IMAGING AND APPLIED TECHNOLOGY

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SEQUENCE OF TWO-YEAR AND FOUR-YEAR PROGRAMS
The Department of Imaging and Applied Technology 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 Imaging and Applied Technology 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, 150; 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—48
CNST105, 115, 120, 135; MECT120; TCED180, 9 credits minimum chosen from INDT320, 410, 440, 460; TCED254, 6 credits minimum chosen from ACCT121, 122; BSAD210, 341, 355, 436; ECON225, 226; FNCE387; MKTG310, 320, plus 12 credits of electives chosen from upper division courses in consultation with advisor.
Cognate requirements—17
ARCH201, 202, 205, 230, 305; MATH168.

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 webpage design, interactive multimedia, and CD authoring.

**BT: Digital Multimedia Technology**

**Major requirements—57**
DGME130, 175, 185, 215, 225, 250, 335, 340, 360, 370; TCED275, 495 plus 12 credits of electives chosen from ART214; COMM320; CPTR125; DGME305, 345, 385; PHTO115, 300, 365.

**Cognate requirements—9**
ART104, 207; JOUR140.

Students are accepted into the Digital Multimedia program on a provisional basis until they demonstrate their skills and abilities. By the end of the students’ sophomore year they need to have completed ART104, 207; DGME130, 175, 215, 225; and PHTO115 with a cumulative GPA of at least 3.00. They must also submit a portfolio of their work to the department along with a formal application to the Digital Multimedia program.

Applications and portfolios are reviewed by the department during the month of May and the applicant is notified no later than June 30 of acceptance into the program.

**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. Two 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. **Web Development.** In today’s economy almost everyone has a webpage to help advertise or market a product. This is one of the rapidly growing areas of the job market. Students taking this emphasis will have the needed background to find good paying jobs.

**BT: Graphic Imaging Technology**

**Major requirements—25**
ART207; DGME130, 175, 215, 225, 250, 335

**Emphasis in Electronic Publishing—32**
DGME185, 305; GRPH125, 145; PHTO365; TCED495 plus 10 credits of electives chosen in consultation with advisor.

**Cognate requirements—9**
ART104, 214; JOUR140 or

**Emphasis in Web Development—32**
CPTR125, 151, 152, 416; DGME350 plus 17 credits of electives chosen from ART104; DGME216; PHTO115, 130, 300, 365 and other courses from ART, CPTR and DGME.

**Cognate requirements—6**
COMM454; EDTE476.

**AT: Graphic Imaging Technology**

**Major requirements—40**
DGME130, 175, 185, 225; GRPH125; INDT315 plus 18 credits of electives chosen from DGME305; GRPH145 and others in consultation with advisor.

**PHOTOGRAPHIC IMAGING**

Photographic imaging fosters creativity in the production of visual images. The subject of these images and the method used to create them vary.

**Commercial imaging** develops skills required by the commercial industry through the use of studio work and on-location shooting in medium- and large-format photography.

**Digital imaging** utilizes computer technology to create, enhance, or modify photographic images.

**Photography** encompasses elements of digital and commercial imaging, and adds individual creativity and photojournalism.

**BS: Photographic Imaging**

**Major requirements—40**
DGME130, 175; PHTO115, 200, 220, 285, 300, 365, 410 plus 5 credits of electives chosen from DGME340; GTEC395; PHTO210, 320, 375, 385, 400, 425; TCED495.

**Cognate requirements—26**
ART104, 207, 214, 414; BSAD210; COMM405, 475; JOUR375.

**TECHNOLOGY EDUCATION**

Students learn skills for teaching technology education at the secondary level.

**BS: Teaching Endorsement (Secondary Education)**

**Professional requirements—8**
TCED254, 350, 456.

**Communication Systems*—9**
TCED465, plus 6 credits of electives chosen from ARCH125; DGME130; MECT120; PHTO115.

**Construction Systems*—7**
CNST105, plus 3 credits of electives chosen from ARCH201; CNST115, 120, 135.

**Energy Systems*—6**
TCED466, plus 3 credits of electives chosen from ELCT151, 171, 205.

**Manufacturing Systems*—6**
TCED470, plus 3 credits of electives chosen from TCED140, 180, 250.

**Transportation Systems*—6**
TCED464, plus 3 credits of electives chosen from AUTO130, 140, 150.

**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 advisor.
### Imaging Technology—22
ART207; DGME130, 175, 185; GRPH145 plus 3 credits of electives chosen from DGME, GRPH, and PHTO.

### Photography—20
DGME175; PHTO115, 200, 220, 285.

### Web Development—21
CPTR125; DGME130, 175, 250, 350 plus one cognate chosen from ART207; COMM454; EDTE476.

## Courses

See inside front cover for symbol code.

### AUTOMOTIVE TECHNOLOGY

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>AUTO104</td>
<td>Personal Auto Care</td>
<td>$2</td>
</tr>
<tr>
<td>AUTO105</td>
<td>Automotive Consumerism</td>
<td>(1)</td>
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<tr>
<td>AUTO115</td>
<td>General Auto Body Repair</td>
<td>$2</td>
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<tr>
<td>AUTO120</td>
<td>Auto Body Repair I</td>
<td>$4</td>
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<tr>
<td>AUTO130</td>
<td>Auto Body Repair II</td>
<td>$4</td>
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<tr>
<td>AUTO135</td>
<td>Engine Performance I</td>
<td>$4</td>
</tr>
<tr>
<td>AUTO140</td>
<td>Brakes, Suspension and Steering I</td>
<td>$3</td>
</tr>
<tr>
<td>AUTO150</td>
<td>Automotive Electrical Systems I</td>
<td>$4</td>
</tr>
<tr>
<td>AUTO325</td>
<td>Engine Repair</td>
<td>$4</td>
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<tr>
<td>AUTO330</td>
<td>Engine Performance II</td>
<td>$4</td>
</tr>
<tr>
<td>AUTO340</td>
<td>Brakes, Suspension and Steering II</td>
<td>$3</td>
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<tr>
<td>AUTO345</td>
<td>Auto Body Repair III</td>
<td>$4</td>
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<tr>
<td>AUTO350</td>
<td>Automotive Electrical Systems II</td>
<td>$4</td>
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<tr>
<td>AUTO355</td>
<td>Auto Body Repair IV</td>
<td>$4</td>
</tr>
<tr>
<td>AUTO380</td>
<td>Heating and Air Conditioning</td>
<td>$2</td>
</tr>
<tr>
<td>AUTO425</td>
<td>Automotive Services</td>
<td>(1-4)</td>
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</tbody>
</table>

### AUTO104 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 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*

### AUTO115 General Auto Body Repair
Basic auto body repair procedures are emphasized using individual projects. Helps the individual be a better consumer. Not applicable to a major or minor. *Spring*

### AUTO120 Auto Body Repair I
Theory and skill development for metal control in auto body sheet metal repair procedures. Welding, hand tool and power tool skills are developed on mock-ups and selected damage on automobiles. Component alignment and minor panel sectioning will be covered on both unitized body and conventional frame style vehicles. *Fall*

### AUTO130 Auto Body Repair II
Fundamentals of spray equipment, its usage and care. Emphasis in finishing materials, procedures and techniques for spot finishing and complete paint jobs. Course covers the preparation of substrata and final finishing using automotive urethane finishes. Study will also be made of body component systems and their diagnosis and repair. Prerequisite: AUTO120 or instructor’s permission. *Spring*

### AUTO135 Engine Performance I
A course dealing with general engine diagnosis emphasizing ignition, fuel, air intake, emission and computer controls. *Fall*

### AUTO140 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 Automotive Electrical Systems I
A course dealing with general electrical diagnosis and service procedures which covers: starting, charging, lighting, accessories and gauges. *Spring*

### AUTO325 Engine Repair
Includes general engine diagnosis and repair covering cylinder heads, block repair, lubrication and exhaust systems. *Fall*

### AUTO330 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 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*

### AUTO345 Auto Body Repair III
Frame and body alignment theory and techniques with emphasis in the use of frame and body measuring devices, heavy duty floor or rack-pulling equipment. Skill in the repair and replacement of sections and complete structural panels will also be developed. Prerequisite: AUTO130. *Fall*

### AUTO350 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*

### AUTO355 Auto Body Repair IV
Study in advanced finishing systems and spray gun technique for three stage color systems and custom finishes including stripping, taping, airbrush, and metal flake. Study and practice will also be made of estimating the cost of repairs of collision damage. Prerequisite: AUTO345 or by permission of instructor. *Spring*

### AUTO380 Heating and Air Conditioning
A study of refrigeration theory and repair. Refrigerant recovery and recycling methods, heating and cooling principles are stressed. *Spring*

### AUTO425 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*
CONSTRUCTION

CNST105 Residential Construction $ (4)
Emphasis in house-framing. The use of the steel square as it relates to rafter and stairway construction. Reading of prints, safe and proper use of hand and power tools will be covered. Energy efficient houses and other modern methods of construction are introduced. Spring

CNST115 Masonry Construction $ (3)
Emphasizes the proper use of the trowel, laying block and brick to the line and building of corner leads. Vocabulary, theory, safety, and practical applications are stressed. Fall

CNST120 Electrical Construction $ (3)
Includes code requirements, design and layout of electrical circuits, wiring methods, and commercial applications. Fall

CNST135 Plumbing Construction $ (4)
Includes design and layout of waste and water systems, rough-in methods, and trim. Print reading will be covered. Spring

DIGITAL MULTIMEDIA TECHNOLOGY

DGME130 Introduction to Digital Graphics $ (4)
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 Digital Imaging $ (4)
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 with a C or better. ART207, PHTO115 recommended. Fall, Spring

DGME185 Desktop Publishing I $ (4)
A survey of leading multimedia techniques using state of the art software and covering principles of effective digital multimedia production, interactive new media concepts, basic scripting, animation, digital imaging, and sound manipulation. Students produce digital interactive presentations, kiosks, and web-ready programs. Prerequisites: DGME175, 215, 216. Fall

DGME335 Web Animation $ (4)
A course of study designed to develop the skills necessary for producing effective animation for the Web. Prerequisites: ART104; DGME130 or equivalent. Fall, Spring

DGME340 Interactive Multimedia I $ (4)
A study of digital vector graphic imaging emphasizing graphic production for print, digital multimedia, and web publishing. Prerequisite: DGME130 or equivalent. Fall

DGME345 Digital Video Editing II $ (3)
An emphasis on nonlinear video editing, implementing modern video editing suites. Students learn video composition, the use of filters, transitions, alpha channels, video formats and their application, video recording/capturing, broadcasting techniques, and the advantages and limitations of this medium. Prerequisites: DGME175, 215, 216. Spring

DGME350 Web Publishing II $ (3)
Advanced study of current web development technologies with emphasis in Java scripting, animation, site quality and efficiency. The class will also stress meeting customer needs and new methods of web development. Fall, Spring

DGME360 3-D Modeling $ (4)
A study of basic 3-D modeling principles and techniques. Students learn 3-D modeling terminology, points and polygonal manipulation, model construction, and surfacing. Students also implement geometric manipulation tools such as: lathe, extrude, boolean effects, metaballs, text manipulation and more. Prerequisites: ART104; DGME175, 225. Fall
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

PHTO210
History of Photography
Historical study of significant contributors in the development of photography and their influence on art and society. Fall, Spring

PHTO220
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
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
Media Ethics
Understanding the influence and role of the media 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
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: DGE175; PHTO220. Fall

PHTO365
Advanced Digital Imaging
In-depth manipulation using leading industry software, emphasizing high quality image acquisition and output. Students learn to produce duotones, create raster graphic collages, perform critical image enhancement, create custom palettes, and alpha channels for image compositing. Repeatable to 8 credits. Prerequisites: ART207; DGE175 (with a B- or better); PHTO115. Fall, Spring

PHTO385
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

PHTO390
Independent Study in Photography
Further study of photography under direction of instructor. May be repeated. Prerequisites: Prerequisites: PHTO115 or equivalent and approval of the instructor. Fall, Spring
PHOTO400 $ (4)
Digital Photographic Printing
Study in color printing using traditional emulsion based processes and digital color output. Prerequisites: PHOTO220, 365. Fall

PHOTO410 $ (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: PHOTO285. Spring

PHOTO425 (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. Repeatable to 8 credits. Prerequisite: PHOTO115.

TECHNOLOGY EDUCATION

TCED140 $ (2)
Welding Technology
Oxyacetylene and electric welding processes including oxyacetylene welding, cutting, and brazing; basic shielded metal arc welding and basic gas metal arc welding. A limited amount of out-of-position welding will be stressed. Fall

TCED179 $ (2)
Woodturning
Instruction and practice on the wood lathe covering safety and the basic operations used in spindle and face-plate turnings. Projects are of a useful and artistic nature. Spring

TCED180 $ (3-4)
Fundamentals of Woodworking
Emphasis in design, wood identification, and the construction of appropriate projects from drawings. Safety and proper use of wood-working machines and common hand tools stressed. Spring

TCED194/494 (1-3)
Project Course
Development of a skill 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
Acquaints students with the planning and organization of technical facilities. Consideration given to space requirements, building structure, material flow, equipment needs, site location, and environment control of such facilities. Spring

TCED350 (2)
Teaching of Technology Education
Teaching methods and strategies applicable to the teaching of technology education at the secondary level. The developing of specific learning experiences and learning through problem-solving is covered. Prerequisite: Permission of instructor.

TCED390 (1-4)
Internship
On-the-job internship experience for those students seeking industrial experience which cannot be simulated in a classroom setting. A range of 120 clock hours of work are required for each credit. Selected in consultation with the student’s advisor. May be repeated.

TCED456 (3)
Safety and Loss Control
Safety and the fundamentals of accident prevention with emphasis on schools, school laboratories, and industrial applications. Introduction to the total program of loss control in industry, including the legal implications for both school and industry. Emphasis on the problem of accident prevention and control. Spring

TCED464 (3)
Transportation Technology
The field of transportation as related to technology education at the secondary level. Material handling, transportation involving space and atmospheric, marine, and terrestrial modes included.

TCED465 (3)
Communication Technology
Study in the field of communications as related to the secondary level in technology education. Emphasis on broadcasting, computers, drafting, photography, graphic arts, telecommunications, and their effect on society.

TCED466 (3)
Energy Utilization
Study of different types of energies used by modern society, how they have changed society, and implications for the future.

TCED470 (3)
Manufacturing Technology
Study of the manufacturing process as it relates to the teaching of technology education at the secondary level. Emphasizes materials and processes, research and development, management, marketing, and sales.

TCED275/485 (1-3)
Topics in
Repetable in various areas.

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. Fall

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.