

MECT370

\$ Alt (4)

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 gasses, 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)

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*

IMAGING AND APPLIED TECHNOLOGY

Harrigan Hall, Room 227
(269) 471-3450 or (800) 909-8812
FAX: (269) 471-6655
launr@andrews.edu
<http://www.andrews.edu/COT/>

Faculty

Laun L. Reinholtz, *Chair*

Programs

AUTOMOTIVE

Two programs are available: A four-year Bachelor in Automotive Management, and a two-year Associate in Automotive Technology. Both programs give the student beginning-level skills in automotive repair. The automotive manage-

By the end of the sophomore year (min. 16 credits in PHTO courses) students are required to pass the Portfolio Review. The Review is a time where the faculty evaluates the students' progress through the program by examining their technical and creative abilities. The students will present their portfolios to the faculty, discuss goals, and intelligently defend their work.

Minors

Automotive Technology—20

AUTO120, 130, 345, or 135, 140, 150; TCED140 plus 6-7 credits of electives chosen from auto technology.

Digital Multimedia Technology—20

DGME130, 175; plus 13 credits of electives chosen from DGME courses in consultation with advisor and approved by the department.

Imaging Technology—22

ART207; DGME130, 175, 185; GRPH145 plus 3 credits of electives chosen from DGME, GRPH, and PHTO.

Photographic Imaging—20

DGME175; PHTO115, 200, 220, 285.

Web Development—23

ART207; DGME130, 175, 250, 350 plus one cognate chosen from ART104, 215, CPTR125.

Courses

(Credits)

See inside front cover for symbol code.

AUTOMOTIVE TECHNOLOGY

AUTO104 \$ (2)

Personal Auto Care

Stresses the need for proper procedures in routine automobile maintenance. Helps the automobile owner become a wise consumer with emphasis on how to do simple tune-up, maintenance, and minor repairs. Not applicable to a major or minor. *Fall*

AUTO105 (1)

Automotive Consumerism

Consumer knowledge for the everyday challenges and decisions involved in automobile ownership. Topics include purchasing a new vehicle, how to choose a good repair facility, buying auto insurance, leasing, financing your purchase as well as how to deal with salespeople. When to sell or trade a vehicle along with how to protect your investment is also covered. Not applicable to a major or minor. *Fall*

AUTO135 \$ (4)

Engine Performance I

A course dealing with general engine diagnosis emphasizing ignition, fuel, air intake, emission and computer controls. *Fall*

AUTO140 \$ (4)

Brakes, Suspension and Steering I

A study of the hydraulic brake system including drum and disc diagnosis and repair. Steering and suspension along with basic wheel alignment will be covered. *Spring*

AUTO150 \$ (4)

Automotive Electrical Systems I

A course dealing with general electrical diagnosis and service procedures which covers: starting, charging, lighting, accessories and gauges. *Spring*

AUTO325 \$ (4)

Engine Repair

Includes general engine diagnosis and repair covering cylinder heads, block repair, lubrication and exhaust systems. *Fall*

AUTO330 \$ (4)

Engine Performance II

An in-depth study of engine diagnosis as it relates to ignition, fuel air induction, emission and computer controls. Use of diagnostic tools will be emphasized. Prerequisite: AUTO135. *Spring*

AUTO340 \$ (4)

Brakes, Suspension and Steering II

An advanced study of the hydraulic braking system including ABS diagnosis and repair. In-depth investigation of alignment, steering and suspension will be covered. Prerequisite: AUTO140. *Spring*

AUTO350 \$ (4)

Automotive Electrical Systems II

In-depth study of the starting, charging, lighting systems along with accessories and gauges. Emphasis in computer application and control of the automobile operation. Prerequisite: AUTO150. *Spring*

AUTO380 \$ (2)

Heating and Air Conditioning

A study of refrigeration theory and repair. Refrigerant recovery and recycling methods, heating and cooling principles are stressed. *Spring*

AUTO425 (1-4)

Automotive Services

Designed to provide experience in automotive diagnosis, estimating, and repair. Students will work on assigned projects. Prerequisites: 20 credits of auto courses with a 3.00 GPA and listed in at least one specialty area by ASE. Repeatable to 8 credits. *Fall, Spring*

DIGITAL MULTIMEDIA TECHNOLOGY

DGME130 \$ (3)

Introduction to Digital Graphics

An introductory survey of professional digital and conventional graphics covering understanding the Macintosh computer, electronic publishing, basic printing principles, sound digitizing, vector and raster graphics, interactive multimedia, image acquisition and output, web publishing and e-mail. *Fall, Spring*

DGME175 \$ (4)

Digital Imaging

A study of raster graphic fundamentals as they apply to scanned images. Emphasis on image manipulation, restoration, tonal enhancement, on-screen graphics and image acquisition and output. Visual and procedural problems relating to digital imaging will be covered, along with techniques of aesthetic and efficient image enhancement. Prerequisites: DGME130 with a C or better; and ART207. PHTO115 recommended. *Fall, Spring*

DGME185 \$ (4)

Desktop Publishing I

Students learn to produce publications on desktop computers, including: brochures, magazine covers, corporate stationery, book covers, etc. Course topics incorporate: effective page layout, basic color theory, monitor calibration, gray balance, tone compression, GCR and UCR, digital proofing, image acquisition, and final output. Applications of color theories and color separation are stressed. Prerequisite: DGME175. *Fall*

DGME215 \$ (2)

Introduction to Digital Sound

An introduction to digital sound acquisition, manipulation and storage techniques. Students learn fundamentals of sound terminology, audio digitizing and nonlinear editing. Students will then apply this knowledge to various video, interactive and web applications. Prerequisite: DGME130. *Fall, Spring*

DGME216 \$ (3)

Digital Video Editing I

An introductory course covering the basic concepts, function and theory of nonlinear editing from conceptualization to output. Emphasis on video capture, digitizing, video terminology, media management, compositing and applications for interactive and web media. Prerequisite: DGME175. PHTO115 recommended. *Fall, Spring*

DGME225 \$ (4)

Digital Vector Graphics

A study of digital vector graphic imaging emphasizing graphic production for print, digital multimedia, and web publishing. Prerequisite: DGME130 or equivalent. *Fall*

DGME250 \$ (4)

Web Publishing I

Exploration of the design, storage, retrieval, and delivery of electronic information using text and graphic images. Emphasis on publishing via the Web, kiosks, HTML authoring, and digital formats. Effective organization and planning of data for delivery, efficient design, and ethics are examined. Prerequisite: DGME130 or INFS110. *Fall, Spring*

DGME305 \$ (4)

Desktop Publishing II

An advanced study of desktop publishing principles including: grid based layout, typographic applications, layout techniques for printing and web publications, effective electronic file preparation, preflighting, and tips for consistent color reproduction. Prerequisite: DGME185. *Spring*

DGME335 \$ (4)

Web Animation

GRPH345 **\$ (4)**

Screen Graphics II

In-depth study on making process, simulated process, index and spot separations for screen printing. Other decorating methods will be explored such as transfers, foil, athletic numbering, glow in the dark, puff and UV. Non-textile applications will also be explored, decorating substrates such as plastics (binders, CDs, etc.) and glass (simulated etch, etc.) and many other substrates.

Prerequisite: GRPH145. *Spring*

PHOTOGRAPHIC IMAGING

PHTO115 **\$ (4)**

Introduction to Photography

Basic introduction to the principles of the camera and darkroom techniques with consideration toward composition, psychological, and aesthetic attitudes in black-and-white photography. *Fall, Spring*

PHTO116 **\$ (3)**

Intro to Digital Photography

Students will be introduced to photography through the use of digital tools. Digital SLR's and Quadtone printers will be used to explore the technical and aesthetic issues involved in the process of making images. Consideration will be given to digital workflow, managing data, and creating visually appealing photographs.

Fall, Spring

PHTO130 **\$ (3)**

Fundamentals of Video

An introductory course in videography emphasizing the terminology, aesthetics, and methods of video production. PHTO115 recommended. *Fall*

PHTO200 **\$ (4)**

Advanced Photography I

Develops the art of photographic perception and use of photography as a visual language. Emphasizes craftsmanship and awareness of tools available, as well as aesthetics, and the art of seeing creatively. Developing skills beyond introductory camera usage is emphasized. Prerequisite: PHTO115. *Fall, Spring*

TCED194/494 (1-4)

Project Course/Independent Study

Development of a skill or independent study in a given area by working independently under the supervision of the instructor. Repeatable to 12 credits. Prerequisite: Permission of instructor.
Fall, Spring

TCED250 \$ (3-4)

Machine Shop

Basic set-up and operation of lathes, milling machines, grinders, drilling machines, and shapers; safety, machine maintenance, off-hand grinding, drill sharpening, layout, and inspection emphasized. *Spring*

TCED254 (3)

Technical Space Utilization