing, intelligent search methods, problem representation, machine learning, expert systems, and a survey of some social implications of AI. Prerequisite: CPTR152. Fall

CPTR495 Alt (1-3)

Independent Study
Directed study of material of special interest chosen in consultation with the instructor. No more than 6 credits may be earned in CPTR495. Graded S/U. Prerequisite: CPTR275.

CPTR496 Alt (1-3)

Special Projects
Project chosen in consultation with instructor. No more than 6 credits may be earned in CPTR495. Graded S/U. Prerequisite: CPTR275.

CPTR536 (Alt 3)

Compiler Construction
Storage allocation for programs, subroutine linkage, and code generation and optimization. Simple translator written in course. Prerequisites: CPTR275, 425. Fall

CPTR548 Alt (3)

Database Design
Database design and theory. Concurrency, distributed databases, integrity, security, query optimization. A survey of the design and implementation tradeoffs involved in using various available database packages. Includes a term project and reading from the literature. Prerequisite: INF442, CPTR152. Spring

CPTR550 (3)

Network Architecture
A study of the concepts and implementation of the client/server model of computing. Examines four implementations of the client/server model. Surveys the hardware and software used in network communications, including the specifications and protocols associated with thin and thick coax, twisted pair, fiber optics, slow IP mediums, UDP/IPP and TCP/IP. Prerequisite: CPTR152. Fall

CPTR555 Alt (3)

Advanced Operating Systems
May include system structures and algorithms, reliability, security, distributed systems, study of operating systems highlighting these concepts, and recently published research in these and other areas. Includes a term project and reading from the literature. Prerequisite: CPTR461. Spring

CPTR556 (3)

Real Time Systems
A survey of the system architecture and software engineering aspects of real time systems such as operating systems, and process-control software. Includes a term project and readings from current literature. Prerequisite: CPTR275. Fall

CPTR560 (3)

Advanced Software Engineering
A study of applied software product development issues, including requirement analysis, systems and software design methodologies, software-project planning models (e.g., COCOMO), implementation, testing and reuse, language, tool and hardware selection, software economics, productivity measurement, risk management, statistical process evaluation, and control. Prerequisites: CPTR460, MATH182 or 141, STAT285. Spring

CPTR561, 562 (2,2)

Software Engineering Group Project I, II
The implementation of a group project and the
study of topics related to the group project including CASE tools, 4GL’s, graphical user interfaces. Generally, the project begun in CPT561 carries over to CPT562. Prerequisites: CPT460. Fall, Spring

CPT565 Computer Architecture
Functional analysis of computer hardware and software systems including a comparative study of past, present, and proposed architecture as well as computer performance analysis and optimization. Prerequisite: CPT275. Summer

CPT585 Advanced Computer Graphics
Advanced topics and current research in computer imaging—may include shading, ray tracing, radiosity, color spaces, lighting models, texture mapping, and recently published research in computer imagery. Includes term project and readings from the literature. Prerequisite: CPT485. Spring

CPT587 Advanced Artificial Intelligence
Provides a forum for exploring current topics in machine intelligence through a survey of recent research results, independent readings, and hands-on projects. Typical topics include machine vision, speech recognition, natural language processing, and machine learning systems. Prerequisite: CPT487. Spring

CPT625 Analysis of Algorithms
Technique for analyzing and designing algorithms, including average/worst case analysis, asymptotics, recursions, empirical experimentation, intractability proofs (i.e., NP-Completeness) and heuristic alternatives. Application of such techniques as divide-and-conquer, graph, greedy, dynamic programming, backtracking, branch-and-bound, and probabilistic algorithms. Prerequisites: CPT485, MATH281, 355, STAT340. Spring

CPT637 Formal Methods
A survey of the different paradigms associated with formal methods. Applies formal methods to the specification, verification, and validation of software systems. Case studies are examined and a programming project is included. Prerequisites: CPT460, MATH215 or 235, STAT285. Spring

CPT660 Thesis/Project Extension
Thesis/Project

CPT689 Master’s Research Project
Special project chosen in consultation with student’s adviser and instructor. To be repeated to 6 credits. Grade S/U.

CPT699 Master’s Thesis
To be repeated to 6 credits. Graded S/U.

ELECTRONICS
ELCT141, 142 (merges ELCT151, 152, 153, 161, 162, 163, 171, 172, 173)
Basic Electronics
Study of AC and DC electric circuit theory, characteristics of diodes, transistors, and linear integrated circuits and their behavior in simple circuits. Weekly: a 3-hour lab. Prerequisite for ELCT141: MATH168. Prerequisite for ELCT142: ELCT141. Fall, Spring

ELCT235 (was ELCT224)
Digital Electronics
Binary numbers and codes, Boolean algebra, logic circuits, flipflops and registers, arithmetic circuits, counters, multiplexors, demultiplexors, design of state machines, and comparison of IC logic families. Weekly: a 3-hour lab. Prerequisite: ELCT142. Spring

ELCT307 (was ELCT204)
Instrumentation and Process Control

ELCT325 (was ELCT305)
Computing, Network Operations and Maintenance
Techniques and tools of computer and network operation and troubleshooting. Weekly: a 3-hour lab. Prerequisite: ELCT335. Spring

ELCT328 (was ELCT316)
Printed Circuit Layout
Basic methods of layout and fabrication of single and double layer etched circuit boards. Weekly: a 3-hour lab. Prerequisite: ELCT235. Spring

ELCT340 (merges ELCT364, 375)
Amplifier and Wave-Shaping Circuits
Linear amplifiers with an emphasis on op-amp circuits and their amplitude and frequency limitations. Includes linear wave-shaping, clipping, clamping, gating, switching, and comparator circuits. Weekly: a 3-hour lab. Prerequisite: ENGT310. Fall

ELCT420 Avionics Principles and Systems
A study of operating principles and circuits of communication and navigation equipment used in general aviation. Prerequisites: ELCT335, 360, 380. May not be offered each year. Fall

ELCT439 (was ELCT424)
Embedded Systems
Microprocessor interfacing and applications in the area of process monitoring and control. Use of BASIC or C++. Weekly: a 3-hour lab. Prerequisite: ELCT335. Spring

ENGINEERING
ENGR110 Introduction to Engineering
Explores specialized areas and job functions of engineers and technologists. A design project emphasizes the engineering design process. Introduces Mathcad. Fall

ENGR135 Descriptive Geometry
Solution of basic space problems. Determination of distances and angles, intersections of lines and surfaces, intersections of lines and development of surfaces. Prerequisite: MECT121. Spring

ENGR224 Engineering Materials
Study of the science of engineering materials. Engineering properties are correlated with internal structure and service environment. Weekly: a 3-hour lab. Prerequisite: CHEM131. Fall
ENGR225 $ (3)
Circuit Analysis
Resistive circuit analysis, network theorems, dependent sources, energy storage elements, 1st and 2nd order circuit transient responses, ac circuit analysis using phasors and impedances, and ac complex power. Weekly: a 3-hour lab. Prerequisite: MATH142. Spring

ENGR248 (1-4)
Workshop
Provides flexibility for the occasional workshop where it is appropriate to offer engineering credit. Workshop requirements must be approved by the department.

ENGR280 (merges ENGR281, 282) (5)
Engineering Mechanics
Principles of statics and their application to engineering problems; forces, moments, couples, friction, centroids, and moments of inertia. Vectorial kinematics of moving bodies in fixed and moving reference frames. Kinetics of particles, assemblies of particles, and rigid bodies, with emphasis on the concept of momentum. Keplerian motion, elementary vibrations, and conservative dynamic systems. Prerequisite: MATH142; prerequisite or corequisite: MATH286. Fall

ENGR370 (2)
Technical World and Man
Gives general students an understanding of how modern technologies affect society. Topics include how humans respond to technological change, the social consequences of technology, and technological issues in national decisions. Spring

ENGR465 (3)
Operations Analysis and Modeling
The methodology of mathematical modeling and its relation to solving problems in industrial and public systems. Linear programming, scheduling, queuing, simulation, optimization, and decision analysis. Prerequisites: IND460, STAT340. May not be offered each year. Spring

ENGINEERING MANAGEMENT

ENGM520 (3)
Ergonomics and Work Design
The application of ergonomics and engineering principles to the design analysis and measurement of human work systems. Summer

ENGM555 (3)
Facilities Planning
Planning and design of industrial and service facilities: site selection, process layout, materials handling, and storage. Summer

ENGM565 (3)
Operations Analysis and Modeling
The development and use of mathematical models to analyze elements of production and service systems: linear programming, probabilistic models, game theory, dynamic programming, queuing theory, and simulation. Prerequisites: IND460; STAT285; MATH142 or 182. Spring

ENGINEERING TECHNOLOGY

ENGM570 (3)
Project Management
Design and management of engineering projects: proposals, planning, resource requirements, organization, scheduling, and cost and schedule control. Prerequisite: IND460. Spring

ENGM690 (1-4)
Independent Study
Individual study of research in some area of engineering management under the direction of a member of the engineering faculty.

ENGM698 (2)
Research
Research methods and a research project in an area of engineering management.

ENGT310 (3)
Linear Systems Analysis
Convolution, analysis and spectra of continuous time domain signals, Fourier and Laplace transforms, discrete time domain signals, and the z-transform. Prerequisite: MATH182, ELCT142. Fall, Spring

ENGT390 (1-3)
Independent Study
Individual study, research, or project in some field of engineering technology under the direction of a member of the engineering technology faculty. Prerequisite: permission of person who will direct study.

ENGT395 (1-4)
Practicum
Lab or on-the-job experience to build skills in a specific area of engineering technology. Repeatable to 4 credits. Prerequisite: a fundamental course in the area.

ENGT396 (1-4)
Cooperative Work Experience
Work experience in industry directed by a faculty member. 150 hours of work is required per credit. A report must be submitted indicating what the student learned. Grade S/U. Repeatable to 4 credits. Prerequisite: Junior/Senior standing. Spring

ENGT475 (1-4)
Topics in __________
Repeatable in different subjects (prerequisites depend on topic.)

INDT310 (3)
Industrial Supervision
Introduction to and overview of the fundamentals of industrial supervision. Topics include organization, duties, human relations, training, evaluation, promotion, grievances, management-employee relationships. Spring

INDT315 (3)
Succeeding in the Workplace
Focus on the development of attitudes, performance, and communication that will assist in making the transition from the classroom to the workplace an enjoyable and profitable experience. Fall

INDT320 (3)
Work Methods and Measurements
Principles and applications of basic methods and techniques for improvement of the man-job-time relationships; job standards, time and motion studies, and work-space design for efficient use of manpower. Spring

INDT410 (3)
Project Management
Methodology used successfully to carry out a technical project including proposals, planning, work breakdown, scheduling, creativity, monitoring progress, and documentation. Spring

INDT440 (3)
Quality Control
Analysis of the factors affecting product quality during manufacturing. Topics include basic statistics, sampling, control charts, measurement methods, inspection systems, reliability, and motivation programs. Prerequisite: STAT285 or 340. Spring

INDT450 (3)
Industrial Economy
Study of engineering decision methodology and criteria used to include economic factors in determining the best alternative in the design and selection of equipment, structures, methods, and processes. Prerequisite: MATH165 or equivalent. Spring

INDT460 (3)
Production Planning and Control
Planning and coordination of manufacturing facilities and materials for economic production: forecasting, estimating, process planning, layout, product flow, scheduling, production controls, materials acquisition and handling, and inventory. Prerequisites: MATH165 or equivalent, STAT285 or 340. Fall

MECHANICAL TECHNOLOGY

MECT120 $ (3)
Computer-Aided Drawing
An introduction to the use of AutoCad, graphics generation and editing, file maintenance, plotting, and 2- and 3-dimensional drawings. Weekly: a 3-hour lab. Credit may not be earned in MECT120 and MECT121. Fall

MECT121 $ (2)
Mechanical Drawing I
Fundamentals of drawing as applied to mechanical engineering problems. Orthographic projections, auxiliary and sectional views, dimensioning, oblique and isometric views. Sketching and computer-aided drafting. Weekly: a 3-hour lab. Fall
MECT122 $ (3)
Mechanical Drawing II
Limit dimensioning, drawing, and interpretation of weld symbols. Solid modeling and production drawings using CAD. Weekly: a 3-hour lab. Prerequisite: MECT121. Spring

MECT235 $ (4)
wasa MECT185, 186
Materials Technology
Study of industrial materials. Properties of materials correlated with the internal structure. Includes metals, plastics, and ceramics. Weekly: a 3-hour lab. Prerequisites: MATH168, CHEM131. Spring

MECT285 (4)
(merges MECT265, 365, 366)
Statics and Strength of Materials
Analysis of static force systems. Forces, moments, resultants, free-body diagrams, equilibrium, center of mass, moment of inertia, and friction. Assignments designed to develop problem-solving abilities. Study of internal stress and deformation of elastic bodies. A minimum grade of C required in order to enroll in MECT355. Prerequisite: MATH182. Fall

MECT26 $ Alt (4)
wasa MECT226
Fluid Power Systems
Principles and applications of fluid power systems to actuate and/or control machines. Electro-hydraulic-pneumatic systems studied. Principles of fluids introduced. Weekly: a 3-hour lab. Prerequisite: MECT285. Fall

MECT355 (4)
(merges MECT345, 364)
Dynamics and Kinematics
Fundamentals and applications of dynamics; displacement, velocities, acceleration, work, energy, power impulse, momentum, and impact. Also a study of the basic theories and techniques in the analysis of relative motion, acceleration, and acceleration of machine parts such as linkages, cams, gears, and other mechanisms. Prerequisites: MATH182, MECT285. Fall

MECT370 $ Alt (4)
(merges MECT371, 372)
Heat Power
Thermodynamics properties, first and second law of thermodynamics, ideal gas law, the Carnot Cycle, power and refrigeration cycles, heat transfer power and refrigeration cycles, non-flow gas processes, mixtures of ideal gases, psychrometric chart, air conditioning, fluid statics, kinematics, dynamics. Weekly: a 3-hour lab. Prerequisite: MECT355. Fall

MECT375 $ Alt (4)
Fluid Mechanics
Dimensionless parameters, compressible flow, flow-in pipes, open channel flow, drag, lift. Weekly: a 3-hour lab. Prerequisite: MECT355. Spring

MECT415 (3)
(was MECT386)
Mechanical Design and Fabrication
The design of machine elements and the calculations necessary in determining the size and shape of machine parts. The selection of materials and the application of standard machine components. Includes bearings, gears, clutches, and couplings. Prerequisite: MECT355. Spring

TECHNOLOGY EDUCATION
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Renee A. Skeete
Marc G. Ullom
William D. Wolfer

Academic Programs Credits
BT: Automotive Technology 60
   Auto Body
   Auto Mechanics
AT: Automotive Technology 40
   Auto Body
   Auto Mechanics
BT: Construction Management 74
BT: Digital Multimedia Technology 74
BT: Graphic Imaging Technology 79-96
   Electronic Publishing
   Screen Printing
   Web Development
AT: Graphic Imaging Technology 40
BS: Photographic Imaging 66
BS: Technology Education 64-69
   Secondary Teaching Certification
   Minor in Automotive Technology 20
   Minor in Construction 20
   Minor in Imaging Technology 22
   Minor in Photography 20
   Minor in Screen Printing 20
   Minor in Web Development 20

SEQUENCE OF TWO-YEAR AND FOUR-YEAR PROGRAMS
The Department of Technology Education plans programs using the “ladder concept,” allowing a student to complete as much education as desired before entering the work force. Two- and four-year programs are available. Students completing the two-year program may go directly into a four-year program in the same area. The ladder concept allows students to reach the educational goal that best fits their specific needs.

ANCILLARY OPERATIONS
Screen Graphics and LithoTech are ancillary operations of the Department of Technology Education providing students with experience in graphic arts unavailable elsewhere on campus.