

**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)  
(was 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*

**MECT326** \$ Alt (4)  
(was 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 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)  
(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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## Faculty

Laun L. Reinholtz, *Chair*  
Rodrick A. Church  
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Murray H. Lofthouse  
Arturo S. Maxwell  
Donald L. May  
James R. Newkirk  
Sharon J. Prest  
Renee A. Skeete  
Marc G. Ullom  
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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.

# Programs

## AUTOMOTIVE TECHNOLOGY

Two options are available in the automotive field—auto body and auto mechanics. Auto body provides the training needed to repair auto damage incurred in accidents and to restore vehicles to their original appearance and correct body alignment. Auto mechanics provides the training needed to maintain and repair automobile engines and systems.

### BT: Automotive Technology

#### Major requirements—40

AUTO135, 140, 150, 330, 380, 425; TCED140, 250, 254, 456, plus 7 credits of electives.

#### Emphasis in Auto Body—20

AUTO120, 130, 345, 355, plus 4 credits of electives chosen from auto technology.

or

#### Emphasis in Auto Mechanics—20

AUTO325, 340, 350, 425, plus 5 credits of electives chosen from auto technology.

### AT: Automotive Technology

#### Major requirements—20

AUTO135, 140; INDT315; TCED456, plus 3 credits of electives.

#### Emphasis in Auto Body—20

AUTO120, 130, 345, plus 8 credits of electives chosen from AUTO355, 380; TCED140 and other auto technology courses.

or

#### Emphasis in Auto Mechanics—20

AUTO325, 330, 340, plus 9 credits of electives chosen from AUTO350, 380 and other auto technology courses.

All students in these two program options must have written two ASE exams by the end of their first year. By the end of the second year, they must have passed a minimum of five ASE tests in their respective option.

## CONSTRUCTION MANAGEMENT

This program is directed toward residential and light commercial construction. Management and job entry level skills in basic trades are stressed.

### BT: Construction Management

#### Major requirements—53

CNST105, 115, 120, 135; MECT120; TCED180, 9 credits minimum chosen from INDT320, 410, 440, 460; TCED254, 6 credits minimum chosen from ACCT111, 112; BSAD210, 341, 355, 374, 415, 436; ECON225, 226; FNCE387; MKTG310, 320, 330, plus 12 credits of electives chosen from upper division courses in consultation with adviser.

#### Cognate requirements—17

ARCH201, 202, 205, 230, 305; MATH167.

## DIGITAL MULTIMEDIA TECHNOLOGY

Digital Multimedia is a very exciting field which utilizes the computer as its main work tool in developing projects needed by clients.

Students learn skills such as digital image manipulation and enhancement, 3-D modeling and animation, digital sound mixing and enhancement, digital video editing, interactive web page design, interactive multimedia, and CD authoring.

### BT: Digital Multimedia Technology

#### Major requirements—58

DGME130, 175, 185, 215, 216, 220, 305, 330, 340, 345, 360, 370, 385, plus 10 credits of electives chosen from PHTO115, 300 and others in consultation with adviser.

#### Cognate requirements—8

8 credits chosen from the following: ART104, 207; JOUR140, 468; COMM320, 456.

By the beginning of the junior year, students in the Digital Multimedia program must have completed the following core courses with a cumulative GPA of 3.00: DGME130, 175, 185, 215, 220, 360; PHTO115. Those who fail to meet these requirements must either retake these core classes to bring the cumulative GPA to 3.00 or drop from the program.

Students must have a cumulative GPA of 2.75 in their major for graduation.

## GRAPHIC IMAGING TECHNOLOGY

Revolutionized by the introduction of computer technology into the industry, the term "graphic imaging" is no longer limited to the field of printing. The industry now emphasizes online publishing and interactive multimedia. Students work extensively with computer applications. Three options are available.

**Electronic publishing** helps students develop skills in the use of computer applications to produce materials for the printed page as well as for Web and CD-ROM publishing and interactive media.

**Screen printing** provides students with skills needed to work in the field of textile and non-textile applications. This field of graphic imaging is heavily influenced by computer technology.

**Web Development.** In today's

**Cognate requirements—10**

ENGR370; PHYS131, 132 or 151, 152.

\*Students must fulfill elective requirements for four of the five systems listed above.

**Minors**

**Automotive Technology—20**

AUTO120, 130, 345, or 135, 140, 150;

TCED140 plus 6-7 credits of electives chosen from auto technology.

**Construction—20**

CNST105, 115, 120, 135; MECT120 plus 3 credits of electives chosen in consultation with adviser.

- CNST135** \$ (4)  
 (was CNST130, part of CNST107)  
**Plumbing Construction**  
 Includes design and layout of waste and water systems, rough-in methods, and trim. Print reading will be covered. *Spring*
- DIGITAL MULTIMEDIA TECHNOLOGY**
- DGME130** \$ (4)  
 (was DGME125, part of GRPH120)  
**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)  
 (was DGME255, part of DGME355)  
**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. Prerequisite: DGME130. ART207, PHTO115 recommended. *Spring*
- DGME185** \$ (4)  
 (was DGME180, part of 300)  
**Desktop Publishing I**  
 Students learn to produce publications on desktop computers, including: brochures, magazine covers, corporate stationary, 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, Spring*
- DGME215/DGME216** \$ (2+2)  
**Intro to Digital Sound/Digital Video Editing I**  
 A study of digital sound and video acquisition, manipulation, and storage techniques. Students learn sound and video terminology, audio digitizing, video capture, nonlinear audio and video editing, audio and video applications for interactive and World Wide Web applications, and creative audio and video conceptualization. Prerequisite: DGME175. *Fall*
- DGME220** \$ (4)  
 (was DGME200, part of DGME300)  
**Digital Vector Graphics I**  
 A study of digital vector graphic imaging emphasizing graphic production for: print, digital multimedia, and web publishing. Students learn to produce images using digital tools and techniques. These images are implemented in assignments that mimic real-world situations, such as: compact disc illustrations, corporate logo creation, product illustration, etc. Color reproduction techniques emphasized include process and spot color
- separation, color trapping, and proofing. Prerequisite: DGME130. *Fall*
- DGME305** \$ (4)  
 (was DGME310, part of DGME435)  
**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*
- DGME330** \$ (4)  
 (was DGME320, part of DGME435)  
**Digital Vector Graphics II**  
 A course designed to enhance students' ability to produce eye-catching graphic images for publishing, interactive media, and web applications. Students learn techniques for producing appealing charts and graphs, technical and informational graphics, realistic image rendering, and image format conversions. Prerequisite: DGME220. *Spring*

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*

## PHOTOGRAPHY

**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*

**PHTO200** \$ (4)

(was PHTO206, part of PHTO207)

### ***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. *Spring*

**PHTO210** (3)

### ***History of Photography***

Historical study of significant contributors in the development of photography and their influence on art and society. *Fall, Spring*

**PHTO220** \$ (4)

### ***Color Photography I***

Designed to acquaint students with color materials, their handling and exposure. Aesthetic and communicative aspects of color photography stressed in producing visually effective color transparencies. Prerequisites: PHTO115 or by permission of instructor. *Fall*

**PHTO285** \$ (4)

(was PHTO280, part of PHTO370)

### ***Studio***

Study of lighting techniques in standard-equipped studio, emphasizing portraiture, commercial illustration, and experimental techniques in both black-and-white color mediums. Prerequisite: PHTO200. *Spring*

**PHTO300** (3)

### ***Media Ethics***

Understanding the influence and role the media has in who we are and what we value. Provides a language and a forum for discussion on the media and how they influence our lives. *Spring*

**PHTO320** \$ (4)

### ***Color Photography II***

An image-oriented course, drawing on the student's background in the use of color comprehension, photographic technical and aesthetic understanding, and working knowledge of emulsion and digital photography. Information in this class is for the sole purpose of comprehensive color image. Prerequisites: DGME175; PHTO220. *Fall*

**PHTO385** \$ (4)

### ***Advanced Studio***

An individual approach to an advanced level of studio photography. The student will be able to choose a concentration in the following areas: Portraiture, People/Fashion, Still-Life, Advertising/Illustration, and Location Photography. This course is designed specifically to learn visual concepts and solve visual problems of the commercial photo industry. Repeatable to 12 credits. Prerequisite: PHTO285. *Fall, Spring*

**PHTO400** \$ (4)

### ***Digital Photographic Printing***

Study in color printing using traditional emulsion based processes and digital color output. Prerequisite: DGME175. *Fall*

**PHTO410** \$ (4)

### ***Advanced Photography II***

A course designed for the advanced photographer to investigate personal potential in visual exploration, experimentation, and technical excellence. Discussion involves expanding personal vision and exploring new techniques to achieve goals. Repeatable to 8 credits. Prerequisite: PHTO200. *Spring*

**PHTO425** (4)

### ***Travel Photography***

Designed to be done in conjunction with on-location photography, and provides a background in the specific needs related to travel. Photographing people and their land in foreign environments is emphasized. Unique materials and equipment are discussed as they relate to travel photography. Prerequisite: PHTO115.

## TECHNOLOGY EDUCATION

**TCED140** \$ (2)

(was TCED141, part of TCED142)

### ***Welding Technology***

Oxyacetylene and electric welding processes

**TCED495 (1-3)**

***Portfolio Development***

Helps the student develop a traditional or electronic portfolio for employment or continuing educational purposes. Emphasis in direction, development, and refinement of the individual portfolio. Repeatable to 12 credits. Prerequisites: minimum of 30 credits in a major and permission of the instructor. *Spring*

**TCED597 (1-3)**

***Independent Study***

Individual study or research under the direction of a staff member. Repeatable to 6 credits.  
Prerequisite: Permission of department chair.