The vision of the College of Applied Science and Technology is to be the leader in the State in technology and technology related programs through service to our students and the businesses and industries in our region. The mission of the College is to serve the citizens of northern Utah and the State of Utah by:

- Preparing students for employment upon graduation and ensuring that they are productive, accountable and responsible individuals able to function effectively in today's workplace.
- Engaging in scholarly activities which expand the technological education our students receive and provide a service to business and industry.
- Utilizing the College's resources and faculty expertise to benefit students, business, industry, education, government and society in general.

**Department/Area Listing**

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<th>Department/Area Listing</th>
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<td>Technology Assistance Center</td>
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<td>Parson Construction Management Technology</td>
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<td>Design Graphics Engineering Technology</td>
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<td>Pre-Engineering</td>
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<td>Sales and Service Technology</td>
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<tr>
<td>Automotive Service Technology</td>
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<tr>
<td>Interior Design Technology</td>
<td>88.91</td>
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<tr>
<td>Sales and Merchandising</td>
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<tr>
<td>Technical Sales</td>
<td>90</td>
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<tr>
<td>Telecommunications &amp; Business Education</td>
<td>93</td>
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<td>Telecommunications Administration</td>
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<td>Business Education &amp; Business Systems Technologies</td>
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</tbody>
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**Department Chairs**

<table>
<thead>
<tr>
<th>Department Chairs</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Computer and Electronics Engineering Technology: Dr. William G. Clapp</td>
<td>626-6898</td>
</tr>
<tr>
<td>Computer Science: Mr. Greg Anderson</td>
<td>626-7929</td>
</tr>
<tr>
<td>Manufacturing &amp; Mechanical Engineering Technology: Mr. Andy Drake</td>
<td>626-6305</td>
</tr>
<tr>
<td>Sales and Service Technology: Mr. Vel Casler</td>
<td>626-6913</td>
</tr>
<tr>
<td>Telecommunications &amp; Business Education: Dr. Alden A. Talbot</td>
<td>626-6059</td>
</tr>
</tbody>
</table>

**Degrees Offered**

**Bachelor of Science degree programs are offered in:**

- Automotive Technology
- Computer Engineering Technology
- Construction Management Technology
- Design Graphics Engineering Technology
- Electronics Engineering Technology
- Manufacturing Engineering Technology
- emphasis in Welding Engineering Technology
- Mechanical Engineering Technology

**Bachelor of Arts and Bachelor of Science composite/teaching degree programs are offered in:**

- Business Education
- Associate of Applied Science degree programs are offered in:
  - Automotive Service Technology
  - Business Systems Technologies
  - Computer Engineering Technology
  - Computer Science
  - Construction Management Technology
  - Design Graphics Engineering Technology
  - Electronics Engineering Technology
  - Interior Design Technology
  - Manufacturing Engineering Technology
  - Mechanical Engineering Technology
  - Sales & Merchandising
  - Telecommunications

**An Associate of Pre-Engineering is also offered.**

**Minors are offered in:**

- Business Education Teaching
- Business/Marketing Education Teaching
- Business Systems Technologies
  - emphases in Business Systems and Multimedia
- Computer Science
- Computer Science Teaching
- Electronics Engineering Technology
- Sales and Service Technology
  - emphases in Fashion Merchandising, Interior Design & Sales
- Telecommunications

**Institutional Certificate offered in:**

- Telecommunications

**Certifications are offered in Professional Network CISCO & Microsoft options**
**Engineering Technology Programs**

Engineering technology education focuses primarily on the applied aspects of science and engineering aimed at preparing graduates for practice in that portion of the technological spectrum closest to product improvement, industrial processes, and operational functions. The engineering technology programs at Weber State prepare individuals for a wide variety of positions in technology-based business and industries. The study of engineering technology requires a knowledge of mathematical, scientific, and engineering principles in combination with a strong applications-orientation in support of engineering activities. The College of Applied Science and Technology offers AAS and BS degrees in the following engineering technology programs:

- Computer Engineering Technology
- Design Graphics Engineering Technology
- Electronics Engineering Technology*
- Manufacturing Engineering Technology*
- Mechanical Engineering Technology*

* The BS degrees in these programs are accredited by the Technology Accreditation Commission of the Accreditation Board for Engineering and Technology (ABET), 111 Market Place, Suite 1050, Baltimore, MD 21202-4012, telephone 410-347-7700.

**Center for Automotive Science and Technology**

**Director:** Joe Thomas  
**Location:** TE 201  
**Telephone:** 801-626-7836

The Center for Automotive Science and Technology was established in 1997 to assist in developing a better understanding of vehicle emissions among academic, regulatory, and private sector entities, both locally and nationally. To do this, the Center provides training to automotive technicians, instructors, regulatory officials, field engineers, and consumer groups as well as doing applied research on vehicular emissions. Additionally, the Center gathers and disseminates information about the impact of emissions, design for emission abatement, and efficiency of vehicles. The Center is a cooperative endeavor of the University, the Utah Department of Environmental Quality, and multiple private companies.

**Technology Assistance Center**

**Director:** Rick Orr  
**Location:** ET 218F  
**Telephone:** 801-626-7514

The Technology Assistance Center was established in 1991 to provide various types of technical assistance to regional business and industry. The goal of the Center is to furnish technical and managerial support in support of manufacturing development and diversification. As part of this mission, the Center also works closely with economic development and other assistance organizations within the state.

The Technology Assistance Center responds to the technical support needs of businesses, local governments, and economic development groups by acting as an information clearing house, conducting data base searches, providing technical assistance in product or process development or testing, and demonstrating new or emerging technologies. This assistance, which is provided by faculty and students, includes but is not limited to problem solving, decision support for new technology or systems, product or process design assistance, material handling, cost analysis, quality control assistance, team building, and technical training.

---

**Computer and Electronics Engineering Technology**

**Chair:** Dr. William G. Clapp  
**Location:** Building 4, Room 421  
**Telephone Contact:** Linda Thornock 801-626-6898

**Professors:** William Clapp, Jay Smith, Robert Summers;  
**Associate Professors:** Wayne Andrews, Verne Hansen;  
**Assistant Professor:** Jeffrey Ward;  
**Instructor Specialist:** Steve Green;  
**Instructor:** Julanne McCulley;  
**Visiting Professor:** Ed Price

The Computer and Electronics Engineering Technology Department (CEET) provides applications-oriented education which produces graduates who are prepared to make significant contributions in technology based career fields. The programs in the department prepare students to incorporate computer and electronic systems in solving engineering, technology, science, and manufacturing problems.

The Department offers an Associate of Applied Science degree and a Bachelor of Science degree in either Computer Engineering Technology (CET) or Electronics Engineering Technology (EET). The department also offers a minor in Electronics Engineering Technology.

**A.A.S. Degree:** The A.A.S. degree prepares graduates to specify, install, operate, troubleshoot, and modify computers, automated programmable controllers, and electronic systems. It is designed to give the student fundamental knowledge and basic skills in robotics, automation, electronic manufacturing, fabrication, testing, and troubleshooting.

- **CET.** The Computer Engineering Technology A.A.S. program is a combination of software and hardware courses supporting electronic devices, communications, and embedded computer systems.
- **EET.** The Electronics Engineering Technology A.A.S. program is more hardware oriented in support of electronic devices, communications, and embedded computer systems.

**B.S. Degree:** The Bachelor of Science (BS) degree is designed to continue a student’s education beyond the associate’s degree level. It is intended to provide the student with knowledge and skills in problem solving, critical thinking, project management, team building, and engineering research to identify, evaluate, analyze, and solve complex computer and electronic related technical problems.

- **CET.** The Computer Engineering Technology BS program is a combination of advanced software and hardware courses supporting embedded microcontrollers.
- **EET.** The Electronics Engineering Technology BS program is more hardware oriented in support of electronic devices, circuit design, power systems, automated control, and embedded computer systems.

**Computer Engineering Technology**

**Associate of Applied Science Degree (A.A.S.)**

- **Grade Requirements:** A grade of "C" or better in all CEET and support courses (a grade of "C-" is not acceptable). Students must maintain an overall GPA of 2.0 or higher. Refer to the general grade requirements for graduation on page 36.
- **Credit Hour Requirements:** A minimum of 63 credit hours is required with a minimum of 37 credit hours in the major. Transfer students are required to take a minimum of 20 credit hours at Weber State University.
- **Assessment Requirements:** Students will be required to complete certain assessment instruments as part of the overall requirements.
for receiving their associate's degree. Please see your advisor or your department for specific information regarding assessment.

Advisement

All Computer Engineering Technology students are required to meet with their faculty advisor at least annually for course and program advisement. Please call the department secretary at 801-626-6898 for the name of your advisor and to schedule an appointment. Individual student records are accessible through the WSU Home Page.

Admission Requirements

See the department secretary to declare your program of study (major - see page 18). There are no special admission or application requirements for this program.

General Education

Refer to pages 36–41 for Associate of Applied Science requirements. Computer Literacy as defined in this catalog is also required for the A.A.S. degree. Consult with your advisor for specific general education guidelines.

Course Requirements for A.A.S. Degree

Required CEET Courses (10 classes, 29 credit hours)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEET 1105</td>
<td>PC Fundamentals</td>
<td>4</td>
</tr>
<tr>
<td>CEET 1110</td>
<td>Basic Electronics</td>
<td>2</td>
</tr>
<tr>
<td>CEET 1120</td>
<td>Information Technology</td>
<td>2</td>
</tr>
<tr>
<td>CEET 1130</td>
<td>Digital Systems</td>
<td>4</td>
</tr>
<tr>
<td>CEET 1140</td>
<td>AC &amp; DC Circuits</td>
<td>4</td>
</tr>
<tr>
<td>CEET 1150</td>
<td>Embedded Controllers</td>
<td>4</td>
</tr>
<tr>
<td>CEET 2000</td>
<td>Engineering Seminar</td>
<td>1</td>
</tr>
<tr>
<td>CEET 2110</td>
<td>Semiconductor Devices</td>
<td>4</td>
</tr>
<tr>
<td>CEET 2140</td>
<td>Communications Circuits</td>
<td>4</td>
</tr>
<tr>
<td>CEET 2899</td>
<td>Associate Degree Assessment</td>
<td>0</td>
</tr>
</tbody>
</table>

Required Computer Science Courses (2 classes, 8 credit hours)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS SI1400</td>
<td>Fundamentals of Programming</td>
<td>4</td>
</tr>
<tr>
<td>CS SI1410</td>
<td>Object-Oriented Programming</td>
<td>4</td>
</tr>
</tbody>
</table>

Required Support Courses (20 credit hours)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH QL1080*</td>
<td>Pre-Calculus</td>
<td>5</td>
</tr>
<tr>
<td>MATH SI2120</td>
<td>Calculus I (4)</td>
<td>4</td>
</tr>
<tr>
<td>ENGL EN1010</td>
<td>Intro to Writing (3)</td>
<td>3</td>
</tr>
<tr>
<td>ENGL EN2010</td>
<td>Intermediate Writing (3)</td>
<td>3</td>
</tr>
<tr>
<td>PHYS PS/SI2210</td>
<td>Physics for Scientists &amp; Engineers I (5)</td>
<td>5</td>
</tr>
</tbody>
</table>

* Students without previous university-level math (1010 or higher) should consult with an advisor prior to enrolling in MATH QL1080.

Other Courses Required (6 credit hours)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gen Ed Social Science Elective (3)</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>COMM HU2110</td>
<td>Intro to Interpersonal Communications (3)</td>
<td>3</td>
</tr>
</tbody>
</table>

Suggested Course Sequence

Please refer to the program in the online catalog (weber.edu/catalog) and/or contact the department for a suggested course sequence.

Computer Engineering Technology

BACHELOR OF SCIENCE DEGREE (B.S.)

Required Support Courses (9 credit hours)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH SI1080*</td>
<td>Pre-Calculus</td>
<td>5</td>
</tr>
<tr>
<td>MATH SI2120</td>
<td>Calculus I (4)</td>
<td>4</td>
</tr>
<tr>
<td>ENGL EN1010</td>
<td>Intro to Writing (3)</td>
<td>3</td>
</tr>
<tr>
<td>ENGL EN2010</td>
<td>Intermediate Writing (3)</td>
<td>3</td>
</tr>
</tbody>
</table>

Program Prerequisite: A.A.S. degree in Computer Engineering Technology (CET) from Weber State University or an equivalent degree or coursework from an accredited A.A.S. program.

Minor: Not required.

Grade Requirements: A grade of “C” or better in all CEET and support courses is required for this major (a grade of “C-” is not acceptable). Students must maintain an overall GPA of 2.0 or higher. Refer to the general grade requirements for graduation on page 36.

Credit Hour Requirements: A total of 124 credit hours is required for graduation – a minimum of 58 credit hours (29 for A.A.S. and 29 for the B.S.) in the major. A total of 40 upper division credit hours is also required (courses numbered 3000 and above). Transfer students are required to take a minimum of 30 credit hours at Weber State University.

Advisement

All Computer Engineering Technology students are required to meet with their faculty advisor at least annually for course and program advisement. Please call the department secretary at 801-626-6898 for the name of your advisor and to schedule an appointment. Individual student records are accessible through the WSU Home Page.

Admission Requirements

See the department secretary to declare your program of study (major - see page 18). Refer to the Program Prerequisite in the preceding column. There are no additional special admission or application requirements for this program.

General Education

Refer to pages 36–41 for Bachelor of Science degrees. Consult with your advisor for specific general education guidelines.

Course Requirements for B.S. Degree

To be taken in addition to the requirements for the A.A.S. degree in CET.

Required CEET Courses (29 credit hours)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEET SI3010</td>
<td>Advanced Circuit Analysis I (4)</td>
<td>4</td>
</tr>
<tr>
<td>CEET 3030</td>
<td>FPG A &amp; ASIC Design</td>
<td>4</td>
</tr>
<tr>
<td>CEET 3050</td>
<td>Assembly Language &amp; Device Drivers (4)</td>
<td>4</td>
</tr>
<tr>
<td>CEET 3060</td>
<td>Real-Time Embedded Controllers (4)</td>
<td>4</td>
</tr>
<tr>
<td>CEET 3080</td>
<td>Digital Communications</td>
<td>4</td>
</tr>
<tr>
<td>CEET 4000</td>
<td>Engineering Seminar</td>
<td>1</td>
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<tr>
<td>CEET 4010</td>
<td>Project Management</td>
<td>3</td>
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<tr>
<td>CEET 4020</td>
<td>Senior Project</td>
<td>3</td>
</tr>
<tr>
<td>CEET 4890</td>
<td>Cooperative Work Experience (2)</td>
<td>2</td>
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<tr>
<td>CEET 4899</td>
<td>Bachelor Degree Assessment (0)</td>
<td>0</td>
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Elective Courses (8 credit hours required)

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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>CEET 3000</td>
<td>Engineering Ethics</td>
<td>1</td>
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<tr>
<td>CEET 3040</td>
<td>Instrumentation and Measurements (4)</td>
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</tr>
<tr>
<td>CEET 3070</td>
<td>Engineering Technology Research (4)</td>
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</tr>
<tr>
<td>CEET 4040</td>
<td>Digital Signal Processing</td>
<td>4</td>
</tr>
<tr>
<td>CEET 4050</td>
<td>Engineering Fundamentals</td>
<td>4</td>
</tr>
<tr>
<td>CEET 4060</td>
<td>Advanced Communications</td>
<td>4</td>
</tr>
<tr>
<td>CEET 4800</td>
<td>Individual Studies</td>
<td>1-4</td>
</tr>
<tr>
<td>CEET 4900</td>
<td>Special Topics</td>
<td>3</td>
</tr>
<tr>
<td>MET 4990</td>
<td>Seminar in Mechanical Engineering Technology (1)</td>
<td>1</td>
</tr>
</tbody>
</table>

Required Support Courses (9 credit hours)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 3100</td>
<td>Professional &amp; Technical Writing (3)</td>
<td>3</td>
</tr>
<tr>
<td>or TBE 3250</td>
<td>Business Communication</td>
<td>3</td>
</tr>
<tr>
<td>TBE 3090</td>
<td>Advanced Electronic Presentations (1)</td>
<td>1</td>
</tr>
<tr>
<td>PHYS PS/SI2220</td>
<td>Physics for Scientists &amp; Engineers II (5)</td>
<td>5</td>
</tr>
</tbody>
</table>

Other Required Courses (15 credit hours)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gen Ed Humanities Elective (3)</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Gen Ed Creative Arts Elective (3)</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Gen Ed American Institutions Elective (3)</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Gen Ed Social Science Elective (3)</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Gen Ed Life Science Elective (3)</td>
<td></td>
<td>3</td>
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</tbody>
</table>

Suggested Course Sequence

Please refer to this program in the online catalog (weber.edu/catalog) and/or contact the department for a suggested course sequence.
### Course Requirements for A.A.S. Degree

**Required CEET Courses (33 credit hours)**

- CEET 1110 Basic Electronics (2)
- CEET 1120 Information Technology (2)
- CEET 1130 Digital Systems (4)
- CEET 1140 AC and DC Circuits (4)
- CEET 1150 Embedded Controllers (4)
- CEET 2000 Engineering Seminar (1)
- CEET 2110 Semiconductor Devices (4)
- CEET 2120 Power and Control Circuits (4)
- CEET 2130 PC Board Design (4)
- CEET 2140 Communications Circuits (4)
- CEET 2899 Associate Degree Assessment (0)

**Required Support Courses (24 credit hours)**

- MATH QL1080 Pre-Calculus (5)
- MATH SI1210 Calculus I (4)
- ENGL EN1010 Intro to Writing (3)
- ENGL EN2010 Intermediate Writing (3)
- CS SI1400 Fundamentals of Programming (4)
- PHYS PS/SI2210 Physics for Scientists & Engineers I (5)
- GEN ED Social Science Elective (3)
- COMM HU2110 Intro to Interpersonal Communications (3)

**Suggested Course Sequence**

Please refer to this program in the online catalog (weber.edu/catalog) and/or contact the department for a suggested course sequence.

---

### Course Requirements for B.S. Degree

**Required CEET Courses (29 credit hours)**

- CEET SI3010 Advanced Circuit Analysis I (4)
- CEET 3020 Advanced Circuit Analysis II (4)
- CEET 3040 Instrumentation & Measurements (4)
- CEET 4000 Engineering Seminar (1)
- CEET 4010 Project Management (3)
- CEET 4020 Senior Project (3)
- CEET 4030 Controls & Systems (4)
- CEET 4040 Digital Signal Processing (4)
- CEET 4890 Cooperative Work Experience (2)
- CEET 4899 Bachelor Degree Assessment (0)

**Elective Courses (8 credit hours required)**

- CEET 3000 Engineering Ethics (1)
- CEET 3030 FPGA & ASIC Design (4)
- CEET 3050 Assembly Language & Device Drivers (4)
- CEET 3060 Real-Time Embedded Controllers (4)
- CEET 3070 Engineering Technology Research (4)
- CEET 3080 Digital Communications (4)
- CEET 4050 Engineering Fundamentals (F.E.) Exam Prep (2)
- CEET 4060 Advanced Communications (4)
- CEET 4800 Individual Studies (1-4)
- CEET 4900 Special Topics (4)
- MET 4990 Seminar in Mechanical Engineering Technology (1)

**Required Support Courses (9 credit hours)**

- ENGL 3100 Professional & Technical Writing (3)
- or TBE 3250 Business Communication (3)
**TBE 3090** Advanced Electronic Presentations (1)
**PHYS S1220** Physics for Scientists & Engineers II (5)

**Other Required Courses (15 credit hours)**
- Gen Ed Humanities Elective (3)
- Gen Ed Creative Arts Elective (3)
- Gen Ed American Institutions Elective (3)
- Gen Ed Social Science Elective (3)
- Gen Ed Life Science Elective (3)

**Suggested Course Sequence**

Please refer to this program in the online catalog (weber.edu/catalog) and/or contact the department for a suggested course sequence.

---

**COMPUTER AND ELECTRONICS ENGINEERING TECHNOLOGY**

**DEPARTMENTAL HONORS**

- Program Prerequisite: Declare intent to obtain Department Honors in Computer/Electronics Engineering Technology – both with the Honors office (Library 225) and with the Computer and Electronics Engineering Technology Department Chair. (See also the Honors Program on page 43).
- Grade Requirements: Maintain an overall GPA of 3.3.
- Credit Hour Requirements: Fulfill three (3) hours of the general education requirement in the social sciences with HNRS SS1520. Fulfill the requirements for the Computer/Electronics Engineering Technology major with at least 12 hours of required upper division courses completed with an Honors component. Component contracts are available in the Honors Center, Library 225. As part of the 12 hours, students are required to complete CEET 4020 (Senior Project) on an Honors basis. Students will fulfill a minimum of 15 Honors hours to complete Computer/Electronics Engineering Technology Department Honors.

**ELECTRONICS ENGINEERING TECHNOLOGY MINOR**

- Grade Requirements: A grade of "C" or better in courses used toward the minor (a grade of "C-" is not acceptable).
- Credit Hour Requirements: A minimum of 20 credit hours of CEET courses.

This program offers students who major in another discipline the option to obtain a minor in Electronics Engineering Technology.

**Course Requirements for Minor**

<table>
<thead>
<tr>
<th>CEET Courses Required (20 credit hours)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>CEET 1110 Basic Electronics (2)</td>
<td></td>
</tr>
<tr>
<td>CEET 1120 Information Technology (2)</td>
<td></td>
</tr>
<tr>
<td>CEET 1130 Digital Systems (4)</td>
<td></td>
</tr>
<tr>
<td>CEET 1140 AC and DC Circuits (4)</td>
<td></td>
</tr>
<tr>
<td>CEET 1150 Embedded Controllers (4)</td>
<td></td>
</tr>
<tr>
<td>CEET 3050 Assembly Language and Device Drivers (4)</td>
<td></td>
</tr>
</tbody>
</table>

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**CEET 1110. Basic Electronics (2)**

Introduction to the concepts and fundamentals of electronic devices, circuits and systems. An electronics overview course for technology majors. Topics include direct current electricity, alternating current electricity, transistors and integrated circuits, amplifiers and oscillators, transmitters and receivers, digital logic circuits, electronic memory, and computers. Prerequisite: Credit for or concurrent enrollment in MATH 1010.

**CEET 1120. Information Technology (2)**

Introduction to the concepts and fundamentals of information technology. Information technology overview course for technology majors. Topics include the World Wide Web, data protocols, graphics and visual information, data compression, bandwidth and information technology, transmission and storage technology, networks and the Internet, voice over IP, and electronic commerce. Prerequisite: Credit for or concurrent enrollment in MATH 1010.

**CEET 1130. Digital Systems (4)**

Introduction to digital electronics, integrated circuits, numbering systems, Boolean algebra, gates, flip-flops, multiplexers, sequential circuits, combinational circuits, programmable logic devices, and computer architecture. Lecture and lab combination. Laboratory activities to include the design, construction, analysis, and measurement of basic digital systems. Prerequisite: Credit for or concurrent enrollment in MATH 1010.

**CEET 1140. AC and DC Circuits (4)**

Introduction to AC and DC circuit fundamentals, analysis, theorems, laws, components, measuring devices, and equipment. Lecture and lab combination. Laboratory activities to include the design, construction, and analysis of AC/DC circuits. The introduction and use of measurement instruments, power supplies, and signal generators. Prerequisite: CEET 1110 and MATH QL1080 or concurrent enrollment in MATH 1060.

**CEET 1150. Embedded Controllers (4)**

Introduction to microprocessors, embedded controllers, operational characteristics, computer architecture, machine code programming, memory devices, and interfacing. Lecture and lab combination. Laboratory activities to include the design, construction, and analysis of microcontroller based systems. Analysis techniques to include the use of assemblers, cross-assemblers, and emulators. Prerequisite: CEET 1130.

**CEET 1850. Industrial Electronics (4)**

Industrial electronics course for Mechanical and Manufacturing Engineering Technology majors. Introduction to DC and AC circuits, machines, and power systems. Lecture and lab combination. Laboratory activities to include the design, construction, and analysis of DC/AC circuits and machinery. Prerequisite: MATH 1010.

**CEET 2000. Engineering Seminar (1)**

An introduction to science, engineering and technology career fields. Industrial leaders, as guest speakers, will share their engineering experiences and provide insight into career opportunities, hiring criteria, job responsibilities, engineering ethics, and professional development. The student will identify and contact industrial companies using online searches, personal interviews, and library resources. The student will attend senior project design reviews.

**CEET 2110. Semiconductor Devices (4)**

Introduction to the design and analysis of semiconductor circuits using diodes, transistors, op-amps, field effect devices, thyristors, and regulators. Lecture and lab combination. Laboratory activities to include the design, construction, computer simulation, and analysis of semiconductor circuits, amplifiers and power supplies. Prerequisite: CEET 1140.
CEET 2120. Power and Control Circuits (4) F
Introduction to AC and DC motors, relays, transformers, power measurements, National Electrical Code, ladder logic, wiring, and programmable logic controllers (PLCs). Lecture and lab combination. Laboratory activities to include the design, construction, and analysis of basic power circuits and machinery configurations. Prerequisite: CEET 1140.

CEET 2130. PC Board Design (4) S
Introduction to the design of printed circuit boards and packaging with emphasis on the design, simulation, analysis and packaging of circuits. Lecture and lab combination. Laboratory activities include the design, construction, and testing of prototype circuit boards. CAD programs will be used for the design and layout of circuit boards. Prerequisite: CEET 2110.

CEET 2140. Communications Circuits (4) S
Introduction to digital and wireless communication circuits. Topics to include radio frequency circuits, modulation, detection, transmitters, receivers, transmission lines, antennas, and measurement instruments. Digital communications topics to include parallel and serial data transmission. Lecture and lab combination. Laboratory activities to include the design, construction, computer simulation, and analysis of communication circuits. Prerequisites: CEET 2110 and MATH SI1210.

CEET 2850. Telecommunications Circuits (2) S
Telecommunications technology course for Telecommunications majors. Introduction to telecommunications technology. The course introduces the fundamentals of DC theory, AC theory, power, electronic components, semiconductor devices, digital fundamentals, integrated circuits, computer circuits, frequency, fiber optics, and wireless communications. Two one-hour lectures per week.

CEET 2899. Associate Degree Assessment (0)
This course is to serve as an assessment tool whereby all A.A.S. degree seeking students in the College of Applied Science and Technology demonstrate their learned knowledge in at least three areas of Applied Technology study. At present, this knowledge will be demonstrated through the use of the Work Keys exams administered through the Campus Testing Center.

CEET 3000. Engineering Ethics (1) F, S
Scope and aims of engineering ethics, moral reasoning, ethical theories, social experimentation, responsibility for safety and to employers, rights, global issues, management, consulting, and leadership. Prerequisite: PHIL HU1120.

CEET SI3010. Advanced Circuit Analysis I (4) F, S
Advanced topics related to electronic circuit analysis, Laplace transforms, differential equations, Fourier series, Fourier transforms, and applications. Lecture and lab combination. Laboratory activities to include circuit design, construction, computer simulation, and analysis. Prerequisites: CEET 2110 and MATH SI1210.

CEET 3020. Advanced Circuit Analysis II (4) F, S
Continuation of Advanced Circuit Analysis I, CEET SI3010. Active and passive filters, Z-transforms, Pole-zero analysis, stability, Bode diagrams, frequency response, and applications. Lecture and lab combination. Laboratory activities to include circuit design, construction, computer simulation, and analysis. Prerequisite: CEET SI3010.

CEET 3030. FPGA and ASIC Design (4) F
Introduction to field programmable gate arrays (FPGA) and application specific integrated circuit (ASIC) design. Lecture and lab combination. Laboratory activities to include the use of computer design tools to design, model, simulate, and program gate arrays and application specific integrated circuits.

CEET 3040. Instrumentation and Measurements (4) S
Introduction to electronic data acquisition, data analysis, error analysis, signal measurement, and automatic testing techniques. Lecture and lab combination. Laboratory activities to include the design, construction, and analysis of measurement circuits, data acquisition circuits, instrumentation devices, and automatic testing. Prerequisite: CEET 2110.

CEET 3050. Assembly Language & Device Drivers (4) S
Small computer architecture, computer I/O, graphics, assembly language fundamentals, BIOS, device drivers, advanced assembly language techniques. Lecture and lab combination. Laboratory activities to include design, simulation, computer programming, analysis, and troubleshooting. Prerequisite: CEET 1150.

CEET 3060. Real-Time Embedded Controllers (4)
An introduction to real-time kernels and operating systems. Priority-based pre-emptive scheduling, intertask communication, and intertask synchronization will be studied. Other topics include priority inversions, semaphores, mutexes, context switches, rate monotonic analysis (RMA), various kernel services, finite state machines, and nested state machines. Prerequisites: CEET 1150, CEET 2110, C Programming Language.

CEET 3070. Engineering Technology Research (4) F
Introduction to engineering technology research principles. Engineering problem solving using the internet, human networking, and professional publications. Lecture and lab combination. Laboratory activities to include research, analysis, presentation, and documentation for specific engineering problems.

CEET 3080. Digital Communications (4)
This course provides an in-depth study of several serial communication standards and how to implement them in embedded systems. The standards addressed in this class include RS232, RS485, Controller Area Network (CAN), and Ethernet. Emphasis will be placed on utilizing the stacks and protocols for each standard. The channel bandwidth, noise, and data error rate will be addressed. Wireless methods of serial communication will be surveyed. Prerequisites: CEET 1150, CEET 2110, Math 1210.

CEET 4000. Engineering Seminar (1)
An introduction to science, engineering and technology career fields. Industrial leaders, as guest speakers, will share their engineering experiences and provide insight into career opportunities, hiring criteria, job responsibilities, engineering ethics, and professional development. The student will identify and contact industrial companies using online searches, personal interviews, and library resources. The student will conduct one class period by interviewing, inviting, and introducing a guest speaker. Prerequisite: CEET 2000.

CEET 4010. Project Management (3) F, S
Introduction to project management. Selection of a team and a senior project. Project management and problem solving techniques to include the design, construction, test, analysis, and documentation of the senior project. Lecture and lab combination. Laboratory activities to include goal preparation, research, reporting, team meetings, design reviews, and demonstrations. Prerequisite: Department approval.

CEET 4020. Senior Project (3) F, S
Continuation of Project Management, CEET 4010. Completion of the senior project. Lecture and lab combination. Laboratory activities to include design, construction, documentation, analysis and demonstration of the senior project. Presentations and demonstrations are required to confirm the completion of the senior project. Presentation, team building, and writing skills are emphasized. Prerequisite: CEET 4010.
CEET 4030. Controls & Systems (4) F
Introduction to automatic control theory, analysis, and testing, pole, zero, Bode plots, and frequency response. The design and application of programmable controllers using ladder logic, sequential functions charts, PID, and data highway. Lecture and lab combination. Laboratory activities to include computer simulation, servo-system construction, and analysis. Prerequisite: CEET 3020.

CEET 4040. Digital Signal Processing (4) S
An introduction to digital signal processing, digital filters, discrete and fast Fourier transforms, quantization, introduction to adaptive filters, industrial applications, and DSP hardware. Lecture and lab combination. Laboratory activities include the design, construction, computer simulation, and analysis of digital signal processing circuits. Prerequisite: CEET 3020.

CEET 4050. Engineering Fundamentals Exam (F.E.) Prep (2) S
A review of materials that are typically found on the Engineering Fundamentals Exam (F.E.). Topics are taught by faculty members according to their area of expertise. Topics included are mathematics, DC electricity, AC electricity, logic, engineering economics, statics, dynamics, strength of materials, fluid mechanics, chemistry, and thermodynamics. Two one-hour lectures per week. Prerequisite: Departmental approval required.

CEET 4060. Advanced Communications (4) Su
Introduction to satellite communications, spread spectrum techniques, digital satellite communications, antennas, small signal amplifiers, Smith charts, and “S” parameter analysis. Lecture and lab combination. Laboratory activities to include the design, construction, computer simulation and analysis of wireless communications circuits and systems. Prerequisites: CEET 3020.

CEET 4800. Individual Studies (1-4) F, S
The student will receive credit for approved studies in an area not covered in the CEET program. A maximum of four credits can be counted as electives for CEET majors.

CEET 4890. Cooperative Work Experience (2) F, S
The student will receive credit for approved electronics industrial experience. Professional development activities will include resume writing, goal setting, progress reports, and a supervisor’s evaluation. Two credits are required for the BS CET and EET major. The course can be taken a maximum of three times for a total of 6 credits.

CEET 4899. Bachelor Degree Assessment (0)
This course is to serve as an assessment tool, whereby B.S. degree-seeking students in the Department of Computer and Electronics Engineering Technology demonstrate their learned knowledge of electronics and engineering principles. This knowledge will be demonstrated through the use of the Fundamentals of Engineering exam (FE) administered by the State of Utah.

CEET 4900. Special Topics (1-4) F, S
A one-time special study course designed to introduce a new relevant topic that is not covered in the CEET program. Lecture and lab combination. Laboratory activities to support the selected course topic. A maximum of four credits can be counted for CEET majors.

CEET 5200. Digital Electronics (DE) (5) Su
DE is a course in applied digital logic. The use of digital circuits is increasing so rapidly that it’s hard to imagine the limits. Students are introduced to the digital circuits found in video games, watches, calculators, digital cameras, and thousands of other devices. Students study the application of digital logic and how digital devices are used to control automated equipment. Students use industry-standard, electronic design software to build circuits and to export designs to a printed circuit autorouting program that generates printed circuit boards using chips and other components. The course meets for a total of 75 hours over a two-week period and focuses on the content as well as teaching methods appropriate for the course. This course is designed specifically and only for current high school teachers who have been assigned by their schools and districts to teach the Project Lead the Way courses in their respective schools. These courses carry graduate credit for those teachers who would use them as part of a master's degree program or for recertification.

DEPARTMENT

Computer Science
Chair: Mr. Greg Anderson
Location: Technical Education Building, Room 110
Telephone: Mary Ellen Jones 801-626-7929
Salt Lake Program Coordinator: Richard Fry 801-957-4769
Associate Professors: Delroy Brinkerhoff, David G. Hart, Kirby McMaster, Ronald D. Peterson; Assistant Professors: Greg Anderson, Nicole A. Anderson, David L. Ferro, Robert Hilton, William E. Hoggan, Brian Rague; Instructors: William Clark, William Miles, Kent D. Weaver

The Department of Computer Science offers an Associate of Applied Science Degree in Computer Science and a Bachelor’s Degree in Computer Science with emphases in Network Security and Administration; Software Engineering; or a Customized Option, which requires a minor. The Department also offers a minor, a teaching minor, and a BIS concentration.

The program in Computer Science blends scientific and engineering principles. It contains actual, practical, applications-oriented experience as well as the intellectual study of computing. It is designed to provide a sound fundamental understanding of digital/processor logic and digital computer organization as well as the interaction between hardware, software and the interconnection of system components. Also emphasized is software engineering which includes understanding of operating systems and other software systems design with implementation of the theory of computing, analysis of algorithms, simulation, compiler design, and knowledge-based systems.

The Computer Science Associate of Applied Science and Bachelor curricula have a required common core of courses at the Freshman/Sophomore level. The bachelor degree upper division work is divided into three selected areas. The Network Security and Administration Emphasis is a system integration and hardware approach emphasizing network security. Software Engineering Emphasis is a technical, scientific approach requiring a solid foundation in mathematics. Customized Option provides a flexible approach for students pursuing a minor in another academic area, working toward a concurrent baccalaureate degree in a second department, or who already have a first bachelor’s degree.

ASSOCIATE OF APPLIED SCIENCE DEGREE (A.A.S.)
- Grade Requirements: A grade of “C” or better is required in all required CS and support courses (a grade of “C-” is not acceptable). In addition, an overall GPA of 2.70 or higher must be attained for these required courses.
- Credit Hour requirements: This degree requires 66 credit hours.
- Assessment Requirements: Students will be required to complete certain assessment instruments as part of the overall requirements for receiving their associate’s degree. Please see your advisor or your department for specific information regarding assessment.

COMPUTER SCIENCE
Advisement

It is strongly suggested that Computer Science students see the departmental advisor on a regular basis. Call the department secretary at 801-626-7929 for an appointment with the advisor.

Admission Requirements

Declare your program of study (refer to page 18) as Associate of Applied Science in Computer Science. There are no special admission or application requirements for this program.

General Education

Refer to pages 36-41 for the A.A.S. general education requirements (core and breadth). COMM HU2110, ENGL EN2010 and MATH QL1080 are required. Computer Literacy as defined in this catalog is also required for the A.A.S. degree.

Students who pass the Computer Science Advanced Placement A exam with a score of 3 receive 8 hours of credit and specific credit for CS SI1022 (4). Students who pass the Computer Science Advanced Placement A exam with a score of 4 or 5 receive 8 hours of credit and specific credit for CS SI1400 (4) (If they already have the CS SI1400 (4) course they may receive CS SI1023(4)).

Students who pass the Computer Science Advanced Placement A/B exam with a score of 3 receive 8 hours of credit and specific credit for CS SI1400 (4) (If they already have the CS SI1400 (4) course they may receive CS SI1023(4)). Students who pass the Computer Science Advanced Placement A/B exam with a score of 4 or 5 receive 8 hours of credit and specific credit for CS SI1400 (4) and CS SI1023 (4) (If they already have the CS SI1400 (4) course they may receive CS SI1023 (4) and CS SI1022(4)).

Course Requirements for A.A.S. Degree

Computer Science Courses Required (36 credit hours)

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 1030</td>
<td>Foundations of Computer Science (4)</td>
</tr>
<tr>
<td>CS SI1400</td>
<td>Fundamentals of Programming (4)</td>
</tr>
<tr>
<td>CS SI1410</td>
<td>Object-Oriented Programming (4)</td>
</tr>
<tr>
<td>CS SI2420</td>
<td>Introduction to Data Structures &amp; Algorithms (4)</td>
</tr>
<tr>
<td>CS 2550</td>
<td>Database Design &amp; Application Development (4)</td>
</tr>
<tr>
<td>CS SI2650</td>
<td>Computer Architecture/Organization (4)</td>
</tr>
<tr>
<td>CS 2705</td>
<td>Network Fundamentals &amp; Design (4)</td>
</tr>
<tr>
<td>CS 2899</td>
<td>Associate Degree Assessment (0)</td>
</tr>
<tr>
<td>CS 3100</td>
<td>Operating Systems (4)</td>
</tr>
<tr>
<td>CS 3350</td>
<td>Multimedia and the Internet (4)</td>
</tr>
</tbody>
</table>

Support Courses Required (13 credit hours)

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH QL1080</td>
<td>Pre-Calculus (5)</td>
</tr>
<tr>
<td>MATH 1630</td>
<td>Discrete Math (4)</td>
</tr>
<tr>
<td>CEET 1105</td>
<td>PC Fundamentals (4)</td>
</tr>
</tbody>
</table>

Suggested Course Sequence

Contact the department advisor for a suggested course sequence.

Computer Science Major

BACHELOR DEGREE (B.S. OR B.A.)

Program Prerequisite: Completion or equivalent of a Weber State A.A.S. degree in Computer Science and acceptance into the baccalaureate degree program (application required).

Minor: Required for the Customized Option; not required for the other two emphasis areas.

Grade Requirements: A grade of “C” or better in all required courses and support courses. A grade of “C-” is not acceptable. In addition, an overall GPA of 2.70 or higher must be attained for these courses. Also refer to the General Requirements on page 36.

Credit Hour Requirements: A total of 120 credit hours is required for graduation. The number of Computer Science credit hours required by the major varies depending upon the option or emphasis chosen.

Advisement

It is strongly suggested that Computer Science students see an advisor on a regular basis. Call the department secretary at 801-626-7929 for an appointment with the advisor.

Admission Requirements into the Bachelor Program

1. Complete an A.A.S. degree in Computer Science or equivalent.
2. Complete each of the following courses (or their equivalent) with an average grade of 2.7 (“B-”) or higher: CS SI1410, CS SI2650, CS SI2420 and ENGL EN1010.
3. Formally apply for and be accepted to baccalaureate status through the Department of Computer Science. Specific requirements and details may be obtained from a department advisor.

General Education

Refer to pages 36-41 for either Bachelor of Science or Bachelor of Arts requirements. If a Computer Science major does not have the prerequisite skills at entrance, TBE TE1700 is recommended to fill a portion of the WSU Computer Literacy core general education requirement. The MATH QL1080 or 1210 course required for the Computer Science major also satisfies the WSU core general education Quantitative Literacy requirement. Computer Science majors must complete COMM HU2110 as part of the Humanities general education requirement. It is recommended that Computer Science majors take PHYS PS/SI2010 for the Network Security and Administration Emphasis or PHYS PS/SI2210 for the Software Engineering Emphasis and Customized Option as part of the Physical Sciences general education requirement.

Students who pass the Computer Science Advanced Placement A exam with a score of 3 receive 8 hours of credit and specific credit for CS SI1400 (4) (If they already have the CS SI1400 (4) course they may receive CS SI1023(4)). Students who pass the Computer Science Advanced Placement A/B exam with a score of 4 or 5 receive 8 hours of credit and specific credit for CS SI1400 (4) and CS SI1023 (4) (If they already have the CS SI1400 (4) course they may receive CS SI1023 (4) and CS SI1022(4)).

Students who pass the Computer Science Advanced Placement A/B exam with a score of 3 receive 8 hours of credit and specific credit for CS SI1400 (4) (If they already have the CS SI1400 (4) course they may receive CS SI1023(4)). Students who pass the Computer Science Advanced Placement A/B exam with a score of 4 or 5 receive 8 hours of credit and specific credit for CS SI1400 (4) and CS SI1023 (4) (If they already have the CS SI1400 (4) course they may receive CS SI1023 (4) and CS SI1022(4)).

Course Requirements for B.S. or B.A. Degree

To be taken in addition to the requirements for the A.A.S. degree in Computer Science.

Complete all the courses listed for one of the following three emphasis areas:

- Network Security and Administration (41 credit hours)
  - CS 3040 Windows/UNIX Infrastructure and Administration (4)
  - CS 3210 UNIX System Programming & Internals (4)
  - CS 3540 Database Administration (4)
  - CS 3705 Advanced Networking (4)
  - CS 3805 Network Intrusion Detection and Security Vulnerabilities (4)
  - or CS 3830 Writing Secure Code (4)
  - or CS 3840 Computer Architecture for Security Assurance (4)
  - or CS 4730 Applied Cryptography (4)
  - CS 4740 Computer & Network Security (4)
At least five credit hours of upper division Computer Science courses in addition to the courses listed above.

**Support Courses Required (9 credit hours)**
- ENGL 3100: Professional & Technical Writing (3)
- or TBE 3250: Business Communication (3)
- MATH 1040: Intro to Statistics (3)
- or MATH 3410: Probability & Statistics (3)
- MGMT 2400: Project Management (3)

**Support Courses - Select one course from the following OR a Computer Science course (minimum of 3 credit hours)**
- TBE 2415: Cisco TCP/IP Routing Protocols (3)
- and Router Configuration (3)
- or MATH S11210: Calculus I (4)
- PHIL 2200: Introduction to Logic (3)

• Software Engineering Emphasis (41-42 credit hours)

**Required Courses (12 credit hours)**
- CS SI3750: Software Engineering (4)
- CS 4110: Concepts of Formal Languages and Algorithms for Computing (4)
- CS 4750: Advanced Software Engineering (4)

**Electives (19 credit hours)**
- Choose 3 from the following (12 credit hours)
  - CS 3210: UNIX System Programming and Internals (4)
  - CS 3230: Internet Multimedia Services and Applications Using Java (4)
  - CS 3550: Distributed Database Architecture and Management (4)
  - CS 3830: Writing Secure Code (4)
  - CS 4280: Computer Graphics (4)
  - CS 4350: Advanced Internet Programming (4)
  - CS 4500: Artificial Intelligence and Neural Networks (4)
  - CS 4730: Applied Cryptography (4)
  - CS 4780: Object Oriented Windows Application Development (4)
  - CS 4790: N-Tier Web Programming (4)
  - CS 4820: Compiler Design (4)

- Choose 1 from the following not used above (4 credit hours)
  - CS 3230: Internet Multimedia Services and Applications Using Java (4)
  - CS 4780: Object Oriented Windows Application Development (4)
  - CS 4790: N-Tier Web Programming (4)

- Choose any combination from the following (minimum of 3 credit hours total)
  - CS 4800: Individual Projects and Research (1-4)
  - CS 4830: Advanced Topics in Computer Science (1-3)
  - CS 4890: Cooperative Work Experience (1-4)
  - CS 4920: Short Courses, Workshops, Institutes and Special Projects (1-4)

Or any of the above upper division CS courses not previously used (4)

**Support Courses Required (10-11 credit hours)**
- ENGL 3100: Technical Writing (3)
- or TBE 3250: Business Communication (3)
- MATH SI1210: Calculus I (4)
- or MATH SI1220: Calculus II (4)
- or MATH QL1040: Introduction to Statistics (3)

• Customized Option (27 credit hours)
  plus a minor or first bachelor degree
- CS 3230: Internet Multimedia Services & Applications Using Java (4)
- or CS 4780: Object Oriented Windows Application Development (4)
- or CS 4790: N-Tier Web Programming (4)

Any four upper division computer science electives (16)
Complete a minor in any academic area or a concurrent second bachelor degree, or have completed a first bachelor degree.

Additional hours of upper division computer science courses may be taken to satisfy the University upper division requirement of 40 hours (CS 4890 is recommended).

**Support Courses Required**
- ENGL 3100: Professional & Technical Writing (3)
- or TBE 3250: Business Communication (3)
- MATH SI1210: Calculus I (4)

**Other CS Electives**
When selecting additional CS electives to satisfy the University 40 hour upper division requirement or the 120 hour total hour requirement, students may choose upper division courses from the other emphases.

**Suggested Course Sequence**
Contact the department advisor for a suggested course sequence.

**Computer Science**

**DEPARTMENTAL HONORS**

• Program Prerequisite: Enroll in General Honors and complete at least 8 hours in general Honors courses.
• Grade Requirements: Maintain an overall GPA of 3.4
• Credit Hour Requirements: Fulfill requirements for the Computer Science major leading to a Bachelor of Science or Bachelor of Arts degree, of which at least 16 hours of Computer Science courses must be completed on an Honors basis. A student may receive Honors credit for any Computer Science course except CS 2890 and CS 4890. In addition, complete an Honors Senior Project (CS 4800).

• Permission from the department chair should be sought before registering in a course for Honors credit. A written agreement should be reached with the appropriate professor regarding the work expected for Computer Science Honors credit. (See the Honors Program on page 43.)

**Computer Science**

**MINOR, TEACHING MINOR, BIS CONCENTRATION**

• Grade Requirements: A grade of "C" or better in courses used toward the minor. A grade of "C-" is not acceptable. In addition an overall GPA of 2.70 or higher must be attained for those required courses.

• Credit Hour Requirements: 24 hours for the Minor and BIS Concentration, and 23 hours for the Teaching Minor.

Students who select the Computer Science Teaching minor must satisfy the Teacher Education admission and certification requirements (see Teacher Education Department) and have a teaching major.

**Course Requirements for Minor or BIS Concentration (24 credit hours)**

**CS Course Recommended**
- or equivalent background at entrance

- CS 1030: Foundations of Computer Science (4)

**Required Courses (12 credit hours)**
- CS SI1400: Fundamentals of Programming (4)
- CS SI1410: Object-Oriented Programming (4)
- CS SI2420: Introduction to Data Structures and Algorithms (4)

**Electives (12 credit hours)**
Select two of the following courses (8 credit hours)
- CS 2550: Database Design & Application
- CS SI2650: Computer Architecture/Organization (4)
Select one of the following

- Computer Programming Class Required (4 credit hours)
- Microsoft Networking Courses Required (16 credit hours)
- Students must demonstrate computer competency in one of the
  Computer Competency Requirement (1-4 credit hours)
- Course Requirements Certification
- Select one additional course (4 credit hours total) in approved upper division
  Computer Science (CS courses numbered 3000 or higher) other than
  CS 4800 or CS 4890. An upper division programming language
course (CS 3210, CS 3230, CS 4780 or CS 4790) is recommended.

**Course Requirements for Teaching Minor**
(23 credit hours)

**CS Course Recommended**  
or equivalent background at entrance  

- CS 1030 Foundations of Computer Science (4)

**Required Courses (15 credit hours)**  

- CS SI1400 Fundamentals of Programming (4)
- CS SI1410 Object-Oriented Programming (4)
- CS SI2650 Computer Architecture/Organization (4)
- or CEET 1105 Personal Computer Fundamentals (4)
- EDUC 3370 Advanced Technology Education (3)

**Electives (8 credit hours)**  

Select one of the following  

- CS SI1022 Software Development (4)
- CS SI1023 Selected Programming Language (4)
- CS SI2420 Introduction to Data Structures and Algorithms (4)
- CS 2550 Database Design & Application Development (4)
- CS 3350 World Wide Web and the Internet (4)

Select one additional course (4 credit hours) in approved upper division  
Computer Science (CS courses numbered 3000 or higher) other than  
CS 4800 or CS 4890. An upper division programming language
course (CS 3210, CS 3230, CS 3750, CS 4780 or CS 4790) is recommended.

**Professional Network - Microsoft Option**

<table>
<thead>
<tr>
<th>CERTIFICATION PROGRAM</th>
</tr>
</thead>
</table>

- **Grade Requirements:** A minimum overall GPA of 2.00 or “C”.
- **Credit Hour Requirements:** A total of 24 credit hours is required in
  addition to Computer Competency (at least 10 of which must
  be residence hours taken from WSU).

**Course Requirements Certification**

**Computer Competency Requirement (1-4 credit hours)**  

Students must demonstrate computer competency in one of the  

- IST 2010 Business Computer Skills (1)
- TBE TE1700 Intro to Microcomputer Applications (3)  
  and LIBS TD1704 (1) or LIBS TD2201 (2)
- University Computer Literacy Exams [TBE 1501-1504 (.5 each)]

**General Requirement (4 credit hours)**  

- CS SI2650 Computer Architecture/Organization (4)

**Microsoft Networking Courses Required (16 credit hours)**  

- CS 2010 Networks & Routing Basics (4)
- CS 2020 Microsoft® Windows (4)
- CS 2030 Supporting Microsoft® Windows Network  
  Infrastructure and Directory Services (4)
- CS 2040 Microsoft® SQL Server System  
  Administration & Implementation (4)

**Computer Programming Class Required (4 credit hours)**  

Select one of the following  

- CS 1030 Foundations of Computer Science (4)
- CS SI1023 Selected Programming Language (4)
- CS SI1400 Fundamentals of Programming (4)
- CS SI1410 Object Oriented Programming (4)

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**COMPUTER SCIENCE COURSES - CS**

Computer Programming Methods require a significant amount of data  
entry through a video display terminal; therefore, keyboard skill is  
strongly recommended.

**CS SI1022. Software Development (4) F, S**  
Application of the most recent implementations of the Pascal  
language to the solution of technical and scientific problems.  
Developing applications for Windows in Object Oriented Pascal using  
Borland’s Delphi Rapid Application Development system.  
Prerequisites: CS 1030 and basic skills in Algebra.

**CS SI1023. Selected Programming Language (4)**  
Introduction and application of the most recent implementation of  
a selected programming language to the solution of technical and  
scientific problems. The language for a particular instance of this  
course will be based upon demand. Prerequisites: CS 1030 and basic  
skills in Algebra.

**CS 1030. Foundations of Computer Science (4) F, S**  
This course prepares students to use the WSU CS Department  
computers and provides an introduction to basic computer related  
topics. Topics include: policies for CS Dept systems; basic Windows,  
DOS, and Unix commands and usage; hierarchical file systems; file  
transfer and virus detection; basic computer architecture (terms and  
concepts); and an introduction to the C programming language.  
Prepares students for continued study within the department.  
Co-requisite: Computer Literacy.

**CS SI1400. Fundamentals of Programming (4)**  
This course covers basic operating system operation and components  
of the development environment. The majority of the course  
covers basic problem solving and program design of a software  
application using a selected language. Topics presented and  
discussed depending on selected language include: thinking logically  
to solve problems, working with input/output devices, compilation  
and library use, structured programming and modularity concepts,  
conditional and iterative structures including recursion, data types  
and structures, and pointers. Prerequisite: CS 1030.

**CS SI1410. Object-Oriented Programming (4) F, S**  
An introduction to the C++ language. Topics will include data types,  
control structures, functions, pointers, arrays, I/O streams, classes,  
objects, encapsulation, overloading, inheritance and use of these  
concepts in problem solving. Prerequisite: CS SI1400. Recommended:  
MATH QL1080.

This course will orient students to the basics of local area networks,  
wide area networks, protocols, topologies, transmission media  
and security. Students will be introduced to installing, configuring  
and operating simple-routed LANs, routed WANs, and switched  
networks. They will build and configure a peer-to-peer network, a  
Windows-based network, and a NetWare network. Recommended  
Prerequisite: CEET 1105.

**CS 2020. Administering & Supporting Microsoft® Windows (4)**  
Provides students with the knowledge and skills necessary to perform  
daily administration tasks in a domain network. This is the core  
foundation course for supporting the Microsoft® Windows operating  
system and prepares support professionals with the skills necessary  
to install, configure, customize, optimize, network, integrate, and  
troubleshoot Microsoft® Windows. Prerequisite: CS 2010.
CS 2030. Supporting Microsoft® Windows Network Infrastructure and Directory Services (4)
Prepares support professionals to design, implement, and support the Microsoft® Windows network operating system in a domain enterprise environment. Also provides the knowledge and skills required to set up, configure and support TCP/IP, DHCP, DNS and active directory services. It is assumed that students have experience supporting a Windows Server-based network. Prerequisite: CS 2020.

CS 2040. Microsoft® SQL Server System Administration and Implementation (4)
A practical application course to develop the skills required to install, configure, administer, and troubleshoot Microsoft® SQL Server client/server database management system. Students will implement a database solution based on a case-study design. This course also teaches students how to support the various features of Microsoft® Internet Information Server (IIS). Students will learn how to install, configure, and implement all components of a Web site. Prerequisite: CS 2020.

CS 2140. Computer Systems Administration (4) S
An introduction to managing computer operating systems. Covers installation of the operating system, network, and application software. The course will cover the UNIX operating system. Topics include working with disk drives, allocation of resources, security, administering user accounts, monitoring system performance, tuning concepts, remote mounting of file systems, and setting up systems on networks. Prerequisite: CS SI1400.

CS 2250. Structured Computing in a Selected Language (4)
Introduction to structured problem solving using objects, data enumeration and encapsulation in a selected language. The language for a particular instance of this course will be based upon demand. Prerequisite: Basic skills in fundamental Algebra. This course is for Computer and Electronics Engineering Technology students only.

CS SI2420. Introduction to Data Structures and Algorithms (4) E, S
General principles of common data structures and design of efficient algorithms. Topics include: arrays, linked-lists, stacks, queues, trees, graphs, tables, storage and retrieval structures, searching, sorting, hashing, and algorithmic analysis. Emphasis will be on abstraction, efficiency, re-usable code, and object-oriented representation. Prerequisites: CS SI1410 and MATH QL1080.

CS 2550. Database Design and Application Development (4) E, S
An introduction to relational database concepts, design and application development. The course will cover the SQL language, the design of a database using an entity-relation design tool, and the creation of applications using a development tool such as PowerBuilder. Topics will include normalization rules, triggers, stored procedures, and rules. Extensive time will be spent in the lab learning to use the tool and develop applications. Prerequisite: CS SI1410. Prerequisite/Co-requisite: MATH 1630.

A fundamental course designed to explore the specific physical and functional characteristics of computer systems. Topics will include the architecture of the processor including BIOS, interrupts, addressing, memory management, types of disk drives (such as SCSI and IDE), types of buses, video cards, modems, network cards, hardware compatibility issues, number representations, and/or gates and basic digital circuit concepts. The course also introduces assembly language skills in popular 16 and 32 bit microprocessors. Prerequisite: CS 1030. Prerequisite/Co-requisite: CEET 1105.

CS 2705. Network Fundamentals and Design (4) F, S
A comprehensive examination of the hardware and software components of a network and the practical techniques for designing and implementing computer systems in a network. Topics will include the purpose and use of various LAN, MAN, WAN configurations (Ethernet, rings HDLC, SMDS, ATM, Frame Relay, ISDN, xDSL, TCP/IP UDP/IP, x.25, PPP, Sonet and new protocols). Media type and structures (repeaters, bridges, switches, hubs, routers with routing algorithms, and gateways), signaling/data encoding, multiplexing, error detection/correction and flow control, packet formats, network classes, and subnetting. Introduction to CISCO routing commands and setup (will help students to take the basic CISCO test). Prerequisite: CS SI1400.

CS 2780. Windows Application Programming (4) F
This course provides participants with a working knowledge of the Windows Operating System. The students will develop applications to run under Windows, using the C/C++ languages. Concepts of Memory Management, DLLs, Resources, and Child Window development will be emphasized. The course also introduces the student to the use of OLE controls and MFC architecture. Prerequisites: CS SI1410 and basic algebra skills.

CS 2800. Individual Projects & Research (1-4) F, S
Special independent projects or research as contracted with instructor. Enrollment by permission only. This course may be taken up to three times for a maximum of 6 credit hours. Prerequisite: CS SI1410.

A fundamental course designed to explore the specific physical and functional characteristics of computer systems. Topics will include the architecture of the PC including BIOS, interrupts, addressing, memory management, types of disk drives (such as SCSI and IDE), types of buses, video cards, modems, network cards, hardware compatibility issues, number representations, and/or gates and basic digital circuit concepts. The course also introduces assembly language skills in popular 16 and 32 bit microprocessors. Prerequisites: CS 1030 and CEET 1105.

CS 2890. Cooperative Work Experience (1-4) F, S
Open to students meeting criteria established from time to time by the department and on file either in the department or the Cooperative Education Office. Provides academic credit for on-the-job experience. Grade and amount of credit will be determined by the department. This course can be taken up to three times for a maximum of 6 credit hours. Prerequisite: CS SI1410.

CS 2899. Associate Degree Assessment (0)
This course is to serve as an assessment tool whereby all AAS degree seeking students in the College of Applied Science and Technology demonstrate their learned knowledge in at least three areas of Applied Technology study. At present, this knowledge will be demonstrated through the use of the Work Keys exams administered through the Campus Testing Center.

CS 2920. Short Courses, Workshops, Institutes and Special Programs (1-4)
Consult the semester class schedule for the current offering under this number. The specific title and credit authorized will appear on the student transcript.

CS 3040. Windows/Linux Infrastructure and Administration (4)
This is the second course for understanding Windows operating systems and the first in the Unix/Linux operating system. It includes administration in a client/server directory services environment. Taught in a networking setting, it builds upon complex issues learned in previous courses. Provides the knowledge

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and skills necessary to install, configure, network and administer both operating systems. Prerequisite: CS 2705.

CS SI3050. Object Oriented Analysis and Design (4) F, S
An Object Oriented Analysis and Design course which provides practical guidance on the construction of object-oriented systems. Its specific goals are: to provide a sound understanding of the fundamental concepts of the Software and Project Development Life-Cycle for the object model; to facilitate a mastery of the notion and process of object oriented analysis and design, and to teach quality design and development style through applications of object-oriented project development within a variety of problem domains. In depth coverage of UML and current Software Engineering models. Prerequisites: CS SI1410 and MATH 1630.

CS 3100. Operating Systems (4) F, S
An overview of computer operating systems concepts, system software components with emphasis on installation, management, monitor/supervisor and I/O management, control commands, network installation, and device drivers. The operating systems studied will be Microsoft® Windows NT or UNIX. Prerequisite/Co-requisite: CS SI2420.

CS 3210. UNIX System Programming and Internals (4) F, S
This course provides hands-on experience with writing programs using UNIX system calls and inter-process Communication mechanisms, from simple file I/O and I/O management subsystems to network client and server programs. The internal design and operation of the UNIX operating systems are studied. A detailed examination of the UNIX SVRA source code will be included in the course. Prerequisite: CS SI2420.

CS 3230. Internet Multimedia Services
and Applications Using Java (4) F, S
An introduction to the design and coding of applications using threads. Topics will include the use of threads in the design of operating systems, device drivers, utility programs and general applications. Language used in the course will be Java. Applications will include multimedia, Web Servers, search engines, security issues, and the use of the Java language in the development of applets for home pages. Prerequisite: CS SI3050.

CS 3250. Advanced Object Oriented Programming (4) S
Develop and expand abilities in solving lengthy, advanced problems, multiple parallel tasks, generic packages, and other object-oriented techniques using selected languages. Prerequisite: CS SI3050.

CS 3350. World Wide Web and the Internet (4) F, S
An in-depth examination of the issues, operation and design of World Wide Web and Internet applications. Topics include client and server side systems and programming such as HTML, DHTML, XML, Javascript, VBScript, ASP, CGI/Perl; server side file access; technologies such as Dreamweaver, Cold Fusion, and Flash; web page usability, browser and systems compatibility issues; and an understanding of e-commerce. Prerequisite: CS SI1410. Co-requisite: CS 2550.

CS 3450. Windows Enterprise Infrastructure and Administration (4)
This course looks at enterprise Windows operating systems and directory services. Enables students to install, configure and manage systems of servers and ensure that these servers meet the security, performance and flexibility requirements of modern enterprise systems. Prerequisite: CS 3040.

CS 3460. Designing a Secure Microsoft®
Windows Network (4)
This course provides students with the knowledge and skills necessary to design a security framework for small, medium, and enterprise networks by using Microsoft® Windows technologies. Students will learn how to provide secure access to Local Network Users, Remote Users and Remote Offices, Between Private and Public Networks and to Partners. This course prepares students for the related MCSE certification exam. Prerequisite: CS 2430.

CS 3540. Database Administration (4)
This course describes the role of the Database Administrator in managing an organization’s most valuable asset - its data. Topics covered include DBMS architecture, database layout, database development, data fragmentation, rollback segments, database tuning, database security, backup and recovery, database networking, and distributed databases. Special emphasis is given to working with current database management systems such as Oracle, SQL Server and DB2. Prerequisite: CS 2550.

CS 3550. Distributed Database Architecture
Management and Application (4) F, S
Covers the architecture and applications of a distributed client/server type database system, as well as the installation, management, and interfaces for such a system. Also covers the interfacing of database applications with the WEB. Topics include system tuning and performance, writing imbedded code, and the use of WEB development tools. Prerequisite: CS 2550.

CS 3705. Advanced Networking (4) F, S
This course provides an in depth look at the fundamentals of what protocols do and how they work, how addresses and routing are used to move data through the network, how to set up your network connection, and how information is exchanged over the Internet. Topics include: advanced routing protocols (RIPv2, OSPF, and BGP), configuring important network services, DNS, Apache, send email, Samba, PPP, DHCP, TCP, IP, and UDP troubleshooting, and security. Prerequisite: CS 2705.

CS 3720. Network Architectures and Protocols (4)
A practical applications course designed to teach the basic concepts associated with local and wide area networks and protocols. The course will concentrate on the TCP/IP and other protocols in the UNIX and Windows NT environments. Covers TCP/IP extensively, NFS, Sockets, RPC and TLI interfaces. The course also covers the use of Domain Name Servers, remote system calls, ports, services, configuration, IP addressing, and UNIX and Windows NT monitoring commands. Prerequisite: CS 3705.

CS 3730. Client/Server Network Programming (4) F, S
Covers client/server architecture and application development using TCP/IP and other protocols. The course covers client/server operations on a single machine and across an Ethernet network to multiple machines. The course will also cover distributed processing concepts and applications. Applications include the use of STREAMS, Sockets, TLI, network listener facility, drivers, RPC, and ONC. The course will concentrate mainly on UNIX but will cover some concepts and applications using Windows NT. Prerequisites: CS 2705 and CS 3210.

CS SI3750. Software Engineering (4) F, S
This is an in-depth course in the SDLC (Software Development Life Cycle). Students will demonstrate an understanding of the SDLC phases and develop the following individual documents: Software Requirements, Software Design, Code, Test Plan and User Manual. A team programming project is included. Prerequisites: CS SI3050, CS 3100, and ENGL 3100 or TBE 3250.

CS 3805. Network Intrusion Detection and Security Vulnerabilities (4) F, S
This course is designed to provide students with a solid foundation in network security. The primary emphasis is on intrusion detection
and covers topics such as developing and implementing a security policy, incident response, packet filtering, proxy servers, firewalls, and virtual private networks (VPNs). A team project is included. Prerequisites: CS 3100, ENGL 3100 or TBE 3250, and CS 3705.

CS 3830. Writing Secure Code (4)
This course focuses on how to develop software systems that are robust and can withstand repeated attacks from malicious intruders. The course covers the need for secure systems, basic security principles and strategies, design of secure applications, secure coding techniques, dangerous APIs, data input issues, network security problems, testing secure applications, security code reviews, secure software installation, and writing secure documentation. Prerequisite: CS 2420.

CS 3840. Computer Architecture for Security Assurance (4)
This course is a foundational course in file system analysis, digital forensics and computer media analysis. A combination of lectures and labs will give students a strong understanding of low-level file system knowledge to prepare them for involvement in digital forensic analysis, data recovery and other related tasks. Students will examine widely used file systems such as Windows NTFS and FAT32, UNIX, EXT2 and UFS. Students will also become familiar with several tools used in computer forensic work. Prerequisites: CS 3100 and CS 3040.

CS 4110. Concepts of Formal Languages and Algorithms for Computing (4) S
Concepts of formal language definition, automata theory, Turing theory, and solvability, with an introduction of algorithms and computational methods used in advanced computer science courses. Prerequisite: CS 2420 and MATH 1630.

CS 4280. Computer Graphics (4) S
Selected algorithms and computational methods used in the design of graphical software and applications developed for UNIX and Windows NT based machines. Topics will include the use of OpenGL, 3D Studio MAX, Auto-Cad, Adobe Photoshop, and other popular graphics software. The course will include X-Windows programming and the use of Sun, SGI, and PC (Intel/Cyrix) machines. Prerequisite: CS 2420.

CS 4350. Advanced Internet Programming (4)
This course builds on the knowledge of CS 3350 to go deeper into the areas of eBusiness, multimedia, HTML, DHTML, XML, Javascript, Java, ASP, PHP, Python, Perl, Flash, and other technologies focusing on the server-side coding and database manipulation required for enterprise level web applications. It requires a high level of programming skill and knowledge of databases. Prerequisites: CS 3350, CS 2550.

CS 4500. Artificial Intelligence and Neural Networks (4) F
This course covers basic artificial intelligence principles and introduces students to AI languages. Concepts of programming parallel architecture machines are introduced and developed. The neural network design of parallel computing is studied, along with its implications in Artificial Intelligence software development. Prerequisites: CS 2420 and MATH 1630.

CS 4730. Applied Cryptography (4) F, S
This course provides an introduction to the principles of number theory and how they are applied to cryptographic algorithms. Different topics that will be examined are: several classic ciphers, modern cryptographic methods, symmetric encryption, public key cryptography, hash functions, key management, digital signatures, certificates, electronic mail security, steganography, and recent developments affecting security and privacy on the Internet. The focus will be on how cryptography and their application can maintain privacy and security in computer networks. Prerequisites: CS 2420 and MATH 1630.

CS 4740. Computer and Network Security (4) F, S
A treatment of security issues related to computers and computer networking. This course is designed for advanced users, system administrators and network administrators. The course covers TCP/IP security issues, security policies, packet filtering, Internet firewall architecture and testing, and detecting and monitoring unauthorized activity, password authentication; and other security issues involving UNIX and Microsoft Windows operating systems. A team project is included. Prerequisites: CS 3100, MATH QL1040 or MATH 3410, ENGL 3100 or TBE 3250, and CS 3705 or CS 3540 or CS 3450.

CS 4750. Advanced Software Engineering (4) S
This is the second of a two-part series, with CS SI3750 being the first class. Rapid programming techniques and issues in distributed systems are examined. Includes issues relating to large programming projects such as software metrics. A large team programming project is included. Prerequisites: CS SI3750 and MATH 1040 or MATH 3410.

CS 4780. Object Oriented Windows Application Development (4) F, S
This course begins with an introduction to Windows programming in C at the API level. It then progresses to the concepts of Windows application development in C++ at the foundation classes level. These techniques and Rapid Application Development concepts will be used to create applications for Windows. Prerequisite: CS SI2420.

CS 4790. N-Tier Web Programming (4) F
This course is designed to teach sound concepts in n-tier development of web applications using ASP.NET. Students will develop multiple applications using RAD and OOP techniques using the n-tier model. Skills mastered in this course will include: Use of C# and VB within the Microsoft .NET framework, ADO.NET, SQL Server, Oracle, DHTML, XML and layered application design. Prerequisites: CS 3350 and CS 3230 or CS 2420.

CS 4800. Individual Projects and Research (1-4) F, S
The purpose of this course is to permit senior Computer Science majors to propose to the faculty for approval an individual project, program or research. This course may be taken up to three times for a maximum of 6 credit hours. Prerequisite: CS SI240.

CS 4820. Compiler Design (4) S
A study of compilers, grammars, finite-state and push down automatia, scanning, parsing, error handling, semantic analysis and code generation. Prerequisite: CS SI2420.

CS 4830. Advanced Topics in Computer Science (1-3) S
Advanced topics which are demanded by industry, are currently popular in this rapidly changing field, or which meet special needs of students in Computer Science will be offered. Individualized material will be taught on a one time basis as needed. Time and credit to be arranged. May be repeated. Prerequisite: Consent of instructor.

CS 4890. Cooperative Work Experience (1-4) F, S
Open to students meeting criteria established by department or Cooperative Education office. Provides academic credit for on-the-job experience. Grade and amount of credit determined by department. This course may be taken up to three times for a maximum of 6 credit hours. Prerequisite: CS SI2420.

CS 4920. Short Courses, Workshops, Institutes and Special Projects (1-4) F
Consult the semester class schedule for the current offering under this number. The specific title and credit authorized will appear on the student transcript.
The Department of Manufacturing and Mechanical Engineering Technology offers Associate of Applied Science degrees in Construction Management Technology, Design Graphics Engineering Technology, Manufacturing Engineering Technology, and Mechanical Engineering Technology, and Bachelor of Science degrees in Manufacturing Engineering Technology, Mechanical Engineering Technology, Construction Management Technology, and Design Graphics Engineering Technology. The Department also offers certification programs in Production and Inventory Management, the American Society for Quality, and a Pre-Engineering transfer program.

Manufacturing Engineering Technology

Location: Engineering Technology Building, Room 214
Telephone Contact: Wendy Reeves, 801-626-6305
E-Mail: mfet@weber.edu
Advisors: George Comber, Andy Drake, Kelly Harward, Robert Milner, Rick Orr, Kerry Tobin

The Weber State Manufacturing Engineering Technology program has been recognized as one of the outstanding manufacturing technology programs in the country. The program is accredited by the Technology Accreditation Commission of the Accreditation Board for Engineering and Technology. The curriculum is designed to prepare the student for professional employment in industry by giving them fundamental knowledge and skills in a broad range of manufacturing disciplines. These include process planning, tool and machine design, material selection and treatment, process automation, manufacturing resource planning, Six Sigma methods and tools in manufacturing, and lean manufacturing. State-of-the-art laboratories give the students hands-on experiences with CNC machine tools, robotics, programmable logic controllers, systems integration and the latest in a variety of CAD/CAM systems. Year long required senior projects have included satellites, hybrid electric vehicles and computer integrated manufacturing cells and others which help students gain confidence in their abilities while gaining additional insight and skills in both teamwork and human relations.

Manufacturing Engineering Technology

Associate of Applied Science Degree (A.A.S.)

» Grade Requirements: A grade of "C" or better in all MFET courses is required (a grade of "C-" is not acceptable) in addition to an overall GPA for all courses of 2.00 or higher. Also refer to the general grade requirements for graduation on page 36.

» Credit Hour Requirements: A total of 65 credit hours is required for graduation with a minimum of 19 credit hours required within the major. Transfer students are required to take a minimum of 30 credit hours at Weber State University.

» Assessment Requirements: Students will be required to complete certain assessment instruments as part of the overall requirements for receiving their associate's degree. Please see your advisor or your department for specific information regarding assessment.

Advisement
All Manufacturing Engineering Technology students are required to meet with their faculty advisor at least annually for course and program advisement. Please call the department secretary at 801-626-6305 for the name of your advisor and to schedule an appointment.

Admission Requirements
Declare your program of study (see page 18). There are no special admission or application requirements for this program.

General Education
Refer to pages 36-41 for Associate of Applied Science requirements. Computer and Information Literacy as defined in this catalog is also required for the A.A.S. degree. Consult with your advisor for specific general education guidelines.

Course Requirements for the A.A.S. Degree

Manufacturing Engineering Technology

Courses Required (19 credit hours)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>MFET 1150</td>
<td>Pre-Professional Seminar in Manufacturing (1)</td>
</tr>
<tr>
<td>MFET 1210/L</td>
<td>Machining Principles I (3)</td>
</tr>
<tr>
<td>MFET 2150/L</td>
<td>Metal Form, Casting, &amp; Welding (w/lab) (4)</td>
</tr>
<tr>
<td>MFET SI2300</td>
<td>Statics &amp; Strength of Materials (5)</td>
</tr>
<tr>
<td>MFET SI2410</td>
<td>Quality Concepts and Statistical Applications (3)</td>
</tr>
<tr>
<td>MFET 2440/L</td>
<td>Computer Numeric Control (CNC) in Manufacturing (w/lab) (3)</td>
</tr>
<tr>
<td>MFET 2899</td>
<td>Associate Degree Assessment (0)</td>
</tr>
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Technical Courses Required (12 credit hours)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>DGET 1250</td>
<td>Computer Aided Drafting (3)</td>
</tr>
<tr>
<td>DGET 1260</td>
<td>Advanced Computer Aided Drafting (3)</td>
</tr>
<tr>
<td>DGET 2450</td>
<td>Geometric Dimension &amp; Tolerancing (2)</td>
</tr>
<tr>
<td>CEET 1110</td>
<td>Basic Electronics (2)</td>
</tr>
</tbody>
</table>

Support Courses Required (22 credit hours)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
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<tbody>
<tr>
<td>COMM HU2110</td>
<td>Intro to Interpersonal Communication (3)</td>
</tr>
<tr>
<td>CHEM PS/SI1110</td>
<td>Elementary Chemistry (5)</td>
</tr>
<tr>
<td>MATH QL1080</td>
<td>Pre-Calculus (5)</td>
</tr>
<tr>
<td>MATH SI1210</td>
<td>Calculus I (4)</td>
</tr>
<tr>
<td>PHYS PS/SI2010/L</td>
<td>General Physics (w/lab) (5)</td>
</tr>
<tr>
<td>or PHYS PS/SI2210/L</td>
<td>Physics for Scientists &amp; Engineers (w/lab) (5)</td>
</tr>
</tbody>
</table>

Other Courses Required (12 credit hours)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL EN1010</td>
<td>Intro to Writing (3)</td>
</tr>
<tr>
<td>ENGL EN2010</td>
<td>Intermediate Writing (3)</td>
</tr>
<tr>
<td>ECON SS1010</td>
<td>Economics as a Social Science (3)</td>
</tr>
<tr>
<td>GenEd HU/CA</td>
<td>Elective (3)</td>
</tr>
</tbody>
</table>

Suggested Course Sequence

Please refer to this program in the online catalog (weber.edu/catalog) and/or contact the department for a suggested course sequence.
MANUFACTURING ENGINEERING TECHNOLOGY & WELDING ENGINEERING TECHNOLOGY EMPHASIS

BACHELOR OF SCIENCE DEGREE (B.S.)

- **Program Prerequisite:** Complete the requirements for the A.A.S. Degree in Manufacturing Engineering Technology.
- **Minor:** Not required.
- **Grade Requirements:** A grade of "C" or better in all MFET courses, support courses, and technical electives is required for this major (a grade of "C-" is not acceptable) in addition to an overall GPA for all courses of 2.0 or higher. Also refer to the general grade requirements for graduation on page 36.
- **Credit Hour Requirements:** A total of 125 credit hours for the general Manufacturing Engineering Technology B.S. degree and 126 credit hours for the Welding Engineering Technology Emphasis B.S. degree are required for graduation. A total of 40 upper division credit hours is also required (courses numbered 3000 and above). Transfer students are required to take a minimum of 30 credit hours at Weber State University.

Advisement

All Manufacturing Engineering Technology and Welding Engineering Technology Emphasis students are required to meet with their faculty advisor at least annually for course and program advisement. Please call the department secretary at 801-626-6305 for the name of your advisor and to schedule an appointment.

Admission Requirements

Declare your program of study (see page 18). Refer to the Program Prerequisite above. There are no additional special admission or application requirements for this program.

General Education

Refer to pages 36-41 for Bachelor of Science requirements. Consult with your advisor for specific general education guidelines.

MANUFACTURING ENGINEERING TECHNOLOGY

Course Requirements for B.S. Degree

To be taken in addition to the courses required for the A.A.S. Degree in Manufacturing Engineering Technology.

Manufacturing Engineering Technology

Courses Required (45 credit hours)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MFET 3010</td>
<td>Tool Design</td>
<td>3</td>
</tr>
<tr>
<td>MFET 3320</td>
<td>Machine Design</td>
<td>2</td>
</tr>
<tr>
<td>MFET 3340/3340L</td>
<td>Applied Fluid Power</td>
<td>3</td>
</tr>
<tr>
<td>MFET 3350/3350L</td>
<td>Plastic &amp; Composite Manufacturing</td>
<td>4</td>
</tr>
<tr>
<td>MFET 3550</td>
<td>Manufacturing Supervision</td>
<td>3</td>
</tr>
<tr>
<td>MFET 3610/3610L</td>
<td>Machining Processes II</td>
<td>3</td>
</tr>
<tr>
<td>MFET 3710/3710L</td>
<td>Computer Aided Manufacturing and Rapid Prototyping</td>
<td>3</td>
</tr>
<tr>
<td>MFET 3810</td>
<td>Statistical Process Control &amp; Reliability</td>
<td>3</td>
</tr>
<tr>
<td>MFET 3910</td>
<td>Six Sigma Methods and Tools in Manufacturing</td>
<td>5</td>
</tr>
<tr>
<td>MFET 4580/4580L</td>
<td>Process Automation</td>
<td>3</td>
</tr>
<tr>
<td>MFET 4610</td>
<td>Senior Project Production Planning and Estimating</td>
<td>3</td>
</tr>
<tr>
<td>MFET 4610L</td>
<td>Senior Project Lab (2)</td>
<td>2</td>
</tr>
<tr>
<td>MFET 4620L</td>
<td>Senior Project Lab (2)</td>
<td>2</td>
</tr>
<tr>
<td>MFET 4995</td>
<td>Certified Manufacturing Technologist (CMfgT) Exam</td>
<td>(1)</td>
</tr>
<tr>
<td>MET 3150</td>
<td>Engineering Technology Materials (3)</td>
<td></td>
</tr>
</tbody>
</table>

Technical Electives for the Manufacturing Engineering Technology B.S. degree.

A minimum of 3 credit hours of technical electives chosen from the following list are required.

- DGET 3470 Applications in CAD (3)
- MFET 3460/3460L Engineering Design using Solid Modeling (3)
- MFET 3460/3460L Manufacturing Simulation (2)
- MFET 3890 or MFET 4890 Cooperative Work Experience (3)
- SST 4102 Developing Team Leadership (2)
- Other classes approved by your MFET advisor

Suggested Course Sequence

Please refer to this program in the online catalog (weber.edu/catalog) and/or contact the department for a suggested course sequence.

WELDING ENGINEERING TECHNOLOGY EMPHASIS

Course Requirements for B.S. Degree

To be taken in addition to the courses required for the A.A.S. Degree in Manufacturing Engineering Technology.

Manufacturing Engineering Technology

Courses Required (46 credit hours)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>MFET 2670/2670L</td>
<td>GMA, FCA and GTA Welding (3)</td>
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<tr>
<td>MFET 3060</td>
<td>Codes, Weld Inspection, and Quality Assurance</td>
<td>3</td>
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<tr>
<td>MFET 3550</td>
<td>Manufacturing Supervision</td>
<td>3</td>
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<tr>
<td>MFET 3630/3630L</td>
<td>Fusion Joining and Brazing Processes</td>
<td>3</td>
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<tr>
<td>MFET 3750/3750L</td>
<td>Welding Metallurgy I (3)</td>
<td></td>
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<tr>
<td>MFET 3760/3760L</td>
<td>Welding Metallurgy II (3)</td>
<td></td>
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<tr>
<td>MFET 3810</td>
<td>Statistical Process Control and Reliability</td>
<td>3</td>
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<tr>
<td>MFET 3820</td>
<td>Nondestructive Testing</td>
<td>3</td>
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<tr>
<td>MFET 3910</td>
<td>Six Sigma Methods and Tools in Manufacturing</td>
<td>5</td>
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<tr>
<td>MFET 4090</td>
<td>Welding Power Sources</td>
<td>2</td>
</tr>
<tr>
<td>MFET 4310</td>
<td>Corrosion and Corrosion Control (2)</td>
<td></td>
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<tr>
<td>MFET 4580/4580L</td>
<td>Process Automation</td>
<td>3</td>
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<tr>
<td>MFET 4610</td>
<td>Senior Project Planning and Estimating (2)</td>
<td>3</td>
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<tr>
<td>MFET 4610L</td>
<td>Senior Project Lab (2)</td>
<td>2</td>
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<tr>
<td>MFET 4620L</td>
<td>Senior Project Lab (2)</td>
<td>2</td>
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<tr>
<td>MFET 4995</td>
<td>Certified Manufacturing Technologist (CMfgT) Exam</td>
<td>1</td>
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Technical Course Required (4 credit hours)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
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</thead>
<tbody>
<tr>
<td>CEET 1140</td>
<td>AC and DC Circuits (4)</td>
<td></td>
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</table>

Technical Electives (3 credit hours minimum)

A minimum of 3 credit hours of technical electives chosen from the following list are required.

- DGET 3470 Applications in CAD (3)
- MFET 3350/3350L Plastic and Composite Manufacturing (4)
- MFET 3460/3460L Engineering Design using Solid Modeling (3)
- MFET 3610/3610L Machining Processes II (3)
- MFET 4600/4600L Manufacturing Simulation (2)
- MFET 3890 or MFET 4890 Cooperative Work Experience (3)
- SST 4102 Developing Team Leadership Skills (2)
- Other classes approved by your MFET advisor

Suggested Course Sequence

Please refer to this program in the online catalog (weber.edu/catalog) and/or contact the department for a suggested course sequence.

MANUFACTURING ENGINEERING TECHNOLOGY

BACHELOR OF INTEGRATED STUDIES (B.I.S.) EMPHASIS

PRODUCTION AND INVENTORY CONTROL (APICS)

Advisor: Andy Drake 801-626-7107

- **Program Prerequisite:** Refer to the Bachelor of Integrated Studies Program for the general and specific requirements for the BIS degree.
- **Credit Hour Requirements:** A total of 18 credit hours of courses is required for the APICS emphasis portion of this degree.
### B.I.S. Options in Production and Inventory Control

The Manufacturing Engineering Technology department offers those courses required by APICS The Association for Operations Management for a continuing education certificate in Production and Inventory Control Technology. The courses indicated below with an asterisk (*) prepare one to take the APICS Certification Exam as well as receive the above certificate. In addition, if these courses are taken in conjunction with the other courses listed below or other courses approved by the department chair, all of these may then be used to fill one of the three areas required for a Bachelor of Integrated Studies degree. The courses must be taken for credit and the area of emphasis will be in Production and Inventory Control (not Manufacturing Engineering Technology).

The course of study described below must be approved by the MFET department chair.

### Course Requirements for B.I.S. Emphasis

**Manufacturing Engineering Technology Courses Required (18 credit hours)**

Please refer to the online catalog (weber.edu/catalog/current) for an updated listing of required courses.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Notes</th>
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</thead>
<tbody>
<tr>
<td>MFET 3510*</td>
<td>Basics of Supply Chain Management</td>
<td>2</td>
<td></td>
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<tr>
<td>MFET 3550</td>
<td>Principles of Supervision</td>
<td>3</td>
<td></td>
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<tr>
<td>MFET 4050*</td>
<td>Detailed Scheduling &amp; Planning I</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>MFET 4150*</td>
<td>Execution &amp; Control of Operations</td>
<td>2</td>
<td></td>
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<tr>
<td>MFET 4250*</td>
<td>Detailed Scheduling &amp; Planning (2)</td>
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<tr>
<td>MFET 4350*</td>
<td>Principles of Lean Manufacturing</td>
<td>2</td>
<td></td>
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<tr>
<td>MFET 4590</td>
<td>Production Plan &amp; Process Control</td>
<td>3</td>
<td></td>
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<tr>
<td>MFET 4750*</td>
<td>Master Planning of Resources</td>
<td>2</td>
<td></td>
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<tr>
<td>MFET 4760**</td>
<td>Overview of Manufacturing Engineering Technology</td>
<td>3</td>
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</table>

* Online course

### MANUFACTURING ENGINEERING TECHNOLOGY COURSES - MFET

**MFET 1150. Pre-Professional Seminar in Manufacturing (1) S**

An introductory course for students planning to major in Manufacturing Engineering Technology. An explanation of the Manufacturing Engineering Technology curriculum and its place in the occupational spectrum. Current job functions of manufacturing engineers will be discussed by practicing engineers and technologists from industry.

**MFET 1210. Machining Principles I (1) F, S**

Introduction to machining processes through theory and practice including: setup and operation of the engine lathe & milling machine, machine and tool performance, inspection techniques, basic blueprint reading, and process planning. One lecture per week. Co-requisite: MFET 1210L.

**MFET 1210L. Machining Principles I Lab (2) F, S**

Refer to course description for MFET 1210. Students will utilize lab time to complete assignments as required. Two 3-hour labs per week are required. Co-requisite: MFET 1210.

**MFET 1890. Cooperative Work Experience (1-3) F, S**

Open to all first year students in Manufacturing Engineering Technology. Department approval required before registration. Provides academic credit for on-the-job experience. Grade and amount of credit will be determined by the department.

**MFET 2150. Metal Forming, Casting and Welding (2) F**

Introduction to industrial metal forming, casting and welding processes, equipment selection, design criteria, shop procedures and terminology. Co-requisite: MFET 2150L.

**MFET 2150L. Metal Forming, Casting and Welding Lab (2) F**


**MFET SI2300. Statics and Strength of Materials (5) S**

Principles of forces, moments, resultants & static equilibrium of force systems, center of gravity, friction, and free body diagram analysis. Also concept of stress and strain, shear, bending moments, torsion, bending stresses in beams and stress resolution and shear. Five lectures per week. Prerequisite: PHYS PS/SI2100/L or PHYS PS/SI2210/L and MATH SI1210.

**MFET 2360. Manufacturing Processes and Materials (3) F**

Survey of industrially important processes used to change material shape and condition for industrial use. Survey of industrially important materials and the principles of material behavior.

**MFET SI2410. Quality Concepts and Statistical Applications (3) S**

This is the first course in a series of three designed to impart the Six Sigma body of knowledge. It integrates managerial, technological and statistical concepts across all functions of an organization to ensure that a product is fit for use. Provides a foundation in current quality paradigms and introduces students to software tools (MS Excel and Minitab) used to statistically analyze problems encountered in manufacturing firms. Three lectures per week. Prerequisite: MATH 1010.

**MFET 2440. Computer Numeric Control (CNC) in Manufacturing (2) S**

This course is designed for those who have little or no experience with CNC programming, setup or operations. Manual programming, APT programming, and Mazatrol (a conversational programming language) will be taught. In addition, an introduction to CAD/CAM will also be discussed. A three-hour lab, once a week is required. Prerequisites: MATH 1080 and MFET 1210/1210L or MFET 1110, MFET 1030/1030L and MFET 1050/1050L. Co-requisite: MFET 2440L.

**MFET 2440L. CNC in Manufacturing Lab (1) S**

Applications of the theory taught in MFET 2440. Introduction to the setup & operation of the CNC lathe and mill. One 3-hour lab per week. Co-requisite: MFET 2440.

**MFET 2550. Basics of Quality Engineering (2)**

Approaches quality from the perspective of the production technician using applied statistics, total quality concepts, inspection techniques and methods and nonconforming material control. Addresses sampling principles used in production management as well as a review of industry accepted standards. (ASQC Series) Evening classes only.

**MFET 2610. Quality Improvement Principles and Techniques (2)**

This course assesses vital knowledge of quality tools and their uses by individuals, from non traditional quality areas, who are involved in quality improvement projects. The course examines the rapid spread of quality principles and practices throughout organizations, and covers the essentials of quality management for individuals who manage quality programs, but who are not necessarily specialized in traditional quality areas. The course prepares students for the Certified Quality Improvement Associate examination administered by the American Society for Quality.

**MFET 2670. GMA, FCA and GTA Welding (1) F**

Theory and skills course covering Gas Metal Arc Welding, Flux Core Arc Welding, and Gas Tungsten Arc Welding. Prerequisites: MFET 2150/L. Co-requisite: MFET 2670L.
MFET 2670L. GMA, FCA and GTA Welding Lab (2) 
A "hands on" lab that reinforces the theory and skills course (MFET 2670) covering Gas Metal Arc Welding, Flux Core Arc Welding, and Gas Tungsten Arc Welding. Prerequisites: MFET 2150/L. Co-requisite: MFET 2670.

MFET 2830. Directed Readings in Manufacturing Engineering Technology (1-3) F, S 
Individual research on topics requested by industry or which meet special needs of Manufacturing Engineering Technology students. Prerequisite: Departmental approval.

MFET 2890. Cooperative Work Experience (1-3) F, S 
Open to all second year students in Manufacturing Engineering Technology. A continuation of MFET 1890.

MFET 2899. Associate Degree Assessment (0) 
This course is to serve as an assessment tool whereby all AAS degree seeking students in the College of Applied Science and Technology demonstrate their learned knowledge in at least three areas of Applied Technology study. At present, this knowledge will be demonstrated through the use of the Work Keys exams administered through the Campus Testing Center.

MFET 2920. Short Courses, Workshops, Institutes and Special Programs (1-3) 
Consult the semester class schedule for the current offering under this student transcript. Prerequisite: Departmental approval.

MFET 3010. Tool Design (3) F 
Principles of workpiece control including: Geometric, dimensional, and mechanical control. Other topics include: process tolerance stacks, design of special tools and gauges, applications in the production of manufactured parts, tool drawings, specifications, and modular tooling. Three lectures per week. Prerequisites: MFET1210/1210L; DGET 2450.

MFET 3060. Codes, Weld Inspection, and Quality Assurance (3) F 
Study of ASME and AWS codes as relating to procedure qualification and welder qualification for fabrication of pressure vessels and structures, and how codes relate to quality assurance and ISO 9000. Prerequisite: MFET 2150/L.

MFET SI3310. Material Selection and Heat Treat (2) 
Terminology, concepts and principles involved in the selection, specification and processing of engineering materials so they meet design criteria including load, life, and appearance. Testing methods to determine those properties and characteristics. Manual and computer assessing of material data. Two lectures per week. Prerequisites: MFET1210/L, MFET SI2300, CHEM PS/SI1110. Co-requisite: MFET SI3310L.

MFET SI3310L. Material Selection and Heat treat lab (1) 
Application of theory taught in MFET SI3310. One 2-hour lab per week. Co-requisite: MFET SI3310.

MFET 3320. Machine Design (2) F 
Application of engineering fundamentals to the design of industrial machine components such as shafts, couplings, springs, bearings, gears, fasteners, clutches, and breaks. Students will be required to complete a design project emphasizing manufacturing equipment. Two lectures per week. Prerequisite: MFET SI2300.

MFET 3340. Applied Fluid Power (2) F 
Principles of fluid mechanics and component operation as they apply to the design of hydraulic and pneumatic systems. Computer programs may be used to analyze and design systems. Two lectures per week. Prerequisites: MFET SI2300; PHYS PS/SI2010/L or PHYS PS/SI2210/L. Co-requisite: MFET 3340L.

MFET 3340L. Applied Fluid Power Lab (1) F 
Application of the theory taught in MFET 3340. One 2-hour lab per week. Co-requisite: MFET 3340.

MFET 3350. Plastic and Composite Manufacturing (2) F 
Design and processing of plastic and composite materials for industrial applications. Two lectures per week. Prerequisites: CHEM PS/SI1110; MFET 1210/1210L. Co-requisite: MFET 3350L.

MFET 3350L. Plastic and Composite Manufacturing Lab (2) F 
Application of the theory taught in MFET 3350. Two 2-hr labs per week. Prerequisite/Co-requisite: MFET 3350.

MFET 3460. Engineering Design using Solid Modeling (2) 
An advanced computer-aided design course using state-of-the-art solid modeling CAD/CAM software. Topics include: 3D parametric solid modeling, applications associativity, design-by-feature, assembly modeling, injection mold design, flat pattern development, design analysis using FEA, realistic rendering, and detailing. Prerequisites: DGET 1250 and TBE 1700. Co-requisite: MFET 3460L.

MFET 3460L. Engineering Design using Solid Modeling Lab (1) 

MFET 3510. Basics of Supply Chain Management (2) 
Introductory course for production and inventory management personnel which provides basic definitions and concepts for planning and controlling flow of materials into, through, and out of an organization. Explains fundamental relationships of supply chain from suppliers to customers. Addresses manufacturing systems, forecasting, master planning, material requirements planning, capacity management, production activity control, purchasing, inventory management, distribution, quality management, and Just-in-Time manufacturing. (APICS Series). Evening classes only.

MFET 3550. Manufacturing Supervision (3) S 
The application of supervision skills. Students will gain an understanding of; motivation of subordinates, personal leadership theories, problem-solving and decision-making techniques, organizational communication, employee selection, evaluation and training process, and organizational structures. Topics will include; the American Disabilities Act, OSHA and environmental issues, Equal opportunity Employment, and Affirmative Action issues. Three lectures per week.

MFET 3560. Advanced Quality Engineering (2) 
Addresses the application of advanced quality techniques by personnel in positions of responsibility such as manufacturing leads and supervisors. Uses statistics, metrology, inspection methods, quality management concepts, and sampling principles to address process decisions involving both overall quality and costs. (ASQC Series). Prerequisite: MFET 2550. Evening classes only.

MFET 3570. Manufacturing Quality Auditing (2) 
Utilizes auditing principles and quality management tools and techniques to prepare an individual to plan and conduct, or prepare an organization, for a quality audit. Links directly to process associated with implementation of ISO 9000 standards. Two one-hour lectures per week. (ASQC Series). Prerequisite: MFET SI2410 or equivalent. Evening classes only.
MFET 3580. Certified Mechanical Inspector (2)
Provides the student with terminology, concepts and tools needed to be professionally competent in advanced quality management. The course will also be helpful to those preparing to take the ASQC CMI Certification Exam. (ASQC Series) Evening classes only.

MFET 3590. Quality Management Institute (2)
Provides the student with terminology, concepts and tools needed to be professionally competent in quality management. The course will also be helpful to those preparing to take the ASQC CMI Certification Exam. (ASQC Series) Evening classes only.

MFET 3610. Machining Processes II (1) S
The manufacture and assembly of precision and interchangeable parts using conventional lathes, mills, drills, and grinders. Introduction to geometric dimensional & tolerancing (GD&T), and advanced inspection techniques. One lecture per week. Prerequisite: MFET 1210/1210L. Co-requisite: MFET 3610L.

MFET 3610L. Machining Processes II Lab (2) S
Refer to course description for MFET 3610. Students will utilize lab time to complete assignments as required. Two 3-hour labs per week are required. Co-requisite: MFET 3610.

MFET 3630. Fusion Joining and Brazing Processes (2) S

MFET 3630L. Fusion Joining and Brazing Processes (1) S
A "hands-on" lab that reinforces the concepts taught in MFET 3630 of SAW, ESW, GMAW, EG, RW, PAW, PAC, Electron Beam, Laser, Friction, Brazing, and other welding processes. Prerequisites: MFET 2670/L. Co-requisite: MFET 3630.

MFET 3650. Quality Management Institute (3)
This course consists of application process control and problem solving techniques including statistical process control (SPC), measurement systems analysis, and process capability analysis. Students will apply cause-and-effect diagrams, check sheets, sampling, line and bar charts, Pareto charts, scatter diagrams, variation, probability plots, x-R charts, gate repeatability and reproducibility (gage R & R) on course projects. Curriculum will include practical application exercises. Prerequisites: MFET 2410, MATH 1010 Intermediate Algebra or equivalent, and Basic Statistics course (MATH 1040) or equivalent.

MFET 3710. Computer Aided Manufacturing and Rapid Prototyping (2) S
This course will introduce and explain concepts behind Computer-Automated Manufacturing (CAM). It will define elements, terms, and concepts involved with CAM. Elements of rapid prototyping will also be covered from conceptual design in solids to production of tooling and parts. This course is designed for those who have the basic understanding of the setup and operation of CNC machine tools and programming. Software will be used to perform the CAM operations, such as part generation and post processing. Prerequisites: MFET 2440/2440L, DGET 1250, DGET 1260 or MFET 3460. Co-requisite: MFET 3710L.

MFET 3710L. Computer Aided Manufacturing and Rapid Prototyping Lab (1) F
A "hands-on" lab that reinforces the concepts taught in MFET 3710. Students will learn how to transfer CNC part programs from a PC to the CNC machine controller. Testing, editing and running their part programs on the CNC machines will also be covered.

MFET 3750. Welding Metallurgy I (2) F
Metallurgical principles applied to welding and weldability of ferrous metals. Prerequisites: MFET 2150/L, CHEM 1110. Co-requisite: MFET 3750L.

MFET 3750L. Welding Metallurgy I Lab (1) F
A "hands-on" lab that reinforces the concepts taught in MFET 3750 of metallurgical principles applied to welding and weldability of ferrous metals. Prerequisites: MFET 2150/L, CHEM 1110. Co-requisite: MFET 3750.

MFET 3760. Welding Metallurgy II (2) S
Metallurgical principles applied to welding and weldability of nonferrous metals. Prerequisites: MFET 3750/L. Co-requisite: MFET 3760L.

MFET 3760L. Welding Metallurgy II Lab (1) S
A "hands-on" lab that reinforces the concepts taught in MFET 3760 of metallurgical principles applied to welding and weldability of nonferrous metals. Prerequisites: MFET 3750/L. Co-requisite: MFET 3760.

MFET 3810. Statistical Process Control and Reliability (3) F
This is the second course in the Quality series for the MFET program. The course will focus on statistical techniques used in industrial process control charting, acceptance sampling, reliability practices and preventative maintenance. Course will utilize Minitab and Microsoft Excel Spreadsheet software. Three lectures per week. Prerequisite: MFET 2410.

MFET 3820. Nondestructive Testing (3) S
Fundamental concepts relating to liquid penetrant, magnetic particle, ultrasonics, and radiography and other NDT processes. Prerequisites: MATH 1210 and PHYS PS/SI2010 or PS/SI2210.

MFET 3890. Cooperative Work Experience (1-3) F, S
Open to all third year students in Manufacturing Engineering Technology. A continuation of MFET 1890.

MFET 3910. Six Sigma Methods and Tools in Manufacturing (5)
This is the third and final course in the Quality series for the MFET program. Six Sigma methods use statistical tools to bring about continual improvement of quality in manufactured goods and services and to document that positive change has occurred. These tools include: Failure Mode and Effects Analysis (FMEA), Measurement Systems, Control Charts, Multi-Vari and Multivariate charts, Process Capability Analysis, and Design of Experiments. Students will learn and apply these methods and tools through class participation and completion of required projects. Course will utilize Minitab and Microsoft Excel Spread sheet software. Five lectures per week. Prerequisite: MFET 2410 and MFET 3810.

MFET 4050. Detailed Scheduling and Planning I (2)
Techniques and practices of detailed scheduling and planning of inventory management including order review methodologies, policies and functions of inventory. Covers lot sizing, safety stock techniques, demand, and Just-in-Time as they relate to detailed scheduling and planning. Prerequisite: MFET 3510 or equivalent. (APICS series). Evening classes only.

MFET 4090. Welding Power Sources (2) S
Study of power sources used to generate and control voltage and amperage for welding. Two lectures per week. Prerequisite: CEET 1140.

MFET 4150. Execution and Control of Operations (2)
Focuses on prioritizing and sequencing work, executing work plans, implementing controls, reporting activity results, and evaluating and providing feedback on performance. Eval. Prerequisite: MFET 3510 or equivalent. (APICS series). Evening classes only.

MFET 4200. Manufacturing Processes (2)
Manufacturing processes define the methods that companies use in designing, producing, and delivering goods and services required by customers. The manufacturing processes provide the execution component to the other activities of the integrated manufacturing system. Beginning with customer requirements and needs, they
design, build, operate, upgrade, and maintain a manufacturing process which is most supportive of and consistent with those needs and requirements. To achieve these objectives, manufacturing processes draw on three different but very interrelated subsystems: industrial facilities management, process design and development, and manufacturing. (APICS Series) Evening classes only.

MFET 4210. Cost Estimating and Engineering Economics (2) Production cost structure, operation costing, break-even analysis, make buy decision, and capital equipment justification. Computer aids are used to analyze cost data. Three lectures per week. Prerequisites: MATH QL1080; TBE TE1700. Co-requisite: MFET 4610.

MFET 4250. Detailed Scheduling and Planning (2) Detailed explanation of inventory management including order review methodologies, policies and functions of inventory. Covers material requirements planning (MRP) and other material planning and capacity requirements planning techniques. Includes concepts, principles, interfaces, desired characteristics, applications, and supplier relations. Prerequisite: MFET 3510 or equivalent. (APICS Series) Evening classes only.

MFET SI4300. Design of Experiments (2) A step-by-step description of procedures used to organize, conduct and evaluate industrial experiments. Emphasizes the usefulness of results and the decision criteria for choosing the proper design. Prerequisite: MFET SI2410.

MFET 4310. Corrosion and Corrosion Control (2) S Analysis of corrosion mechanisms for ferrous metals, nonferrous metals, and nonmetallic materials, as well as the control of corrosion. Prerequisites: CHEM PS/SI1110 and MATH QL1080.

MFET 4350. Principles of Lean Manufacturing (2) This course introduces students to lean manufacturing and waste reduction concepts such as work standardization, visual manufacturing & workplace organization, value stream mapping, setup reduction & batch size reduction, quality at the source, point of use storage, total productive maintenance, pull systems/kanbans, time calculation and cellular/synchronous manufacturing design concepts. A combination of lectures, videos and hands on exercise will be used.

MFET 4550. Advanced Quality Principles (2) Provides advanced study in all aspects of the application of quality principles to a production environment. The course will involve case study and application of quality theory. Students should have a broad knowledge of organizational structure and planning, quality techniques, customer satisfaction and focus, project management, and human resource management. Cooperative experience in a business/industry is recommended. (ASQC Series) Prerequisite: MFET SI2410 or equivalent. Evening classes only.

MFET 4580. Process Automation (1) F A study of the elements used in the automation of manufacturing processes including: programmable logic controllers, robotics (servo and non-servo), vision systems, and material handling devices. Prerequisites: MFET 2440/2440L, MFET 3010, TBE TE1700; CEET 1850. Co-requisite: MFET 4580L. One 1-hour lecture per week.

MFET 4580L. Process Automation Lab (2) F Students duplicate demonstration sequence of automation equipment and develop new routins in: Controlling servo and non-servo robots, computer-aided manufacturing systems and CIM cell, programmable logic controllers, and other devices used in process automation. Co-requisite: MFET 4580.

MFET 4590. Production Planning and Process Control (3) Organization, design, and management of production systems. Includes topics addressing Manufacturing Analysis, Inventory Control, Process Capability, Equipment specifications and Manufacturing Economics. Fundamentals of Economics and OSHA requirements will also be discussed. Three lectures per week.

MFET SI4600. Manufacturing Simulation (2) Discrete-event simulation of manufacturing systems, as a tool for developing more responsive systems. Simulation is shown to be a viable method of predicting outcomes in a stochastic system. Modeling assignments include: material handling constructs, probability distributions, logical branch, and report analysis. Prerequisites: MFET 3010, MFET SI2410 and MFET 4590.

MFET 4610. Senior Project Planning and Estimating (5) F, S This is designed as a capstone course for students and is to be taken in the senior year of their program. The course will teach students, entering Senior Project, fundamental principles in Project Management, Cost Estimating, Engineering Economics and Production Management that will be necessary to successfully complete their Senior Project experience. Students must apply and gain departmental approval before entering Senior Project. Approval is based on an interview with department faculty and fulfilling the prerequisites listed on the “Senior Project Requirements Sheet” available from the department secretary. All students approved for Senior Project will register for this course regardless of individual project group assignments. Five lectures per week. Co-requisite: MFET 4610 Lab.

MFET 4610L, 4620L. Senior Project Lab (2-2) F, S Must apply for senior project before March 1 of the previous year. Must have department approval. Approval is based on an interview with department faculty and fulfilling the prerequisites listed on the “Senior Project Requirements Sheet” available from the department secretary. Time: as required to complete the project. Two consecutive semesters. Co-requisite: MFET 4610 (with MFET 4610L only).

MFET 4650. Software Quality Engineering Principles (2) F This course prepares the student to incorporate quality development and implementation as a software design team member. The course provides instruction on concepts, principles and techniques to develop a comprehensive understanding of software inspection, testing, verification, and validation. Participants will learn to implement software development and maintenance processes and methods. This course also prepares the student for the Certified Systems Quality Engineer examination administered through American Society for Quality.

MFET 4670. Reliability Engineering Principles (2) F This course prepares the student to work as a design team member to incorporate reliability considerations into a basic design. Course provides information on application of proven techniques to achieve quality product results. This course also prepares the student for the Certified Reliability Engineer examination administered through American Society for Quality.

MFET 4750. Master Planning of Resources (2) Explore processes used to develop sales and operations plans, forecast internal and external demand, create the master schedule consistent with business policies, objectives and resource constraints. (APICS Series). Evening classes only. Prerequisite: MFET 3510.

MFET 4770. Strategic Management of Resources (2) The relationship of existing and emerging processes and technologies to manufacturing strategy and supply chain related functions. Addressing aligning resources with strategic plan, integrating operating processes to support the strategic plan, and implementing change. Prerequisite: MFET 3510 and be familiar
with concepts addressed in all other APICS courses. (APICS series). Evening classes only.

**MFET 4800. Individual Research in Manufacturing Technology (1-3) F, S**
Special individual research and development projects in Manufacturing and Engineering Technology. Credit and time determined by the student and the faculty project supervisor. Prerequisite: Permission of instructor.

**MFET 4830. Directed Readings in Manufacturing Engineering Technology (1-3) F, S**
Must have department approval.

**MFET 4890. Cooperative Work Experience (1-3) F, S**
Open to all fourth year students in Manufacturing Engineering Technology. A continuation of MFET 1890.

**MFET 4920. Short Courses, Workshops, Institutes and Special Programs (1-3)**
Consult the semester class schedule for the current offering under this number. The specific title and credit authorized will appear on the student transcript. Juniors and Seniors only. Faculty approval required.

**MFET 4995. Certified Manufacturing Technologist (CMfgT) Exam Review (1) F, S**
This course is designed to provide a structured review for the student to take the Certified Manufacturing Technologist (CMfgT) Exam. This course is offered on a credit/no-credit basis. Credit will be awarded for taking the CMfgT exam.

**MFET 5050. Gateway to Technology (5) Su**
Gateway to Technology is a course designed specifically and only for current high school teachers who have been assigned by districts to teach the related Project Lead the Way course in their respective schools. Gateway to Technology introduces the Project Lead the Way series of courses covering the principles of engineering and technology. The course promotes an understanding of the field of technology and covers the continuous evolution of technology, the positive and negative impact of technology on our society, and career opportunities in technology. This course will utilize a train the trainer approach, meaning that the high school teachers will learn both technical content as well as the teaching methodologies they will use in the presentation of the course at their high schools.

**MFET 5100. Introduction to Engineering Design (IED) (5) Su**
IED provides students with opportunities to be creative and to apply their decision-making and problem-solving skills to design problems. Students use powerful computer hardware and software (Inventor) to develop 3-D models or solid renderings of objects. Using a Computer Aided Design System, students learn the product design process through creating, analyzing, rendering and producing a model. The course meets for a total of 75 hours over a two-week period and focuses on the content as well as teaching methods appropriate for the course. This course is designed specifically and only for current high school teachers who have been assigned by their schools and districts to teach the Project Lead the Way courses in their respective schools. These courses carry graduate credit for those teachers who would use them as part of a master's degree program or for recertification.

**MFET 5300. Principles of Engineering (POE) (5) Su**
POE is designed to help students understand the field and the career possibilities of engineering and engineering technology. Students work on the problem-solving skills that are used at the college level and in the workplace, and they explore engineering systems and manufacturing processes. Students learn how engineers address concerns about the social and political consequences of technological change. The course meets for a total of 75 hours over a two-week period and focuses on the content as well as teaching methods appropriate for the course. This course is designed specifically and only for current high school teachers who have been assigned by their schools and districts to teach the Project Lead the Way courses in their respective schools. These courses carry graduate credit for those teachers who would use them as part of a master's degree program or for recertification.

**MFET 5400. Computer Integrated Manufacturing (CIM) (5) Su**
CIM is a course that applies principles of prototyping, robotics, and automation. It builds on the solid modeling skills developed in Introduction to Engineering Design. Students use computer-controlled equipment to solve problems by constructing models of their three-dimensional designs. Students are also introduced to the fundamentals of robotics and to how this equipment is used in an automated environment. Students evaluate their design solutions using various techniques and modifications before they produce the prototype. The course meets for a total of 75 hours over a two-week period and focuses on the content as well as teaching methods appropriate for the course. This course is designed specifically and only for current high school teachers who have been assigned by their schools and districts to teach the Project Lead the Way courses in their respective schools. These courses carry graduate credit for those teachers who would use them as part of a master's degree program or for recertification.

**MFET 5500. Engineering Design and Development (EDD) (5) Su**
In this course, students work on a team with one or two others to design and construct the solution to an engineering problem. The problems involve a wide range of engineering applications (e.g., a school robo-mascot, automated solar water heater, remote control hover craft). The course serves as a capstone course where students apply the principles they developed in previous courses. A journal is part of each student's portfolio. Each team is responsible for delivering progress reports and making final presentations to an outside review panel. The course meets for a total of 75 hours over a two-week period and focuses on the content as well as teaching methods appropriate for the course. This course is designed specifically and only for current high school teachers who have been assigned by their schools and districts to teach the Project Lead the Way courses in their respective schools. These courses carry graduate credit for those teachers who would use them as part of a master's degree program or for recertification.

### Mechanical Engineering Technology

**Location:** Engineering Technology Building, Room 214  
**Telephone Contact:** Wendy Reeves, 801-626-6305  
**E-Mail:** met@weber.edu  
**Advisors:** Dr. Kirk D. Hagen, Dr. Daniel J. Magda

Mechanical engineering technology is the practical application of mechanical engineering. Mechanical engineering technologists play an integral role in product design and manufacturing process cycles which include planning, design, analysis, testing and documentation. They utilize skills in materials science, engineering mechanics, thermal science, design, instrumentation and technical writing.

The program is accredited by the Technology Accreditation Commission of the Accreditation Board for Engineering and Technology, 111 Market Place, Suite 1050, Baltimore, MD 21202-4012, telephone (410) 347-7700. The curriculum includes problem-solving...
courses such as statics, strength of materials, dynamics, machine design, thermodynamics, fluid mechanics and heat transfer that are based on engineering science and mathematics. Integrated into many of the courses are laboratory and project oriented experiences that teach the practical, hands-on aspects of mechanical engineering technology. A balanced blend of engineering science and practical applications provides the mechanical engineering technologist the knowledge and skills needed to be successful in today's technical workplace. Mechanical engineering technology has lead to numerous opportunities for exciting, creative and rewarding careers in a wide range of industries including aerospace, automotive, electronics, manufacturing, medical equipment, mining and power generation.

MECHANICAL ENGINEERING TECHNOLOGY

ASSOCIATE OF APPLIED SCIENCE DEGREE (A.A.S.)

- Grade Requirements: A grade of "C" or better in MET courses and support courses required is a grade of "C-" is not acceptable in addition to an overall GPA for all courses of 2.00 or higher. Also refer to the general grade requirements for graduation on page 36.

- Credit Hour Requirements: A total of 67 credits is required, 15 of which are within the Manufacturing and Mechanical Engineering Technology Department. Transfer students are required to take a minimum of 30 credit hours at Weber State University.

- Assessment Requirements: Students will be required to complete certain assessment instruments as part of the overall requirements for receiving their associate's degree. Please see your advisor or your department for specific information regarding assessment.

Advisement

All Mechanical Engineering Technology students are required to meet with their faculty advisor at least annually for course and program advisement. Please call the department secretary at 801-626-6305 for the name of your advisor and to schedule an appointment.

Admission Requirements

Declare your program of study (see page 18). There are no special admission or application requirements for this program.

General Education

Refer to pages 36-41 for Associate of Applied Science requirements. Computer & Information Literacy as defined in this catalog is also required for the A.A.S. degree. Consult with your advisor for specific general education guidelines.

Course Requirements for the A.A.S. Degree

MET Core and Support Courses Required (52 credit hours)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>MET 1000</td>
<td>Intro to Mechanical Engineering Tech (1)</td>
</tr>
<tr>
<td>MET 2899</td>
<td>Associate Degree Assessment (0)</td>
</tr>
<tr>
<td>MFET 2300</td>
<td>Statics and Strength of Materials (5)</td>
</tr>
<tr>
<td>MFET 2360</td>
<td>Manufacturing Processes (3)</td>
</tr>
<tr>
<td>CEET 1850</td>
<td>Industrial Electronics (4)</td>
</tr>
<tr>
<td>CHEM PS/SI1110</td>
<td>Elementary Chemistry (5)</td>
</tr>
<tr>
<td>DGET 1250</td>
<td>Computer Aided Drafting (3)</td>
</tr>
<tr>
<td>DGET 1260</td>
<td>3D Computer Aided Drafting (3)</td>
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<tr>
<td>COMM HU2110</td>
<td>Interpersonal Communication (3)</td>
</tr>
<tr>
<td>Computer and Information Literacy (2-4)</td>
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</tr>
<tr>
<td>MATH QL1080</td>
<td>Precalculus (5)</td>
</tr>
<tr>
<td>MATH SI2120</td>
<td>Calculus I (4)</td>
</tr>
<tr>
<td>MATH SI2220/L</td>
<td>Calculus II (4)</td>
</tr>
<tr>
<td>PHYS PS/SI2220/L</td>
<td>Physics for Scientists &amp; Engineers (w/lab) (5)</td>
</tr>
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</table>

Other General Education Support Courses Required (15 credit hours)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL EN1010</td>
<td>Intro to Writing (3)</td>
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<tr>
<td>ENGL EN2010</td>
<td>Intermediate Writing (3)</td>
</tr>
<tr>
<td>ECON SS1010</td>
<td>Economics as a Social Science (3)</td>
</tr>
<tr>
<td>Gen Ed Creative Arts Elective (3)</td>
<td></td>
</tr>
<tr>
<td>Gen Ed American Institutions Elective (3)</td>
<td></td>
</tr>
</tbody>
</table>

Suggested Course Sequence

Please refer to this program in the online catalog (weber.edu/catalog) and/or contact the department for a suggested course sequence.

MECHANICAL ENGINEERING TECHNOLOGY

BACHELOR OF SCIENCE DEGREE (B.S.)

- Program Prerequisite: Complete the requirements for the A.A.S. Degree in Mechanical Engineering Technology.
- Minor: Not Required.
- Grade Requirements: A grade of "C" or better in all MET courses, support courses and technical electives is required for this major (a grade of "C-" is not acceptable) in addition to an overall GPA for all courses of 2.00 or higher. Also refer to the general grade requirements for graduation on page 36.
- Credit Hour Requirements: A total of 127 credit hours is required for graduation, 57 of which are within the Manufacturing and Mechanical Engineering Technology Department. A total of 42 upper division credits is also required (courses numbered 3000 and above), 39 of which are within the Manufacturing and Mechanical Engineering Technology Department. Transfer students are required to take a minimum of 30 credit hours at Weber State University.

Advisement

All Mechanical Engineering Technology students are required to meet with their faculty advisor at least annually for course and program advisement. Please call the department secretary at 801-626-6305 for the name of your advisor and to schedule an appointment.

Admission Requirements

Declare your program of study (see page 18). Refer to the Program Prerequisite listed above. There are no additional special admission or application requirements for this program.

General Education

Refer to pages 36-41 for Bachelor of Science requirements. Consult with your advisor for specific general education guidelines.

Course Requirements for the B.S. Degree

To be taken in addition to the courses required for the A.A.S. Degree in Mechanical Engineering Technology

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>MET 3050</td>
<td>Dynamics (3)</td>
</tr>
<tr>
<td>MET 3150</td>
<td>Engineering Technology Materials (3)</td>
</tr>
<tr>
<td>MET 3300</td>
<td>Computer Programming</td>
</tr>
<tr>
<td>MET 3400</td>
<td>Machine Design (3)</td>
</tr>
<tr>
<td>MET 3500</td>
<td>Mechanical Measurements</td>
</tr>
<tr>
<td>MET 3700</td>
<td>Testing and Failure Analysis (3)</td>
</tr>
<tr>
<td>MET 4200</td>
<td>Mechanical Design with FEA (3)</td>
</tr>
<tr>
<td>Course Code</td>
<td>Course Title</td>
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<td>-------------</td>
<td>--------------</td>
</tr>
<tr>
<td>MET 4500, 4510</td>
<td>Senior Project</td>
</tr>
<tr>
<td>MET 4650</td>
<td>Thermal-fluid Sciences</td>
</tr>
<tr>
<td>MET 4990</td>
<td>Seminar in MET</td>
</tr>
</tbody>
</table>

**Support Courses Required (9 credit hours)**
- MFET 1210/L: Machining Principles (1)
- MFET 3340/L: Applied Fluid Power (3)
- TBE 3250: Business Communications (3)
- or ENGL 3100: Professional & Technical Writing (3)

**Technical Electives (9 credit hours)**
A minimum of 9 credit hours of technical electives chosen from the following list are required. At least 3 credit hours must be upper division.
- DGET 2450: Geometric Dimensioning & Tolerancing (2)
- DGET 2650: Advanced Mechanical Design (3)
- DGET 3470: Applications in CAD (3)
- DGET 4470: Advanced 3D CAD Modeling (3)
- MATH 2210: Calculus III (4)
- MATH 2270: Elementary Linear Algebra (3)
- MATH 2280: Ordinary Differential Equations (3)
- MET 4300: Heating, Ventilating, & Air Conditioning (3)
- MET SI2410: Quality Concepts & Statistical Applications (3)
- MET 3010: Tool Design (3)
- MFET 3350/L: Plastic & Composite Manufacturing (4)
- MFET 3460/L: Engineering Design using Solid Modeling (3)
- MFET 3750: Welding Metallurgy I (3)
- MFET 3820: Nondestructive Testing (3)
- MFET 4210: Cost Estimating & Engineering Economics (3)
- MFET 4310: Corrosion (3)
- MFET 4590: Production Planning & Process Control (3)

**Other Required Courses (9 credit hours)**
- Gen Ed Humanities Elective (3)
- Gen Ed Social Science Diversity Elective (3)
- Gen Ed Life Science Elective (3)

**Suggested Course Sequence**
Please refer to this program in the online catalog (weber.edu/catalog) and/or contact the department for a suggested course sequence.

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**MECHANICAL ENGINEERING TECHNOLOGY COURSES - MET**

**MET 1000. Introduction to Mechanical Engineering Technology (1) F**
Introductory course for students majoring in mechanical engineering technology. The role of mechanical engineering technology and its place in the occupational spectrum. The experimental and analytical tools used in mechanical engineering technology and fundamentals of mechanical design and problem solving. Prerequisite: Credit or concurrent enrollment in MATH QL1080 or equivalent.

**MET 1890. Cooperative Work Experience (1-3)**
Provides academic credit for on-the-job experience. Grade and amount of credit will be determined by the department. Prior consent of the department chair and the employer are required. Prerequisites: DGET 1250, MATH QL1080.

**MET 2890. Cooperative Work Experience (1-3)**
Provides academic credit for on-the-job experience. Grade and amount of credit will be determined by the department. Prior consent of the department chair and the employer are required. Prerequisite: Credit or concurrent enrollment in MFET SI2300.

**MET 2899. Associate Degree Assessment (0)**
This course is to serve as an assessment tool whereby all AAS degree seeking students in the College of Applied Science and Technology demonstrate their learned knowledge in at least three areas of Applied Technology study. At present, this knowledge will be demonstrated through the use of the Work Keys exams administered through the Campus Testing Center.

**MET 3050. Dynamics (3) F**
Fundamentals of force, mass and acceleration, work and energy, and impulse and momentum applied to particles and rigid bodies. Prerequisites: MATH SI1210, PHYS PS/SI2210 and MFET SI2300.

**MET 3150. Engineering Technology Materials (3) S**
Material properties, processing and selection of materials for technological applications. Design parameters for material selection of metals and nonmetals. Mechanical behavior and service failures of metallic alloys and other engineering materials at high and low temperatures. Lecture plus laboratory work in materials testing. Prerequisites: CHEM PS/SI1110 and MFET SI2300.

**MET 3300. Computer Programming Applications of Mechanical Engineering Technology (3) F**
Applications of computer programming and computer software to problems in mechanical engineering technology. Lecture plus computer-based laboratory work. Prerequisites: TBE TE1700 or equivalent, MFET SI2300.

**MET 3400. Machine Design (3) F**
Application of engineering technology fundamentals to machine design. Techniques involved in designing and selecting individual machine parts. Prerequisite: MFET 2300.

**MET 3500. Mechanical Measurements and Instrumentation (3) S**
Principles of temperature, pressure, strain, flow, force, and vibration measurements. Techniques of computerized data acquisition and reduction. Students will learn how to specify instrumentation systems, take data and interpret the results. Lecture plus laboratory work in selected topics. Prerequisites: CEET 1850, MET 3400.

**MET 3700. Testing and Failure Analysis (3) F**
Mechanical testing of materials, fatigue, fracture, wear, corrosion, embrittlement, failure mechanisms and analysis, case studies of failures. Lecture plus laboratory work. Prerequisite: MET 3150.

**MET 3890. Cooperative Work Experience (1-3)**
Provides academic credit for on-the-job experience. Grade and amount of credit will be determined by the department. Prior consent of the department chair and the employer are required. Prerequisite: Credit or concurrent enrollment in MET 3400.

**MET 4200. Mechanical Design with FEA (3) S**
Application of engineering technology fundamentals in mechanical design using Finite Element Analysis. Lecture plus computer-based laboratory work. Prerequisite: MET 3400.

**MET 4300. Heating, Ventilating & Air Conditioning (3) S**
Principles of heating, ventilating and air conditioning of buildings. Refrigeration systems, air and water distribution and solar energy. Indoor thermal environmental control. Prerequisite: Permission of instructor.

**MET 4500, 4510. Senior Project (3,3) F, S**
A mechanical engineering technology project will be selected for team participation. Projects will require planning, analysis, design, development, production, testing and documentation. Prerequisite: MET 4200.

**MET 4650. Thermal-fluid Sciences (5) S**
Fundamentals of thermodynamics, fluid mechanics and heat transfer. First and second laws of thermodynamics, thermodynamic cycles, fluid statics and fluid dynamics, basic principles of heat transfer by conduction, convection and radiation. Lecture plus laboratory work in thermal-fluid sciences. Prerequisites: MATH SI1210, PHYS PS/SI2210 and CHEM PS/SI1110.
MET 4800. Individual Research in Mechanical Engineering Technology (1-3) F, S
Special individual research and development projects in mechanical engineering technology. Credit and time determined by the student and the faculty project supervisor. Prerequisite: Permission of instructor.

MET 4830. Directed Readings (1-3) F, S
Directed individual readings in mechanical engineering technology. Topic selected in consultation with instructor. Prerequisite: Permission of instructor.

MET 4890. Cooperative Work Experience (1-3)
Provides academic credit for on-the-job experience. Grade and amount of credit will be determined by the department. Prior consent of the department chair and the employer are required. Prerequisite: MET 3400.

MET 4920. Short Courses, Workshops, Institutes, and Special Programs (1-3)
Consult the semester class schedule for the current offering under this number. The specific title with the credit authorized for the particular offering will appear on the student transcript.

MET 4990. Seminar in Mechanical Engineering Technology (1) S
Guest lectures from local industry, professionalism and engineering ethics, technology and society, and employment preparation. Prerequisite: MET 4500.

**Parson Construction Management Technology**

**Location:** Engineering Technology Building, Room 236
**Telephone Contact:** 801-626-7761
**E-Mail:** ParsonCMT@weber.edu
**Faculty:** Associate Professors - Steven Peterson, Jeff Plant; Assistant Professors - Chris Soelberg, Rock Spencer

The Parson Construction Management Technology program teaches the processes, procedures and management techniques necessary to function as a "Professional Constructor" as defined by the American Institute of Constructors and the American Council of Construction Education. It is designed to prepare students for immediate professional level employment or further study by developing a cohesive, solid technical foundation bolstered by practical, hands-on experiences, at the same time providing the education necessary for lifelong learning in a changing world. The process of learning is emphasized, as well as accumulation of knowledge. The multi-disciplinary curriculum, comprised of courses in the areas of construction science, construction practice, business and management as well as general education, is in a candidate status for accreditation by the American Council of Construction Education (ACCE).

The Parson Construction Management Technology curriculum is a "2+2" design facilitating articulation with programs in architecture, building construction, design graphics, facilities and other construction-related degrees. In this regard, articulation agreements have been developed with Salt Lake Community College's Associate Degree programs in Architectural Technology and Building Construction/Construction Management. The partnership between the two schools will give construction management students more flexibility in earning WSU bachelor's degrees through the university's center at SLCC. Students who have obtained associate's degrees in appropriate high quality programs are admitted as juniors and can normally complete the baccalaureate degree in two years.

**Construction Management Technology**

**ASSOCIATE OF APPLIED SCIENCE DEGREE (A.A.S)**

- **Grade Requirements:** A grade of "C" or better in all CMT Program required courses (a grade of "C-") is not acceptable) in addition to an overall GPA for all courses of 2.00 or higher.
- **Credit Hour Requirements:** 63 total credit hours are required as listed below. A minimum of 20 hours in residence at WSU is required. A student must also complete a minimum of 18 hours of CMT major courses at WSU to obtain an A.A.S. degree.
- **Assessment Requirements:** Students will be required to complete certain assessment instruments as part of the overall requirements for receiving their associate's degree. Please see your advisor or your department for specific information regarding assessment.

**Advisement**

All Construction Management Technology students are encouraged to meet with a faculty advisor at the beginning of their freshman year for course and program advisement. Call the CMT program secretary at 801-626-7761 to schedule an appointment.

**Admission Requirements**

Declare your program of study (see page 18). There are no special admission or application requirements for this program.

**General Education**

Refer to pages 36-41 for Associate of Applied Science requirements. The following courses required for the Construction Management Technology A.A.S. degree will also fulfill general education requirements: COMM HU2110 (Oral Communication), ECON SS2010 (Social Science) and MATH QL1080 (Math and Statistics). Computer and Information Literacy as defined in this catalog is also required for the A.A.S. degree.

**Course Requirements for A.A.S. Degree**

**Construction Management Technology Courses Required (19 credit hours)**

- CMT 1100 Construction Management Orientation (1)
- CMT 1150 Construction Graphics (3)
- CMT 1210 Residential Construction Materials & Methods (3)
- CMT 1310 Commercial Construction Materials & Methods (3)
- CMT 1500 Computer Applications in Construction (2)
- CMT 2220 Construction Contracts & Specs (3)
- CMT 2230 Concrete Technology (3)
- CMT 2240 Construction Surveying (2)
- CMT 2640 Architectural Estimating (2)
- CMT 2880 Internship (3)
- CMT 2899 Associate Degree Assessment (0)

**Business & Management Courses Required (9 credit hours)**

- ACTG 2010 Survey of Accounting I (3)
- ECON SS2010 Principles of Microeconomics (3)
- BSAD 3200 Legal Environment of Business (3)

**Support Courses Required (20 credit hours)**

- COMM HU2110 Interpersonal Communications (3)
- MATH QL1080 Pre-calculus (5)
- TBE TE1700 Microcomputer Applications (3)
- LIBS TD1704 Information Navigator (1)
- PHYS PS/SI2010 General Physics (5)
- GEO PS1060 Environmental Geosciences (3)
- GEO 1065 Environmental Geosciences Lab (1)
### Suggested Course Sequence

Please refer to this program in the online catalog (weber.edu/catalog) and/or contact the department for a suggested course sequence.

#### CONSTRUCTION MANAGEMENT TECHNOLOGY

**BACHELOR OF SCIENCE DEGREE (B.S)**

- **Program Prerequisite:** Declare a Program of Study in CMT
- **Minor:** Not required; Business minor is recommended.
- **Grade Requirements:** A grade of 'C' or better in all CMT Program required courses and math, business and management courses is required (a grade of 'C-' is not acceptable) in addition to an overall GPA of 2.0 or higher. Also refer to the general grade requirements for graduation on page 36.
- **Credit Hour Requirements:** A total of 124 credit hours is required for graduation. A total of 40 upper division credit hours is required (courses numbered 3000 and above).
- **Work Experience Requirements:** A total of 800 hours of approved work experience is required for graduation. There are provisions to recognize those with significant construction industry experience. Contact Charles Chandler at Career Services/College of Applied Science & Technology; Ph: 801-626-7860 (cchandler@weber.edu) for possible internships.

#### Admission Requirements

Declare your program of study (see page 18). There are no special admission or application requirements for this program.

#### General Education

Refer to pages 36-41 for Bachelor of Science requirements. Consult with an academic advisor for specific general education guidelines. The following courses required for the Construction Management Technology B.S. degree will also fulfill general education requirements: COMM HU2110 (Oral Communication), MATH QL1080 (Math and Statistics), ECON SS2010 (Social Science), PHYS PS/SI2010 (Physical Sciences), and BTNY LS1403 (Life Sciences). Computer and Information Literacy as defined in this catalog is also required.

#### Course Requirements for B.S. Degree

Course requirements are subject to change. Check with program advisor for current requirements.

##### Construction Management Technology Courses Required (58 credit hours)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMT 1100</td>
<td>Construction Management Orientation (1)</td>
</tr>
<tr>
<td>CMT 1150</td>
<td>Construction Graphics (3)</td>
</tr>
<tr>
<td>CMT 1210</td>
<td>Residential Construction Materials &amp; Methods (3)</td>
</tr>
<tr>
<td>CMT 1310</td>
<td>Commercial Construction Materials &amp; Methods (3)</td>
</tr>
<tr>
<td>CMT 1500</td>
<td>Computer Applications in Construction (2)</td>
</tr>
<tr>
<td>CMT 2220</td>
<td>Construction Contracts &amp; Specs (3)</td>
</tr>
<tr>
<td>CMT 2330</td>
<td>Concrete Technology (3)</td>
</tr>
<tr>
<td>CMT 2340</td>
<td>Construction Surveying (2)</td>
</tr>
<tr>
<td>CMT 2360</td>
<td>Building Codes &amp; Inspection (2)</td>
</tr>
<tr>
<td>CMT 2640</td>
<td>Architectural Estimating (2)</td>
</tr>
<tr>
<td>CMT 2880</td>
<td>Internship (3)</td>
</tr>
<tr>
<td>CMT 3115</td>
<td>Construction Cost Estimating (3)</td>
</tr>
<tr>
<td>CMT 3130</td>
<td>Construction Planning &amp; Scheduling (3)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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</thead>
<tbody>
<tr>
<td>CMT 3210</td>
<td>Construction Management (3)</td>
</tr>
<tr>
<td>CMT 3260</td>
<td>Mechanical &amp; Electrical Systems (4)</td>
</tr>
<tr>
<td>CMT 3350</td>
<td>Applied Structures (4)</td>
</tr>
<tr>
<td>CMT 4120</td>
<td>Construction Accounting &amp; Finance (3)</td>
</tr>
<tr>
<td>CMT 4150</td>
<td>Construction Equipment &amp; Methods (3)</td>
</tr>
<tr>
<td>CMT 4550</td>
<td>Construction Safety (2)</td>
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<tr>
<td>CMT 4610/20</td>
<td>Senior Project (2/2)</td>
</tr>
<tr>
<td>CMT 4890</td>
<td>Practicum (2)</td>
</tr>
</tbody>
</table>

**Business Courses Required (21 credit hours)**

- ACTG 2010 Survey of Accounting I (3)
- ECON SS2010 Principles of Microeconomics (3)
- BSAD 3200 Legal Environment of Business (3)
- MGMT 3010 Organizational Behavior & Management (3)

Approved Business Electives from list below (9)

#### Approved Business Elective Courses

Select 9 hours from the following recommended courses (6 must be upper level):

- ECON SS2020 Principles of Macroeconomics (3)
- ECON 3400 Labor Economics (3)
- BSAD 3000 Small Business Management (3)
- BSAD 3330 Business Ethics (3)
- FIN 3200 Financial Management (3)
- FIN 3400 Real Estate Principles & Practices (3)
- MKTG 3010 Marketing Concepts & Practices (3)
- MKTG 3300 Human Resource Management (3)
- SST 1143 Fundamentals Selling Techniques (3)
- SST 3563 Principles of Supervision (3)
- SST 4102 Developing Team Leadership Skills (2)
- Advisor Approved Elective (3)

Students designing a minor in Business Administration should receive approval of their program by the Business Administration Department Chair.

#### Support Courses Required (23 credit hours)

- COMM HU2110 Interpersonal Communications (3)
- BTNY LS1403 Environment Appreciation (3)
- PHYS PS/SI2010 General Physics (5)
- MATH QL1080 Pre-calculus (5)
- GEO PS1060 Environmental Geosciences (3)
- GEO 1065 Environmental Geosciences Lab (1)
- GEO 4100 Engineering Geology (3)

#### Course Requirements for CMT B.S. Major with Business Administration Minor

**for Non-Business Majors**

Note: The Business Administration Minor requires an additional 9-10 hours of Business/Management courses with BS CMT degree. Be sure to consult with an advisor. Students pursuing a business administration minor must receive approval of the program by the Business Administration Department Chair. Check the college catalog for specific requirements.

#### Additional courses required to satisfy business minor requirements with CMT B.S. degree

- ECON 2020 Principles of Macroeconomics (3)
  *(satisfied with CMT Business Elective)*
- QUAN SI2600 Business Statistics I (3)
- QUAN SI3610 Business Statistics II (3)
- Business Electives - Business/Management/Finance/Marketing Electives (6)

Check the college catalog under BSAD for possible selections.

#### Suggested Course Sequence

Please refer to this program in the online catalog (weber.edu/catalog) and/or contact the department for a suggested course sequence.
CONSTRUCTION MANAGEMENT TECHNOLOGY

MINOR

- Grade Requirements: A grade of "C" or better in all courses used toward the minor (a grade of "C-" is not acceptable) in addition to an overall GPA of 2.50 or better in all CMT courses.
- Credit Hour Requirements: 21 total credit hours are required as listed below.

Advisement
The CMT Minor must be cleared with the CMT Program Coordinator. Call the CMT program secretary at 801-626-7761 to schedule an appointment.

Course Requirements for Minor

Construction Management Technology Courses Required (15 credit hours)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMT 1100</td>
<td>Construction Management Orientation</td>
<td>1</td>
</tr>
<tr>
<td>CMT 1150</td>
<td>Construction Graphics</td>
<td>3</td>
</tr>
<tr>
<td>CMT 1210</td>
<td>Residential Construction</td>
<td>3</td>
</tr>
<tr>
<td>CMT 1310</td>
<td>Commercial Construction</td>
<td>3</td>
</tr>
<tr>
<td>CMT 2220</td>
<td>Construction Contracts &amp; Specifications(3)</td>
<td>3</td>
</tr>
<tr>
<td>CMT 2360</td>
<td>Building Codes &amp; Inspection (2)</td>
<td></td>
</tr>
</tbody>
</table>

Recommended Electives (6 credit hours)

Select 6 hours from the following courses as approved by the CMT program coordinator.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMT 1500</td>
<td>Computer Applications in Construction</td>
<td>3</td>
</tr>
<tr>
<td>CMT 2330</td>
<td>Concrete Technology</td>
<td>3</td>
</tr>
<tr>
<td>CMT 2340</td>
<td>Construction Surveying</td>
<td>2</td>
</tr>
<tr>
<td>CMT 2640</td>
<td>Architectural Estimating</td>
<td>2</td>
</tr>
<tr>
<td>CMT 3115</td>
<td>Construction Cost Estimating</td>
<td>3</td>
</tr>
<tr>
<td>CMT 3130</td>
<td>Construction Planning &amp; Scheduling</td>
<td>3</td>
</tr>
<tr>
<td>CMT 3210</td>
<td>Construction Management</td>
<td>3</td>
</tr>
<tr>
<td>CMT 3260</td>
<td>Mechanical &amp; Electrical Systems</td>
<td>4</td>
</tr>
<tr>
<td>CMT 3350</td>
<td>Applied Structures</td>
<td>4</td>
</tr>
<tr>
<td>CMT 4120</td>
<td>Construction Accounting and Finance</td>
<td>3</td>
</tr>
<tr>
<td>CMT 4150</td>
<td>Construction Equipment &amp; Methods</td>
<td>3</td>
</tr>
<tr>
<td>CMT 4350</td>
<td>Construction Safety</td>
<td>2</td>
</tr>
</tbody>
</table>

PARSON CONSTRUCTION MANAGEMENT TECHNOLOGY COURSES - CMT

CMT 1100. Construction Management Orientation (1) F
This course provides an overview of the history of the U.S. construction industry with particular focus on the social, cultural, and economic trends, issues and events that impact and shape the industry and its occupations. The course is designed to help students develop a clearer focus on their educational and occupational goals. (Available online)

CMT 1150. Construction Graphics (3) F
Students will gain knowledge of and experience graphical communications as used in the construction industry. Includes print reading and interpretation of all architectural, electrical, and mechanical systems diagrams. Residential and commercial plans will be used. Prerequisite: CMT 1210 (can be taken concurrent).

CMT 1210. Residential Construction Materials and Methods (3) F
The purpose of this course is to provide students with knowledge of residential building techniques and materials. The course will examine common construction materials, components, and systems as related to wood frame structures. Applicable building codes are also discussed as they relate to various materials and the methods of construction for Utah. The residential construction process will be analyzed from site planning to finish construction. The course also includes editing related specifications and determining cost estimates. Site visits and a glossary project will be used to document the construction process as well as show practical applications of construction techniques. (Available online)

CMT 1310. Commercial Construction Materials & Methods (3) S
The purpose of this course is to provide students with knowledge of commercial building techniques and materials. Basic materials and installation methods for commercial construction are studied; which include Site-work, Concrete, Masonry, Metals, Curtain-walls, Finishes. Applicable building codes, written specifications, and cost estimating will be discussed as they relate to various construction methods. Students will build scale models or draw details of these construction methods, and make construction site visits to enhance their understanding of construction techniques. Prerequisite: CMT 1210. (Available online)

CMT 1500. Computer Applications in Construction (2) S
Computer applications used in the construction field will be examined in areas of cost estimating, project scheduling, CAD design, and construction management. Various software packages will be introduced and examined specifically to their application in the construction industry. Prerequisite: TBE TE1700. (Available online)

CMT 2220. Construction Contracts and Specifications (3) S
Students will gain knowledge in the legal aspects of contracts and bidding; types of construction documents including bonds; interpretation of technical building specifications and their application to selection and installation of materials, equipment and systems. The Construction Specification Institute Index System (CSI) data base will be used. Students will study contracts and specifications as supplied by architects, government agencies, and professional contracting organizations such as the AGC (Association of General Contractors), ABC (Associated Building Contractors), and the NAHB (National Association of Home Builders). (Available online)

CMT SL2330. Concrete Technology (3) S
The student will obtain knowledge of concrete, its physical and mechanical properties, and the design and control of the concrete mixes. They will also obtain knowledge in the various forming systems used in residential and commercial construction.

CMT 2340. Construction Surveying (2) S
The student will perform basic surveying operations necessary for the location, layout, and construction of a building. Interpretation of plot books, site plans, and topographic maps is included. Prerequisite: MATH QL1080 (or MATH QL1050 and MATH 1060). (Available online)

CMT 2360. Building Codes and Inspection (2) F
Familiarizes students with current building codes and zoning ordinances as they apply to the construction and use of buildings. Inspection procedures used to enforce codes are also discussed. (Available online)

CMT 2640. Architectural Estimating (2) S
Developing cost and material estimates of a building project. Involves manual and computer applications in working with architectural drawings and reference materials. Prerequisites: MATH 1010 or higher, CMT 1150, CMT 1310, and CMT 1500. (Available online)

CMT 2880. Internship (3) Su, F, S
Supervised work experience in the construction industry with placement and course objectives approved by the faculty supervisor. (Available online)
CMT 2899. Associate Degree Assessment (0)
This course is to serve as an assessment tool whereby all AAS degree seeking students in the College of Applied Science and Technology demonstrate their learned knowledge in at least three areas of Applied Technology study. At present, this knowledge will be demonstrated through the use of the Work Keys exams administered through the Campus Testing Center.

CMT 3115. Construction Cost Estimating (3) F
The student will learn the methods and procedures for estimating and bidding construction projects. Actual working drawings and specifications are used. The course will emphasize computer estimating, development of unit costs, and advanced estimating principles. Ethics as it relates to bidding will be discussed. Prerequisites: MATH QL1080 (or MATH QL1050 and MATH 1060) and CMT/DGET 2640.

CMT 3130. Construction Planning & Scheduling (3) S
This course will provide students with the fundamental skills necessary to plan and schedule the entire construction process and familiarize them with computer scheduling software packages. Students will learn to mix and match available resources in the most efficient combinations to complete projects on time and within budget. Prerequisite: MATH QL1080 (or MATH QL1050 and MATH 1060) and CMT 1500.

CMT 3210. Construction Management (3) F
This course focuses on the processes and tasks required for management of building projects. Students will study the skills necessary to successfully manage construction projects, including: record keeping and documentation, interpreting contracts and specifications, and other duties necessary for efficient project operation and successful completion. Ethics as it relates to project management and customer relations will be discussed. Prerequisite: CMT 2220.

CMT 3260. Mechanical and Electrical Systems (4) F
This course is designed to provide basic knowledge of electrical, plumbing, and HVAC systems used in residential and light commercial buildings. Emphasis is placed on advantages and disadvantages of various systems, and how their design and installation integrates into the management of the building process. Particular attention is given to soliciting and managing mechanical and electrical subcontractors. (Available online)

CMT 3350. Applied Structures (4) S
Students will evaluate the structural behavior of buildings and other engineered structures. Includes properties of materials and mechanics as it relates to the structural behavior of load resisting components. Students will learn how loads and stresses are determined and apply this information to the design and selection of structural components in residential and commercial buildings. Prerequisites: MATH QL1080 (or MATH QL1050 and MATH 1060) and PHYS PS/SI2100.

CMT 4120. Construction Accounting and Finance (3)F
Construction finance and accounting familiarizes students with construction finance, accounting, and cost control concepts, including: developing an overhead budget, analyzing financial statements, projecting cash flows, profit center analysis, taxes, depreciation, and pro forma development. Students will be introduced to computer accounting packages. Prerequisites: ACTG 2010, MATH QL1080 (or MATH QL1050 and MATH 1060), and CMT 1500.

CMT 4150. Construction Equipment and Methods (3) F
An overview of different types of equipment used in highway/heavy construction projects. Includes applications, performance criteria, selection, and economics. Prerequisite: MATH QL1080 (or MATH QL1050 and MATH 1060).

CMT 4550. Construction Safety (2) S
This course is designed to explain the Occupational Safety and Health Act and other federal/state legislation that applies to safety requirements and responsibilities of the construction management industry. Includes the development of a construction site safety program, analysis of costs and impact of accidents, standards for accident prevention, and responsibility for compliance.

CMT 4610/4620. Senior Project (2/2) F, S
Capstone project which spans two consecutive semesters and student's senior year. The application of skills, knowledge, techniques and concepts to an actual project or construction company. Emphasis on integrated project management, including; estimating and bidding, project organization and control, and documentation. Prerequisite: Senior standing and approval of instructor.

CMT 4830. Directed Studies (1-3) Su, F, S
The student will receive credit for approved studies in an area not covered in the CMT program. Credit and time determined by the student and faculty advisor. Prerequisite: Junior or Senior standing and consent of instructor.

CMT 4800. Individual Projects and Research (1-3) Su, F, S
Individual research or projects in Construction Management Technology. Credit and time determined by the student and faculty advisor. Prerequisite: Junior or Senior standing and consent of instructor.

CMT 4890. Practicum (2) Su, F, S
Supervised work experience in the construction industry with placement and course objectives approved by the faculty supervisor. This course can be used to help the student satisfy the CMT program requirement of 800 hours of approved supervised work experience. Should be taken during the final two semesters. Prerequisite: Senior standing and consent of instructor. (Available online)

CMT 4920. Short Courses, Workshops, Institutes, and Special Programs (.5-4) Su, F, S
Consult the semester class schedule for the current offering under this number. The specific title and credit authorized for the particular offering will appear on the student transcript. Can be repeated for credit. Prerequisite: Junior or Senior standing and consent of instructor.

Design Graphics Engineering Technology

Location: Engineering Technology Building, Room 214
Telephone Contact: Wendy Reeves, 801-626-6305
E-Mail: designgraphics@weber.edu
Advisors: Ingrid Allen, Keith Allred, Larry Leavitt

The Design Graphics Engineering Technology program prepares students to develop engineering and architectural drawings and models, technical manuals, reports, presentations, training textbooks, technical illustrations, interactive multimedia, and animations for industry. The students will develop their graphical skills, techniques, concepts, and management skills through exercises and projects. They will work in mechanical, electrical, architectural, structural, and overall project management areas. The students will use calculators, computers, handbooks, and engineering reference materials while applying various mathematical concepts from geometry, algebra, and trigonometry.
DESIGN GRAPHICS ENGINEERING TECHNOLOGY

ASSOCIATE OF APPLIED SCIENCE DEGREE (A.A.S.)

- **Grade Requirements:** A grade of C or better in all DGET courses (a grade of "C-" is not acceptable) in addition to an overall GPA for all courses of 2.00 or higher.

- **Credit Hour Requirements:** 66 total hours are required – 29 of which are required within the Design Graphics Engineering Technology A.A.S. program.

- **Assessment Requirements:** Students will be required to complete certain assessment instruments as part of the overall requirements for receiving their associate’s degree. Please see your advisor or your department for specific information regarding assessment.

**Advisement**

All Design Graphics Engineering Technology students are required to meet with a faculty advisor at least annually for course and program advisement. Call 801-626-6305 for more information or to schedule an appointment. Advisement may also be obtained in Engineering Technology, room 214.

**Admission Requirements**

Declare your program of study (see page 18). There are no special admission or application requirements for this program.

**General Education**

Refer to pages 36-41 for Associate of Applied Science requirements. Computer and Information Literacy as defined in this catalog is also required for the A.A.S. degree.

**Course Requirements for A.A.S. Degree**

**Design Graphics Engineering Technology**

**Courses Required (29 credit hours)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>DGET 1050</td>
<td>Basic Drafting (3)</td>
</tr>
<tr>
<td>DGET 1150</td>
<td>Blue Print Reading (5)</td>
</tr>
<tr>
<td>DGET 1250</td>
<td>Computer Aided Drafting (3)</td>
</tr>
<tr>
<td>DGET 1260</td>
<td>3D Computer Aided Drafting (3) (3)</td>
</tr>
<tr>
<td>DGET 1350</td>
<td>Basic Architectural Drafting (3)</td>
</tr>
<tr>
<td>DGET 2350</td>
<td>Advanced Architectural Drafting (4)</td>
</tr>
<tr>
<td>DGET 2440</td>
<td>Descriptive Geometry (2)</td>
</tr>
<tr>
<td>DGET 2450</td>
<td>Geometric Dimensioning &amp; Tolerancing (2)</td>
</tr>
<tr>
<td>DGET 2650</td>
<td>Advanced Mechanical Drafting &amp; Design (3)</td>
</tr>
<tr>
<td>DGET 2660</td>
<td>Structural Detailing (3)</td>
</tr>
<tr>
<td>DGET 2899</td>
<td>Associate Degree Assessment (0)</td>
</tr>
<tr>
<td>MFET 2050</td>
<td>Machining Principles I (3)</td>
</tr>
<tr>
<td>MFET 2360</td>
<td>Manufacturing Processes and Materials (3)</td>
</tr>
<tr>
<td>MFET 2410</td>
<td>Quality Assurance and Improvement (3)</td>
</tr>
<tr>
<td>MFET 3260</td>
<td>Technical Processes and Materials (3)</td>
</tr>
<tr>
<td>MFET 3280</td>
<td>Quality Assurance and Improvement (3)</td>
</tr>
</tbody>
</table>

**Technical Courses Required (9 credit hours)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MFET 1210</td>
<td>Machining Principles I (3)</td>
</tr>
<tr>
<td>MFET 2360</td>
<td>Manufacturing Processes and Materials (3)</td>
</tr>
<tr>
<td>MFET 2410</td>
<td>Quality Assurance and Improvement (3)</td>
</tr>
</tbody>
</table>

**Support Courses Required (22 credit hours)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL EN1010</td>
<td>Intro to Writing (3)</td>
</tr>
<tr>
<td>ENGL EN2010</td>
<td>Intermediate Writing (3)</td>
</tr>
<tr>
<td>COMM HU2110</td>
<td>Intro to Interpersonal &amp; Small Group Communication (3)</td>
</tr>
<tr>
<td>MATH QL1600</td>
<td>Pre-Calculus (5)</td>
</tr>
<tr>
<td>MATH QL1610</td>
<td>College Algebra (4)</td>
</tr>
<tr>
<td>MATH 1060</td>
<td>Trigonometry (3)</td>
</tr>
<tr>
<td>PHYS PS/SI2010</td>
<td>College Physics I with lab (5)</td>
</tr>
<tr>
<td>TBE TE1700</td>
<td>Intro to Microcomputer Applications (3)</td>
</tr>
</tbody>
</table>

**Suggested Course Sequence**

Please refer to this program in the online catalog (weber.edu/catalog) and/or contact the department for a suggested course sequence.

DESIGN GRAPHICS ENGINEERING TECHNOLOGY

BACHELOR OF SCIENCE DEGREE (B.S.)

- **Program Prerequisite:** A.A.S. degree in Design Graphics Engineering Technology from Weber State University or equivalent degree or coursework from an accredited A.A.S. program.

- **Minor:** Not required.

- **Grade Requirements:** A grade of "C" or better in all DGET courses is required (a grade of "C-" is not acceptable) in addition to an overall GPA for all courses of 2.50 or higher. Also refer to the general grade requirements for graduation on page 36.

- **Credit Hour Requirements:** A total of 126 credit hours is required for graduation. A total of 40 upper division credit hours is required (courses numbered 3000 and above.)

**Advisement**

All four-year design graphics engineering technology students are required to meet at least annually with a faculty advisor for course and program advisement. Call 801-626-6305 for more information or to schedule an appointment. Advisement may also be obtained in Engineering Technology, room 214.

**Admission Requirements**

Declare your program of study (see page 18). Refer to the Program Prerequisite above. There are no additional special admission or application requirements for this program.

**General Education**

Refer to pages 36-41 for Bachelor of Science requirements. TBE TE1700, Microcomputer Applications, will fill the Computer Literacy requirement and COMM HU2110 will fulfill both program and general education requirements.

**Course Requirements for B.S. Degree**

To be taken in addition to the requirements for the A.A.S. degree in Design Graphics Engineering Technology.

**Design Graphics Engineering Technology**

**Courses Required (34 credit hours)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>DGET 3100</td>
<td>Tool Design (3)</td>
</tr>
<tr>
<td>DGET 3300</td>
<td>Graphical Kinematics &amp; Animation (3)</td>
</tr>
<tr>
<td>DGET 3400</td>
<td>Technical Illustration &amp; Documentation I (3)</td>
</tr>
<tr>
<td>DGET 3470</td>
<td>Applications in CAD (3)</td>
</tr>
<tr>
<td>DGET 3640</td>
<td>Cost Estimation &amp; Control (3)</td>
</tr>
<tr>
<td>DGET 4350</td>
<td>Architectural Design (3)</td>
</tr>
<tr>
<td>DGET 4400</td>
<td>Technical Illustration &amp; Documentation II (3)</td>
</tr>
<tr>
<td>DGET 4470</td>
<td>Advanced 3D CAD Modeling (3)</td>
</tr>
<tr>
<td>DGET 4500</td>
<td>Pneumatic, Electrical &amp; Hydraulic Applications (3)</td>
</tr>
<tr>
<td>DGET 4600</td>
<td>Senior Project (2)</td>
</tr>
<tr>
<td>DGET 4610</td>
<td>Senior Project (2)</td>
</tr>
<tr>
<td>DGET 4900</td>
<td>Computer and Design Graphics</td>
</tr>
<tr>
<td>DGET 4890</td>
<td>Cooperative Work Exp (1-5)</td>
</tr>
</tbody>
</table>

**Support Courses Required (10 credit hours)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MFET 2300</td>
<td>Statics &amp; Strength of Materials (5)</td>
</tr>
<tr>
<td>MFET 3320</td>
<td>Machine Design (2)</td>
</tr>
<tr>
<td>MFET 3550</td>
<td>Supervision Principles (3)</td>
</tr>
</tbody>
</table>

**Suggested Course Sequence**

Please refer to this program in the online catalog (weber.edu/catalog) and/or contact the department for a suggested course sequence.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
<th>Prerequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>DGET 1050</td>
<td>Basic Drafting</td>
<td>3</td>
<td>DGET 1250 and MFET 1210.</td>
</tr>
<tr>
<td>DGET 1150</td>
<td>Blueprint Reading</td>
<td>3</td>
<td>DGET 1250.</td>
</tr>
<tr>
<td>DGET 1250</td>
<td>Computer Aided Drafting</td>
<td>3</td>
<td>DGET 1050 or equivalent.</td>
</tr>
<tr>
<td>DGET 1260</td>
<td>3D Computer Aided Drafting</td>
<td>3</td>
<td>DGET 1150 and 1250.</td>
</tr>
<tr>
<td>DGET 1340</td>
<td>Architectural Drafting for Interior Design</td>
<td>3</td>
<td>DGET 1250 and 1260.</td>
</tr>
<tr>
<td>DGET 1350</td>
<td>Basic Architectural Drafting</td>
<td>3</td>
<td>DGET 1050 and DGET 1250.</td>
</tr>
<tr>
<td>DGET 1890</td>
<td>Cooperative Work Experience</td>
<td>1-3</td>
<td>Open to all advanced students in Design Graphics Engineering Technology.</td>
</tr>
<tr>
<td>DGET 2350</td>
<td>Advanced Architectural Drafting</td>
<td>4</td>
<td>DGET 1260.</td>
</tr>
<tr>
<td>DGET 2440</td>
<td>Descriptive Geometry</td>
<td>2</td>
<td>DGET 1350.</td>
</tr>
<tr>
<td>DGET 2450</td>
<td>Geometric Dimensioning and Tolerancing</td>
<td>2</td>
<td>DGET 1250 and MFET 1210.</td>
</tr>
<tr>
<td>DGET 2640</td>
<td>Architectural Estimating</td>
<td>2</td>
<td>DGET 1010 or higher, DGET 1350 or CMT 1150, CMT 1310, and CMT 1500. (Available online)</td>
</tr>
<tr>
<td>DGET 2650</td>
<td>Advanced Mechanical Drafting and Design</td>
<td>3</td>
<td>DGET 1260 and DGET 2450.</td>
</tr>
<tr>
<td>DGET 2660</td>
<td>Structural Detailing</td>
<td>3</td>
<td>DGET 1260 and DGET 2450.</td>
</tr>
<tr>
<td>DGET 2830</td>
<td>Directed Readings</td>
<td>1-3</td>
<td>Open to art and design students.</td>
</tr>
<tr>
<td>DGET 2880</td>
<td>Cooperative Work Experience</td>
<td>1-3</td>
<td>Open to all advanced students in Design Graphics Engineering Technology.</td>
</tr>
<tr>
<td>DGET 2920</td>
<td>Short Courses, Workshops, Institutes and Special Programs</td>
<td>1-4</td>
<td>Faculty approval required.</td>
</tr>
<tr>
<td>DGET 2930</td>
<td>Directed Readings</td>
<td>1-3</td>
<td>Open to all advanced students in Design Graphics Engineering Technology.</td>
</tr>
<tr>
<td>DGET 2940</td>
<td>Advanced Architectural Drafting</td>
<td>4</td>
<td>DGET 1260.</td>
</tr>
<tr>
<td>DGET 2950</td>
<td>Geometric Dimensioning and Tolerancing</td>
<td>2</td>
<td>DGET 1250 and MFET 1210.</td>
</tr>
<tr>
<td>DGET 2960</td>
<td>Technical Illustration and Documentation</td>
<td>1</td>
<td>DGET 1260 and DGET 2350.</td>
</tr>
</tbody>
</table>
DGET 3470. Applications in CAD (3) F, S
Use of 2D and 3D modeling to prepare engineering documentation and model analysis for manufacturing. Course uses commercially available software. Students will complete a series of laboratory assignments and term projects in an open lab environment. Prerequisites: TBE TE1700 and DGET 1250.

DGET 3640. Cost Estimating and Control (3) S
Project management and cost structure, including cost of engineering, CAD systems, marketing, production and inventory. Calculate break even analysis, make/buy decisions and capital equipment justifications. Computer aids will be used to analyze data. Prerequisites: MATH QL1080 (or MATH QL1050 and MATH 1060) and TBE TE1700.

DGET 3890. Cooperative Work Experience (1-3) Su, F, S
Open to all advanced students in Design Graphics Engineering Technology. Department approval required before registration. Provides academic credit for on-the-job experience. Grade and amount of credit will be determined by the department.

DGET 4350. Architectural Design 3D (3) F
An advanced CAD course dealing with presentation graphics and the use of 3-D CAD in creating models of houses and small commercial structures. Includes applying surfaces, rendering, creating walkthroughs, and the generation of complete documentation drawings. Prerequisites: DGET 2350 and DGET 2660.

DGET 4400. Technical Illustration and Documentation II (3) F
The study of professional design presentation and the processes, tools, and media used. Problem definition, visual organization, incorporating visual identity, integrating word and image, information design and design for interactive media. Prerequisites: DGET 3300 and DGET 3400.

DGET 4470. Advanced 3D CAD Modeling (3) S
An advanced CAD course featuring 3-D parametric modeling using commercially available software. Studies in parametric design and design intent, applying surfaces, rendering, and creating animated presentations. Prerequisite: DGET 3470.

DGET 4500. Pneumatics, Electrical and Hydraulic Applications (3) S
Examines the components of pneumatics, electrical and hydraulic systems, including a detailed study of each type of system and the integration of all components required for machine design. The symbols used to document pneumatics, electrical and hydraulic systems and the selection of components from vendor catalogs will be included in the detailing of a complete machine. Prerequisite: MFET 3320.

DGET 4600, 4610. Senior Project (2-2) F, S
A Capstone project spanning two consecutive semesters. The project includes application of skills, knowledge, techniques and concepts to the design and manufacturing project. Emphasis placed on integrated project management including preparation of drawings, creation of presentations, project organization and control, and documentation. Prerequisite: Senior standing and approval of the department. A student must apply for senior project before March 1 of the previous year.

DGET 4830. Directed Readings (1-3) Su, F, S
Directed readings in Design Graphics Engineering Technology including mechanical and architectural areas. Must have department approval.

DGET 4890. Cooperative Work Experience (1-3) Su, F, S
Open to all advanced students in Design Graphics Engineering Technology. Department approval required before registration.
taken college preparatory mathematics and physical science courses in high school. The standard entry level mathematics course for pre-engineering majors is MATH 1210 Calculus I. The prerequisite for MATH 1210 is MATH QL1080 Pre-calculus, or MATH QL1050 College Algebra plus MATH 1060 Trigonometry, or placement through examination. Students who are not ready to take MATH 1210 upon entering the Pre-Engineering program should consult with the Pre-Engineering coordinator, who will recommend remedial courses that will prepare the student for calculus, physics and engineering courses.

**Course Requirements for A.P.E. Degree**

**General Education Core Requirements (18 credit hours)**

1. Composition (6 credit hours)
   - ENGL EN1010 Introduction to Writing (3)
   - ENGL EN2010 Intermediate Writing (3)
2. American Institutions (3 credit hours)
   - HIST AI1700 American National Government (3) or
   - POLS AI1100 American National Government (3) or
   - ECON AI1740 Economic History of the United States (3)
3. Computer and Information Literacy (2 to 5 credit hours)
   - Refer to the Computer and Information Literacy requirements listed under the General Requirements section of this catalog. The credit hours for this requirement do not count toward the 60 credit hour total for this degree.
4. General Education Breadth Requirements (9 credit hours)
   - Select 9 credit hours – 3 credit hours from Humanities (HU), 3 credit hours from Creative Arts (CA) and 3 credit hours from Social Sciences (SS) (a list of courses for each area appears under the General Education section of this catalog).

**Pre-Engineering Core Requirements (20 credit hours)**

- ENGR 1000 Introduction to Engineering (2)
- MATH SI1210 Calculus I (4)
- MATH SI1220 Calculus II (4)
- PHYS PS/SI2210/L Physics for Sci & Eng (w/lab) (5)
- PHYS SI2220/L Physics for Sci & Eng II (w/lab) (5)

**Engineering Specialty Courses (22 credit hours minimum)**

Engineering specialty courses are those that are required for specific engineering disciplines at the receiving universities. With the assistance of the Pre-Engineering coordinator, students should take courses that apply to their particular engineering major at the university to which they plan to transfer. The specialty courses listed below apply generally to the primary engineering disciplines, but do not constitute a list of specific course requirements for that discipline at any particular receiving university. Engineering specialty course requirements for the University of Utah and Utah State University may be obtained from the Pre-Engineering coordinator or the applicable engineering department at these institutions.

**Biological and Biomedical Engineering**

- MATH 2210 Calculus III (4)
- MATH 2250 Linear Algebra & Differential Equations (4)
- MATH 3410 Probability and Statistics (3)
- CHEM PS/SI1210 Principles of Chemistry I (5)
- CHEM SI1220 Principles of Chemistry II (5)
- CHEM 2310 Organic Chemistry I (5)
- CHEM 2320 Organic Chemistry II (5)
- CHEM 3070 Biochemistry I (4)
- ENGR 2210 Electrical Engineering for Non-majors (4)
- ENGR 2010 Statics (3)
- ENGR 2080 Dynamics (4)
- MICR LS/SI2054 Principles of Microbiology (4)
- DGET 1250 Computer-Aided Drafting (3)

**Chemical Engineering**

- MATH 2210 Calculus III (4)
- MATH 2250 Linear Algebra & Differential Equations (4)
- CHEM PS/SI1210 Principles of Chemistry I (5)
- CHEM SI1220 Principles of Chemistry II (5)
- CHEM 2310 Organic Chemistry I (5)
- ENGR 2010 Statics (3)
- ENGR 2140 Strength of Materials (3)
- ENGR 2300 Thermodynamics I (3)

**Civil and Environmental Engineering**

- MATH 2210 Calculus III (4)
- MATH 2250 Linear Algebra & Differential Equations (4)
- CHEM PS/SI1210 Principles of Chemistry I (5)
- CHEM SI1220 Principles of Chemistry II (5)
- PHYS 2300 Scientific Computing with C++ & Fortran (3)
- ENGR 2010 Statics (3)
- ENGR 2080 Dynamics (4)
- ENGR 2140 Strength of Materials (3)
- ENGR 2160 Materials Science and Engineering (3)
- ENGR 2300 Thermodynamics I (3)
- MICR LS/SI2054 Principles of Microbiology (4)
- GEO PS/SI1110 Dynamic Earth: Physical Geology (3)
- & GEO SI1115 Physical Geology Lab (1)
- DGET 1250 Computer-Aided Drafting (3)

**Electrical and Computer Engineering**

- MATH 2210 Calculus III (4)
- MATH 2250 Linear Algebra & Differential Equations (4)
- CHEM PS/SI1210 Principles of Chemistry I (5)
- MATH 3410 Probability and Statistics (3)
- ENGR 2270 Electrical Circuits (5)
- ENGR 2700 Digital Circuits (4)
- CS 1030 Foundations of Computer Science (4)
- CS SI1023 Selected Programming Language (4)
- CS SI1400 Fundamentals of Programming (4)

**Mechanical Engineering**

- MATH 2210 Calculus III (4)
- MATH 2250 Linear Algebra & Differential Equations (4)
- CHEM PS/SI1210 Principles of Chemistry I (5)
- PHYS 2300 Scientific Computing with C++ & Fortran (3)
- ENGR 2210 Electrical Engineering for Non-majors (4)
- ENGR 2010 Statics (3)
- ENGR 2080 Dynamics (4)
- ENGR 2140 Strength of Materials (3)
- ENGR 2160 Materials Science and Engineering (3)
- ENGR 2300 Thermodynamics I (3)

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**PRE-ENGINEERING COURSES - ENGR**

**ENGR 1000. Introduction to Engineering (2) F**
Introduction to engineering for students in the pre-engineering program. Engineering as a profession and career opportunities. Fundamentals of engineering design and analysis using the computer. Prerequisite: MATH QL1080 or concurrent enrollment in MATH 1060.

**ENGR 2010. Statics (3) F**
Vector mechanics, force and moment systems, equilibrium of particles and rigid bodies, friction and moments of inertia. Prerequisites: MATH SI1210 and PHYS PS/SI2210.

**ENGR 2080. Dynamics (4) S**
Fundamentals of position, velocity and acceleration. Kinematics and mechanics of particles. Newton’s laws, conservation of momentum and energy. Dynamics of rigid bodies. Prerequisite: ENGR 2010 with a grade of "C" or higher.

**ENGR 2140. Strength of Materials (3) S**
Fundamentals of stress and strain, Hooke’s law, torsion, bending of beams, combined stresses and design of members. Prerequisite: ENGR 2010 with a grade of "C" or higher.
ENGR 2160. Materials Science and Engineering (3)  
Combined lecture/laboratory course that introduces the fundamen-
tials of atomic and microscopic structure of metals, polymers,
ceramics and composite materials, and how these structures affect
mechanical, thermal, electrical and optical properties. Prerequisite:
CHEM PS/SI1210. Co-requisite: ENGR 2140.

ENGR 2210. Electrical Engineering for Non-majors (4) S  
Combined lecture/laboratory course as an introduction to electrical
engineering for non-electrical engineers. Fundamentals of DC and
AC circuits, digital circuits, and power circuits. Prerequisite: MATH
SI1210.

ENGR 2270. Electrical Circuits (5) S  
Ohm's law, Kirchhoff's laws and network theorems. Power in DC and
AC circuits, LRC circuits and Fourier analysis of functions. Prerequisites:
MATH SI1120 and PHYS SI2210.

ENGR 2300. Thermodynamics I (3) F  
Thermodynamic properties, equations of state, first and second laws
of thermodynamics. Analysis of open and closed systems, availabil-
ity and irreversibility, power and refrigeration cycles. Prerequisites:
MATH SI1120 and PHYS SI2210.

ENGR 2700. Digital Circuits (4) F  
Combined lecture/laboratory course that introduces the fundamen-
tals of digital circuits; e.g., number systems, codes, combinational
logic, etc.

ENGR 2920. Short Courses, Workshops,  
Institutes and Special Programs (1-4)  
Consult the class schedule for the current offering under this
number. The specific title and credit authorized will appear on the
student transcript.

**SALES AND SERVICE TECHNOLOGY**

Chair: Mr. Vel S. Casler  
Location: Technical Education Building, Room 101  
Telephone Contact: Cheryl Ewart 801-626-6913  
Professors: Desiree Cooper Larsen, Richard K. DeMoss, Carl L.
Grunander, C. Daniel Litchford, Lloyd Ott, Jan Slabaugh;  
Associate Professors: Vel S. Casler, John Cline, Rick L. Dove,
Steven Eichmeier; Assistant Professor: John Kelly, Steven
Stuart; Instructor Specialists: Shauna Morris; Instructors:  
Roger Crockett, Joseph Grundvig, Ben Shekar

The Department of Sales and Service Technology offers an associate of applied science degree in the areas of Automotive Service Technology, Interior Design Technology, and Sales & Merchandising Technology, and bachelor of degrees in automotive Technology and Technical Science.

**AUTOMOTIVE SERVICE TECHNOLOGY**

Program Manager: John Kelly  
Faculty: John Cline, Roger Crockett, Richard K. DeMoss,
Joseph Grundvig, Ben Shekar and Steven Stuart  
Program Coordinator: Lisa Burr, 801-626-7350  
Secretary: Lora Kelley 801-626-6579

Automotive Service Technology is a program offered under the Department of Sales & Service Technology. Automotive Service Technology is the field of study dealing with diagnosis, service, and repair of automobiles and light trucks. Lab and classroom courses are oriented toward high levels of technical understanding, current developments such as electronic control systems and environmental issues, the development of the students' diagnostic capabilities, and proficiency with recommended service procedures. In addition to specific technical training, supporting courses provide for growth of interpersonal and other skills needed to advance within the automotive service industry.

There are seven options available under the Automotive Service Technology Associate of Applied Science degree.

- DaimlerChrysler CAP is a program with technical coverage special-
ing exclusively in current DaimlerChrysler products.
- General Motors ASE 6 is a program with technical coverage special-
ing exclusively in current General Motors products.
- BSEP is a Collision Repair Program with emphasis on environ-
mental and safety topics. I-CAR based curriculum for all major
manufacturers.
- Honda PACT is a program with technical coverage specializing
exclusively in current Honda and Acura products.
- Toyota T-TEN is a program with technical coverage specializing
exclusively in current Toyota and Lexus products.
- ATEP is a comprehensive program covering all major manufac-
turer's products.
- Heavy Duty Truck Technology is an articulated program with
Davis Applied Technology Center, specializing in current Mack
and Volvo White products.

The Automotive Service Technology degree programs are fully accredited by the National Automotive Technicians Education Foundation (NATEF). Partnerships with four of the world's largest automotive corporations, DaimlerChrysler, General Motors, Honda and Toyota assure direct access to state-of-the-art automotive technology. Although it is normally advantageous to complete one of the specified options, a student may elect to take an individual course or courses to meet their particular needs.

To assure optimum functioning, individual program options
may have limited enrollment. See department for details.

In addition to the above degree options, the Automotive pro-
gram also has the following manufacturer's training centers located
on campus allowing faculty and students access to the latest equip-
ment, data, and vehicles.

**DaimlerChrysler Training Center**  
Coordinator: John Kelly  
Advisor: Robert Wilkes

The DaimlerChrysler Training Center provides short, current
product information courses for DaimlerChrysler technicians
and service management personnel throughout Utah and several
western states. The Center's resources are shared with a broader
automotive community through activities such as automotive
faculty development workshops.

**General Motors Training Center**  
Coordinator: John Kelly  
Advisor: Joseph Grundvig

The General Motors Training Center provides short, current
product information courses for GM technicians and service man-
agement personnel throughout Utah and several western states.
The Center's resources are shared with a broader automotive community through activities such as automotive faculty development workshops.

**Toyota Training Center**  
Coordinator: John Kelly  
Advisor: Lorin Munsee

The Toyota Training Center provides short, current product
information courses for Toyota technicians and service manage-
ment personnel throughout Utah and several western states. The
Center's resources are shared with a broader automotive community through activities such as automotive faculty development workshops.

**Honda PACT**

**BSEP** is a Collision Repair Program with emphasis on environ-
mental and safety topics. I-CAR based curriculum for all major
manufacturers.

**Acura**

**European**

**Volvo**
personnel throughout Utah and several western states. The Center’s resources are shared with a broader automotive community through activities such as automotive faculty development workshops.

The Center for Automotive Science and Technology at Weber State University

Advisors: Charles Gee and Joe Thomas

The center for Automotive Science and Technology is a partnership of education, industry and government entities formed to provide applied research, education and training in a variety of areas. These include vehicle emissions, on-board diagnostics, fuels and vehicle safety all of which are of interest to the academic, regulatory and private sectors. The Center offers various services for automotive inspection and maintenance technicians, repair technicians, instructors, students regulatory officials and field engineers.

AUTOMOTIVE SERVICE TECHNOLOGY

ASSOCIATE OF APPLIED SCIENCE DEGREE (A.A.S.)

Program Manager: John Kelly, 801-626-7183

Program Coordinator for the ASEP, BSEP, CAP, PACT, and T-Ten Programs: Lisa Burr, 801-626-7350

Program Coordinator for the ATEP Program: Steven Stuart, 801-626-6903

Program Coordinator for the HD-Track Program: Roger Crockett, 801-626-7511

» Program Prerequisite: An interview with the program coordinator or advisor in the desired option is necessary prior to acceptance into the program.

» Grade Requirements: An overall GPA of 2.00 or “C.”

» Credit Hour Requirements: A total of 63 credit hours is required except for the Heavy Duty Truck option which requires a total of 68 credit hours.

» Assessment Requirements: Students will be required to complete certain assessment instruments as part of the overall requirements for receiving their associate's degree. Please see the program coordinator or your advisor or your department for specific information regarding assessment.

Advisement

Automotive Service students should meet each semester with the program coordinator or faculty advisor for their specific option for advisement. Call 801-626-6579 for more information or to schedule an appointment.

Admission Requirements

Declare your program of study (see page 18) and meet with your specific program coordinator or faculty advisor.

National Institute for Automotive Service Excellence (ASE) Certification Requirement

Automotive Services students are required to take all eight automotive ASE exams. The student must pass at least four of the eight exams to qualify for graduation. See www.asecert.org for testing information. ASE exam fees are included in the student fees for each course. Exams will be taken twice per year at the end of each semester. Only BSEP and Heavy Duty Truck Technology students will be exempt from this requirement.

General Education

Refer to pages 36-41 for Associate of Applied Science requirements. The following general education courses are required for this degree: CHEM PS1010 (3) or CHEM PS/SI1110 (5), COMM

HU2110 (3), and a Social Science course (3). Computer Literacy as defined in this catalog is also required for the A.A.S. degree.

Course Requirements for A.A.S. Degree

Automotive Service Courses Required for All Options

(8 credit hours)

AUSV 1000 Introduction to Automotive Service (3)
AUSV 1100 Principles of Technology (3)
AUSV 1300 Technical Mathematics (3)
or MATH QL1030 Contemporary Mathematics (3)
AUSV 2899 Associate Degree Assessment (0)

Support Courses Required for All Options (9 credit hours)

ENGL EN1010 Intro to Writing (3)
TBE TE1700 Intro to Microcomputer Applications (3)
SST 3203 Customer Service Techniques (3)

Elective Course (3 credit hours)

Choose one of the following

BSAD 3000 Small Business Management (3)
SST 3363 Contract & Sales Negotiation Techniques (3)
SST 4203 Ethical Sales and Service (3)

OPTION REQUIREMENTS

Select one of the following options

(see the option coordinator for a suggested course sequence):

DAIMLERCHRYSLER CAP OPTION

Program Coordinator: Lisa Burr, 801-626-7350

Automotive Service Courses Required (34 credit hours)

AUSV 1050 DaimlerChrysler Braking, Steering, Suspension & Climate Control Systems (8)
or AUSV 1051, AUSV 1052 and AUSV 2350
AUSV 1250 DaimlerChrysler Manual Drivetrain Systems (3)
AUSV SI1355 DaimlerChrysler Electronics, Electrical and Body Control Systems (7)
AUSV 2550 DaimlerChrysler Automatic Transmissions (4)
AUSV 2655 DaimlerChrysler Engine Mechanical and Engine Control Systems (6)
or AUSV 1150 and AUSV 2050
AUSV 2880 Cooperative Practicum (6)

GENERAL MOTORS ASEP OPTION

Program Coordinator: Lisa Burr, 801-626-7350

Automotive Service Courses Required (34 credit hours)

AUSV 1040 General Motors Braking, Steering, Suspension and Climate Control Systems (8)
or AUSV 1041, AUSV 1042 and AUSV 2340
AUSV 1240 General Motors Manual Drivetrain Systems (3)
AUSV SI1345 General Motors Electronics, Electrical and Body Control Systems (7)
AUSV 2540 General Motors Automatic Transmissions (4)
AUSV 2645 General Motors Engine Mechanical and Engine Control Systems (6)
or AUSV 1140 and AUSV 2040
AUSV 2880 Cooperative Practicum (6)

BSEP OPTION

Program Coordinator: Lisa Burr, 801-626-7350

Automotive Service Courses Required (32 credit hours)

AUSV 1020 Braking, Steering, Suspension, and Climate Control Systems (8)
or AUSV 1021, AUSV 1022 and AUSV 2320
AUSV 1080 Non-Structural Analysis and Damage Repair (4)
AUTOMOTIVE SERVICE COURSES REQUIRED

AUSV 1180  Structural Analysis and Damage Repair (4)
AUSV SI1320  Automotive Electronics (4)
AUSV 2080  Painting and Refinishing (4)
AUSV 2480  Auto Body Business Practices (2)
AUSV 2880  Cooperative Practicum (6)

AUTOMOTIVE TECHNOLOGY COURSE REQUIRED (2 CREDIT HOURS)
AUSV 3020  Intro to Hazardous Materials (2)

HEAVY DUTY TRUCK OPTION

Program Coordinator: Lisa Burr, 801-626-7350

Automotive Service Courses Required (44 credit hours)

AUSV 1170  Heavy Duty Truck Brakes (8)
AUSV 1172  Heavy Duty Truck Steering & Suspension (3)
AUSV 1175  Heavy Duty Truck Engines (5)
AUSV 1270  Heavy Duty Truck Drive Mechanism (8)
AUSV 1321/1322  Specialized Electricity/Electronics (2/2)
AUSV 2170  Heavy Duty Truck Electrical Systems (3)
AUSV 2270  Heavy Duty Truck Engine Diagnosis (3)
AUSV 2370  Heavy Duty Truck Air Conditioning (2)
AUSV 2880  Cooperative Practicum (14)

AUSV 1000. Introduction to Automotive Service (3)
An introduction to automotive shop safety, pollution prevention, hazardous waste handling, Internet-based electronic service information, diagnostic scan tools, ASE certifications, safety inspection certifications, emissions inspection certifications, developing job interview skills, and resume writing. (This course is a prerequisite for all automotive service courses.)

AUSV 1020. Braking, Steering, Suspension, and Climate Control Systems (8)
Theory, operation, diagnosis and repair of braking, steering, and suspension systems. The use of electronic service information, the proper diagnostic process, and proper diagnostic service tools is emphasized. (AUSV 1020 is equivalent to AUSV 1021, AUSV 1022, and AUSV 1023.) Prerequisites: AUSV 1000, AUSV SI1325.

AUSV 1021. Automotive Braking Systems (3)
Theory, operation, diagnosis, and repair of braking systems. (AUSV 1021, AUSV 1022, and AUSV 1023 are equivalent to AUSV 1000, AUSV 1020.)

AUSV 1022. Steering and Suspension Systems (2)
Theory, operation, diagnosis, and repair of steering and suspension systems. (AUSV 1021, AUSV 1022, and AUSV 1023 are equivalent to AUSV 1000, AUSV 1020.)

AUSV 1030. Honda Braking, Steering, Suspension, and Climate Control Systems (8)
Theory, operation, diagnosis, and repair of Honda steering and suspension systems. (AUSV 1030 is equivalent to AUSV 1031, AUSV 1032, and AUSV 1033.) Prerequisite: AUSV 1000.

AUSV 1031. Honda Braking Systems (3)
Theory, operation, diagnosis, and repair of Honda braking systems. (AUSV 1030 is equivalent to AUSV 1031, AUSV 1032, and AUSV 1033.) Prerequisite: AUSV 1000.

AUSV 1032. Honda Steering and Suspension Systems (2)
Theory, operation, diagnosis, and repair of Honda steering and suspension systems. (AUSV 1030 is equivalent to AUSV 1031, AUSV 1032, and AUSV 1033.) Prerequisite: AUSV 1000.

AUSV 1040. General Motors Braking, Steering, Suspension, and Climate Control Systems (8)
Theory, operation, diagnosis, and repair of General Motors braking, steering, suspension, and climate control systems. The use of electronic service information, the proper diagnostic process, and proper diagnostic service tools is emphasized. (AUSV 1040 is comprised of AUSV 1041, AUSV 1042 and AUSV 1043.) Prerequisites: AUSV 1000, AUSV SI1335.

AUSV 1041. General Motors Braking Systems (3)
Theory, operation, diagnosis, and repair of General Motors braking systems. (AUSV 1040 is equivalent to AUSV 1041, AUSV 1042, and AUSV 1043.) Prerequisites: AUSV 1000, AUSV SI1345.

AUSV 1042. General Motors Steering and Suspension Systems (2)
Theory, operation, diagnosis, and repair of General Motors steering and suspension systems. (AUSV 1041, AUSV 1042, and AUSV 1043 are equivalent to AUSV 1000, AUSV 1040.) Prerequisites: AUSV 1000, AUSV SI1345.

Program Coordinator: Roger Crockett 801-626-7111

AUTOMOTIVE SERVICE TECH COURSES - AUSV
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AUSV 1050</td>
<td>DaimlerChrysler Braking, Steering, Suspension and Climate Control Systems (8)</td>
<td>Theory, operation, diagnosis, and repair of DaimlerChrysler braking, steering, suspension, and climate control systems. The use of electronic service information, the proper diagnostic process, and proper diagnostic service tools is emphasized. (AUSV 1050 is comprised of AUSV 1051, AUSV 1052 and AUSV 2350.) Prerequisites: AUSV 1000, AUSV SI1355.</td>
</tr>
<tr>
<td>AUSV 1051</td>
<td>DaimlerChrysler Braking Systems (3)</td>
<td>Theory, operation, diagnosis, and repair of DaimlerChrysler braking systems. (AUSV 1050 is equivalent to AUSV 1051, AUSV 1052, and AUSV 2350.) Prerequisites: AUSV 1000, AUSV SI1355.</td>
</tr>
<tr>
<td>AUSV 1052</td>
<td>DaimlerChrysler Steering and Suspension Systems (2)</td>
<td>Theory, operation, diagnosis, and repair of DaimlerChrysler steering and suspension systems. (AUSV 1051, AUSV 1052, and AUSV 2350 are equivalent to AUSV 1000, AUSV 1050.) Prerequisites: AUSV 1000, AUSV SI1355.</td>
</tr>
<tr>
<td>AUSV 1060</td>
<td>Toyota Braking, Steering, Suspension, and Climate Control Systems (8)</td>
<td>Theory, operation, diagnosis, and repair of Toyota braking, steering, suspension, and climate control systems. The use of electronic service information, the proper diagnostic process, and proper diagnostic service tools is emphasized. (AUSV 1060 is comprised of AUSV 1061, AUSV 1062 and AUSV 2360.) Prerequisites: AUSV 1000, AUSV SI1365.</td>
</tr>
<tr>
<td>AUSV 1061</td>
<td>Toyota Braking Systems (3)</td>
<td>Theory, operation, diagnosis, and repair of Toyota braking systems. (AUSV 1060 is equivalent to 1061, AUSV 1062 and AUSV 2360.) Prerequisites: AUSV 1000, AUSV SI1365.</td>
</tr>
<tr>
<td>AUSV 1062</td>
<td>Toyota Steering and Suspension Systems (2)</td>
<td>Theory, operation, diagnosis, and repair of Toyota steering and suspension systems. (AUSV 1061, AUSV 1062, and AUSV 2360 are equivalent to AUSV 1000, AUSV 1060.) Prerequisites: AUSV 1000, AUSV SI1365.</td>
</tr>
<tr>
<td>AUSV 1071</td>
<td>H D Truck Brakes (2)</td>
<td>Operation, diagnosis, inspection, and repair of air brake systems. Equivalent to DATC proficiency #48530, 48601.</td>
</tr>
<tr>
<td>AUSV 1072</td>
<td>H D Truck Steering &amp; Suspension (3)</td>
<td>Operation, diagnosis, and repair of heavy duty steering and suspension systems. Equivalent to DATC proficiency #48540, 48550.</td>
</tr>
<tr>
<td>AUSV 1080</td>
<td>Non-Structural Analysis and Damage Repair (4)</td>
<td>Safety, welding processes, panel repair and replacement, trim application, water and wind leakage. I-CAR training modules are included. Prerequisite: AUSV 1000.</td>
</tr>
<tr>
<td>AUSV 1100</td>
<td>Principles of Technology I (2)</td>
<td>Scientific concepts of force, work, rate, resistance and energy are applied to mechanical and fluid systems found in modern industry. Laboratory activities featuring measurement and instrumentation are emphasized.</td>
</tr>
<tr>
<td>AUSV 1120</td>
<td>Automotive Engines (3)</td>
<td>Theory, operation, diagnosis, repair, and overhaul of automotive engines. Prerequisite: AUSV 1000.</td>
</tr>
<tr>
<td>AUSV 1130</td>
<td>Honda Engines (3)</td>
<td>Theory, operation, diagnosis, repair, and overhaul of Honda engines. Prerequisite: AUSV 1000.</td>
</tr>
<tr>
<td>AUSV 1140</td>
<td>General Motors Engines (3)</td>
<td>Theory, operation, diagnosis, repair, and overhaul of General Motors engines. Prerequisite: AUSV 1000.</td>
</tr>
<tr>
<td>AUSV 1150</td>
<td>DaimlerChrysler Engines (3)</td>
<td>Theory, operation, diagnosis, repair, and overhaul of DaimlerChrysler engines. Prerequisite: AUSV 1000.</td>
</tr>
<tr>
<td>AUSV 1160</td>
<td>Toyota Engines (3)</td>
<td>Theory, operation, diagnosis, repair, and overhaul of Toyota engines. Prerequisite: AUSV 1000.</td>
</tr>
<tr>
<td>AUSV 1170</td>
<td>H D Truck Engines (5)</td>
<td>Operational principles, diagnosis and complete overhaul of diesel engines. Equivalent to DATC proficiency #48140, 48141, 48142, 48143, 48160, 48162, 48163.</td>
</tr>
<tr>
<td>AUSV 1180</td>
<td>Structural Analysis and Damage Repair (4)</td>
<td>Frame and unibody repair. Replacement of major panels, measuring and corrective pulling, and occupant safety systems. I-CAR training modules are included.</td>
</tr>
<tr>
<td>AUSV 1200</td>
<td>Principles of Technology II (2)</td>
<td>Scientific concepts pertaining to electricity, heat, sound and light are applied to systems found in modern industry. Laboratory activities featuring measurement and instrumentation are emphasized. Prerequisite: AUSV 1000.</td>
</tr>
<tr>
<td>AUSV 1220</td>
<td>Automotive Manual Drivetrain Systems (3)</td>
<td>Theory, operation, diagnosis, maintenance, and overhaul of manual transmissions and transaxles, front and rear drive axles and differentials, drivelines, and transfer cases. Prerequisite: AUSV 1000.</td>
</tr>
<tr>
<td>AUSV 1230</td>
<td>Honda Manual Drivetrain Systems (3)</td>
<td>Theory, operation, diagnosis, maintenance, and overhaul of Honda manual transmissions and transaxles, drive axles and differentials, drivelines, and transfer units. Prerequisite: AUSV 1000.</td>
</tr>
<tr>
<td>AUSV 1240</td>
<td>General Motors Manual Drivetrain Systems (3)</td>
<td>Theory, operation, diagnosis, maintenance, and overhaul of General Motors manual transmissions and transaxles, front and rear drive axles and differentials, drivelines, and transfer cases. Prerequisite: AUSV 1000.</td>
</tr>
<tr>
<td>AUSV 1250</td>
<td>DaimlerChrysler Manual Drivetrain Systems (3)</td>
<td>Theory, operation, diagnosis, maintenance, and overhaul of DaimlerChrysler manual transmissions and transaxles, front and rear drive axles and differentials, drivelines, and transfer cases. Prerequisite: AUSV 1000.</td>
</tr>
<tr>
<td>AUSV 1260</td>
<td>Toyota Manual Drivetrain Systems (3)</td>
<td>Theory, operation, diagnosis, maintenance, and overhaul of Toyota manual transmissions and transaxles, front and rear drive axles and differentials, drivelines, and transfer cases. Prerequisite: AUSV 1000.</td>
</tr>
<tr>
<td>AUSV 1270</td>
<td>H D Truck Drive Mechanisms (8)</td>
<td>Theory, operation, diagnosis, and overhaul of the clutch, transmission, drive lines, differentials, and wheel bearings. Equivalent to DATC proficiency #48401, 48403, 48603.</td>
</tr>
<tr>
<td>AUSV 1300</td>
<td>Technical Mathematics (3)</td>
<td>Measurements, common and decimal fractions, square roots, surfaces, columns, capacities. Principles of algebra and geometry.</td>
</tr>
<tr>
<td>AUSV SI1320</td>
<td>Automotive Electronics (4)</td>
<td>Electrical fundamentals, use of meters and wiring diagrams, wiring repair. Theory, diagnosis, and repair of computer inputs, outputs, and communication systems. The use of electronic service information, the proper diagnostic process, and proper diagnostic service tools are emphasized. Recommended prerequisite: AUSV 1000.</td>
</tr>
</tbody>
</table>
AUSV SI1325. Automotive Electronics, Electrical and Body Control Systems (7)
Electrical fundamentals, use of meters and wiring diagrams, wiring repair. Theory, diagnosis, and repair of computer inputs, outputs, and communication systems, starting, charging, lighting, air-bags, power accessories, and various body computer control systems. The use of electronic service information, the proper diagnostic process, and proper diagnostic service tools is emphasized. (AUSV 1320, AUSV 2120 are equivalent to AUSV SI1325.)

AUSV SI1330. Honda Automotive Electronics (4)
Electrical fundamentals, use of meters and Honda wiring diagrams, wiring repair. Theory, diagnosis, and repair of Honda computer inputs, outputs, and communication systems. The use of Honda electronic service information, the proper diagnostic process, and proper diagnostic service tools are emphasized. Recommended prerequisite: AUSV 1000.

AUSV SI1335. Honda Electronics, Electrical and Body Control Systems (7)
Electrical fundamentals, use of meters and Honda wiring diagrams, wiring repair. Theory, diagnosis, and repair of Honda computer inputs, outputs, and communication systems, starting, charging, lighting, air-bags, power accessories, and various body computer control systems. The use of Honda electronic service information, the proper diagnostic process, and proper diagnostic service tools are emphasized. Recommended prerequisite: AUSV 1000.

AUSV SI1340. General Motors Automotive Electronics (4)
Electrical fundamentals, use of meters and General Motors wiring diagrams, wiring repair. Theory, diagnosis, and repair of General Motors computer inputs, outputs, and communication systems. The use of General Motors electronic service information, the proper diagnostic process, and proper diagnostic service tools are emphasized. Recommended prerequisite: AUSV 1000.

AUSV SI1345. General Motors Electronics, Electrical and Body Control Systems (7)
Electrical fundamentals, use of meters and General Motors wiring diagrams, wiring repair. Theory, diagnosis, and repair of General Motors computer inputs, outputs, and communication systems, starting, charging, lighting, air-bags, power accessories, and various body computer control systems. The use of General Motors electronic service information, the proper diagnostic process, and proper diagnostic service tools are emphasized. Recommended prerequisite: AUSV 1000.

AUSV SI1350. DaimlerChrysler Automotive Electronics (4)
Electrical fundamentals, use of meters and DaimlerChrysler wiring diagrams, wiring repair. Theory, diagnosis, and repair of DaimlerChrysler computer inputs, outputs, and communication systems. The use of DaimlerChrysler electronic service information, the proper diagnostic process, and proper diagnostic service tools are emphasized. Recommended prerequisite: AUSV 1000.

AUSV SI1355. DaimlerChrysler Electronics, Electrical and Body Control Systems (7)
Electrical fundamentals, use of meters and DaimlerChrysler wiring diagrams, wiring repair. Theory, diagnosis, and repair of DaimlerChrysler computer inputs, outputs, and communication systems, starting, charging, lighting, air-bags, power accessories, and various body computer control systems. The use of DaimlerChrysler electronic service information, the proper diagnostic process, and proper diagnostic service tools are emphasized. (AUSV 1350, AUSV 2150 are equivalent to AUSV SI1355.)

AUSV SI1360. Toyota Automotive Electronics (4)
Electrical fundamentals, use of meters and Toyota wiring diagrams, wiring repair. Theory, diagnosis, and repair of Toyota computer inputs, outputs, and communication systems. The use of Toyota electronic service information, the proper diagnostic process, and proper diagnostic service tools are emphasized. Recommended prerequisite: AUSV 1000.

AUSV SI1365. Toyota Electronics, Electrical and Body Control Systems (7)
Electrical fundamentals, use of meters and Toyota wiring diagrams, wiring repair. Theory, diagnosis, and repair of Toyota computer inputs, outputs, and communication systems, starting, charging, lighting, air-bags, power accessories, and various body computer control systems. The use of Toyota electronic service information, the proper diagnostic process, and proper diagnostic service tools are emphasized. (AUSV 1360, AUSV 2160 are equivalent to AUSV SI1365.)

AUSV 1400. Automotive Fundamentals (2)
Operation, diagnosis and repair of selected automotive systems, as well as general auto shop orientation for beginners and non-automotive majors.

AUSV 1890. Cooperative Work Experience (1-6)
Open to all first year students in Automotive Service. Provides academic credit for on-the-job experience. Grade and amount of credit will be determined by the department.

AUSV 2020. Engine Control Systems (3)
Theory, operation, diagnosis, and repair of automotive fuel systems, OBD-II and Tier-2 emission control systems, and ignition systems. (AUSV 1120, AUSV 2020 are equivalent to AUSV 2625.) Prerequisites: AUSV 1000, AUSV SI1325.

AUSV 2030. Honda Engine Control Systems (3)
Theory, operation, diagnosis, and repair of Honda automotive fuel systems, OBD-II and Tier-2 emission control systems, and ignition systems. (AUSV 1130, AUSV 2030 are equivalent to AUSV 2635.) Prerequisites: AUSV 1000, AUSV SI1335.

AUSV 2040. General Motors Engine Control Systems (3)
Theory, operation, diagnosis, and repair of General Motors automotive fuel systems, OBD-II and Tier-2 emission control systems, and ignition systems. (AUSV 1140, AUSV 2040 are equivalent to AUSV 2645.) Prerequisites: AUSV 1000, AUSV SI1345.

AUSV 2050. DaimlerChrysler Engine Control Systems (3)
Theory, operation, diagnosis, and repair of DaimlerChrysler automotive fuel systems, OBD-II and Tier-2 emission control systems, and ignition systems. (AUSV 1150, AUSV 2050 are equivalent to AUSV 2655.) Prerequisites: AUSV 1000, AUSV SI1355.

AUSV 2060. Toyota Engine Control Systems (3)
Theory, operation, diagnosis, and repair of Toyota automotive fuel systems, OBD-II and Tier-2 emission control systems, and ignition systems. (AUSV 1160, AUSV 2060 are equivalent to AUSV 2665.) Prerequisites: AUSV 1000, AUSV SI1365.

AUSV 2080. Painting and Refinishing (4)
Surface preparation and application of contemporary paints. Matching, blending and complete vehicle refinishing. I-CAR training modules are included. Prerequisite: AUSV 1000.

AUSV 2120. Automotive Electrical and Body Control Systems (3)
Theory, diagnosis, and repair of starting, charging, lighting, air-bags, power accessories, and various body computer control systems. The use of electronic service information, the proper diagnostic process, and proper diagnostic services tools are emphasized. (AUSV 1320,
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>AUSV 2120</td>
<td>are equivalent to AUSV SI1325.</td>
</tr>
<tr>
<td>AUSV 2130</td>
<td>Honda Electrical and Body Control Systems (3)</td>
</tr>
<tr>
<td>Theory, diagnosis, and repair of Honda starting, charging, lighting, air-bags, power accessories, and various body computer control systems. The use of electronic service information, the proper diagnostic process, and proper diagnostic services tools are emphasized. (AUSV 1330, AUSV 2130 are equivalent to AUSV SI1335.) Recommended prerequisite: AUSV 1000. Prerequisite: AUSV SI1330.</td>
<td></td>
</tr>
<tr>
<td>AUSV 2140</td>
<td>General Motors Electrical and Body Control Systems (3)</td>
</tr>
<tr>
<td>Theory, diagnosis, and repair of General Motors starting, charging, lighting, air-bags, power accessories, and various body computer control systems. The use of electronic service information, the proper diagnostic process, and proper diagnostic services tools are emphasized. (AUSV 1340, AUSV 2140 are equivalent to AUSV SI1345.) Recommended prerequisite: AUSV 1000. Prerequisite: AUSV SI1340.</td>
<td></td>
</tr>
<tr>
<td>AUSV 2150</td>
<td>DaimlerChrysler Electrical and Body Control Systems (3)</td>
</tr>
<tr>
<td>Theory, diagnosis, and repair of DaimlerChrysler starting, charging, lighting, air-bags, power accessories, and various body computer control systems. The use of electronic service information, the proper diagnostic process, and proper diagnostic services tools are emphasized. (AUSV 1350, AUSV 2150 are equivalent to AUSV SI1355.) Recommended prerequisite: AUSV 1000. Prerequisite: AUSV SI1350.</td>
<td></td>
</tr>
<tr>
<td>AUSV 2160</td>
<td>Toyota Electrical and Body Control Systems (3)</td>
</tr>
<tr>
<td>Theory, diagnosis, and repair of Toyota starting, charging, lighting, air-bags, power accessories, and various body computer control systems. The use of electronic service information, the proper diagnostic process, and proper diagnostic services tools are emphasized. (AUSV 1360, AUSV 2160 are equivalent to AUSV SI1365.) Recommended prerequisite: AUSV 1000. Prerequisite: AUSV SI1360.</td>
<td></td>
</tr>
<tr>
<td>AUSV 2170</td>
<td>H D Truck Electrical Systems (3)</td>
</tr>
<tr>
<td>Theory, operation, diagnosis and repair of batteries, starting, charging and electrical accessories. Equivalent to DATC proficiency #48304, 48305.</td>
<td></td>
</tr>
<tr>
<td>AUSV 2270</td>
<td>H D Truck Engine Diagnosis (3)</td>
</tr>
<tr>
<td>Engine starting, diagnosis, fuel pump timing, compression and cylinder leakage testing, and tune-up. Equivalent to DATC proficiency #48144, 48164, 48302.</td>
<td></td>
</tr>
<tr>
<td>AUSV 2320</td>
<td>Automotive Climate Control Systems (3)</td>
</tr>
<tr>
<td>Theory, operation, diagnosis and repair of climate control systems. (AUSV 1020 is equivalent to AUSV 1021, AUSV 1022, and AUSV 2320). Prerequisites: AUSV 1000, AUSV SI1320.</td>
<td></td>
</tr>
<tr>
<td>AUSV 2330</td>
<td>Honda Climate Control Systems (3)</td>
</tr>
<tr>
<td>Theory, operation, diagnosis and repair of Honda climate control systems. (AUSV 1030 is equivalent to AUSV 1031, AUSV 1032 and AUSV 2330.) Prerequisites: AUSV 1000, AUSV SI1330.</td>
<td></td>
</tr>
<tr>
<td>AUSV 2340</td>
<td>General Motors Climate Control Systems (3)</td>
</tr>
<tr>
<td>Theory, operation, diagnosis and repair of General Motors climate control systems. (AUSV 1040 is equivalent to AUSV 1041, AUSV 1042 and AUSV 2340.) Prerequisites: AUSV 1000, AUSV SI1340.</td>
<td></td>
</tr>
<tr>
<td>AUSV 2350</td>
<td>DaimlerChrysler Climate Control Systems (3)</td>
</tr>
<tr>
<td>Theory, operation, diagnosis and repair of DaimlerChrysler climate control systems. (AUSV 1050 is equivalent to AUSV 1051, AUSV 1052 and AUSV 2350.) Prerequisites: AUSV 1000, AUSV SI1350.</td>
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</tr>
<tr>
<td>AUSV 2360</td>
<td>Toyota Climate Control Systems (3)</td>
</tr>
<tr>
<td>Theory, operation, diagnosis and repair of Toyota climate control systems. (AUSV 1060 is equivalent to AUSV 1061, AUSV 1062 and AUSV 2360.) Prerequisites: AUSV 1000, AUSV SI1360.</td>
<td></td>
</tr>
<tr>
<td>AUSV 2370</td>
<td>H D Truck Air Conditioning (2)</td>
</tr>
<tr>
<td>Operation, environmental concerns, diagnosis and repair of air conditioning and heating systems and components. Equivalent to DATC proficiency #48800, 48801.</td>
<td></td>
</tr>
<tr>
<td>AUSV 2480</td>
<td>Auto Body Business Practices (2)</td>
</tr>
<tr>
<td>Estimating, scheduling work, purchasing, inventory, insurance practices and applied customer relations.</td>
<td></td>
</tr>
<tr>
<td>AUSV 2520</td>
<td>Automatic Transmissions (4)</td>
</tr>
<tr>
<td>Theory, operation, diagnosis and overhaul procedures of automatic transmissions. Prerequisites: AUSV 1000, AUSV SI1325.</td>
<td></td>
</tr>
<tr>
<td>AUSV 2530</td>
<td>Honda Automatic Transmissions (4)</td>
</tr>
<tr>
<td>Theory, operation, diagnosis and overhaul procedures of Honda automatic transmissions. Prerequisites: AUSV 1000, AUSV SI1335.</td>
<td></td>
</tr>
<tr>
<td>AUSV 2540</td>
<td>General Motors Automatic Transmissions (4)</td>
</tr>
<tr>
<td>Theory, operation, diagnosis and overhaul procedures of General Motors automatic transmissions. Prerequisites: AUSV 1000, AUSV SI1335.</td>
<td></td>
</tr>
<tr>
<td>AUSV 2550</td>
<td>DaimlerChrysler Automatic Transmissions (4)</td>
</tr>
<tr>
<td>Theory, operation, diagnosis and overhaul procedures of DaimlerChrysler automatic transmissions. Prerequisites: AUSV 1000, AUSV SI1355.</td>
<td></td>
</tr>
<tr>
<td>AUSV 2560</td>
<td>Toyota Automatic Transmissions (4)</td>
</tr>
<tr>
<td>Theory, operation, diagnosis and overhaul procedures of Toyota automatic transmissions. Prerequisites: AUSV 1000, AUSV SI1365.</td>
<td></td>
</tr>
<tr>
<td>AUSV 2625</td>
<td>Engine Mechanical and Engine Control Systems (6)</td>
</tr>
<tr>
<td>Theory, operation, diagnosis, and repair of automotive engines, fuel systems, OBD-II and Tier-2 emission control systems, ignition systems. The use of electronic service information, the proper diagnostic process, and proper diagnostic service tools is emphasized. (AUSV 1120, AUSV 2020 are equivalent to AUSV 2625.) Prerequisites: AUSV 1000, AUSV SI1325.</td>
<td></td>
</tr>
<tr>
<td>AUSV 2635</td>
<td>Honda Engine Mechanical and Engine Control Systems (6)</td>
</tr>
<tr>
<td>Theory, operation, diagnosis, and repair of Honda automotive engines, fuel systems, OBD-II and Tier-2 emission control systems, ignition systems. The use of electronic service information, the proper diagnostic process, and proper diagnostic service tools is emphasized. (AUSV 1130, AUSV 2030 are equivalent to AUSV 2635.) Prerequisites: AUSV 1000, AUSV SI1335.</td>
<td></td>
</tr>
<tr>
<td>AUSV 2645</td>
<td>General Motors Engine Mechanical and Engine Control Systems (6)</td>
</tr>
<tr>
<td>Theory, operation, diagnosis, and repair of General Motors automotive engines, fuel systems, OBD-II and Tier-2 emission control systems, ignition systems. The use of electronic service information, the proper diagnostic process, and proper diagnostic service tools is emphasized. (AUSV 1140, AUSV 2040 are equivalent to AUSV 2645.) Prerequisites: AUSV 1000, AUSV SI1345.</td>
<td></td>
</tr>
<tr>
<td>AUSV 2655</td>
<td>DaimlerChrysler Engine Mechanical and Engine Control Systems (6)</td>
</tr>
<tr>
<td>Theory, operation, diagnosis, and repair of DaimlerChrysler automotive engines, fuel systems, OBD-II and Tier-2 emission control systems, ignition systems. The use of electronic service information, the proper diagnostic process, and proper diagnostic service tools is emphasized. (AUSV 1150, AUSV 2050 are equivalent to AUSV 2655.) Prerequisites: AUSV 1000, AUSV SI1355.</td>
<td></td>
</tr>
</tbody>
</table>
AUSV 2665. Toyota Engine Mechanical and Engine Control Systems (6)
Theory, operation, diagnosis, and repair of Toyota automotive engines, fuel systems, OBD-II and Tier-2 emission control systems, ignition systems. The use of electronic service information, the proper diagnostic process, and proper diagnostic service tools is emphasized. (AUSV 1160, AUSV 2060 are equivalent to AUSV 2665.) Prerequisites: AUSV 1000, AUSV SI1365.

AUSV 2860. Automotive Shop Practice (3-8)
Provides an opportunity to practice skills needed by Automotive Service technicians derived from classroom and shop experience. Simulates line mechanic work. Instructor approval required.

AUSV 2880. Cooperative Practicum (3-8)
Supervised work experience, at the sponsoring dealership, which applies directly to previous academic courses. Full-time employment and approval of faculty supervisor required.

AUSV 2890. Cooperative Work Experience (1-6)
Open to second year Automotive Service students. A continuation of AUSV 1890. NOTE: AUSV 2890 may be taken in lieu of AUSV 2860, when appropriate work experience is available and the student obtains departmental approval.

AUSV 2899. Associate Degree Assessment (0)
This course is to serve as an assessment tool whereby all AAS degree seeking students in the College of Applied Science and Technology demonstrate their learned knowledge in at least three areas of Applied Technology study. At present, this knowledge will be demonstrated through the use of the Work Keys exams administered through the Campus Testing Center.

AUSV 2920. Short Courses, Workshops, Institutes and Special Programs (1-4)
Consult the semester class schedule for the current offering under this number. The specific title and credit authorized will appear on the student transcript.

### Automotive Technology

**Program Coordinator:** Richard K. DeMoss 801-626-6318

Automotive Technology is a dynamic program designed in cooperation with industry and focused on service operations, fleet management, service engineering, and technical support activities.

Lower division courses offer a thorough background in vehicle systems and product service procedures. Upper division studies include business, communication, supervision and advanced technical subjects. Interpersonal, analytical and computer skills as well as general education are emphasized throughout the program, providing the foundation for long term professional and personal growth.

A close affiliation between the department and leading automotive companies ensures that students will have state-of-the-art instruction, industry supported practicums and excellent opportunities for employment with major corporation, dealerships, fleet operators, utilities, government agencies and small companies.

The Automotive Technology curriculum is a "2 + 2" design facilitating articulation with programs in automotive service, collision repair, diesel mechanics, etc. Students who have obtained associate degrees in appropriate high quality programs are admitted as juniors, and can complete the baccalaureate degree in two years. There are also provisions to recognize those with significant automotive industry experience.

### Program Prerequisite
An interview with the program coordinator is necessary prior to acceptance into the program. Students are advised to complete an appropriate Associate’s degree prior to entering upper division curriculum.

**Minor:** Not required.

**Grade Requirements:** Minimum grade of “C-” in courses required for this major in addition to an overall GPA of 2.00 or higher.

**Credit Hour Requirements:** A total of 130 credit hours is required: a minimum of 63 of these is required within the major. A total of 40 upper division credit hours is required (courses numbered 300 and above) – 20 are required within the major.

### Admissions

Automotive Technology students should meet annually with the program coordinator for course and program advisement. Call 801-626-6579 for more information or to schedule an appointment.

### Admission Requirements
Declar your program of study (see page 18) and meet with the faculty advisor.

### General Education
Refer to pages 36-41 for Bachelor of Science requirements. The following courses required for the Automotive Technology major will also fulfill general education requirements: CHEM PS1010 or CHEM PS/SI1110, COMM HU2110, SOSS/DV1020, BTNY LS1403, PHSX PS/SI1010, MATH QL1030, TBE TE1700, and LIBS TD1704.

### Course Requirements for B.S. Degree

#### Automotive Service Courses Required (39 credit hours)
- **AUSV 10.1** Brakes (2)
- **AUSV 10.2** Suspension and Steering (2)
- **AUSV 1100** Principles of Technology I (2)
- **AUSV 11.0** Engines (3)
- **AUSV 12.0** Drive Mechanisms (2)
- **AUSV 13.1** Specialized Electricity (2)
- **AUSV 13.2** Specialized Electronics (2)
- **AUSV 15.0** Automatic Transmission (4)
- **AUSV 20.0** Fuel & Emission Control Systems (3)
- **AUSV 21.0** Electrical Systems (3)
- **AUSV 22.0** Diagnosis & Tune-up (4)
- **AUSV 23.0** Air Conditioning & Heating (2)
- **AUSV 2480** Auto Body Business Practices (2)
- **AUSV 2860** Automotive Shop Practice (6)

* Specific lower division course based on option selected by student and advisor.

### Automotive Technology Courses Required (23 credit hours)
- **ATTTC 2680** Collision Repair Methods (3)
- **ATTTC 3020** Intro to Hazardous Materials (2)
- **ATTTC 3520** Fleet Management (2)
- **ATTTC 3620** Automotive Business Practices (2)
- **ATTTC 3990** Seminar in Automotive Tech (1)
- **ATTTC 4020** Environmental Issues (2)
- **ATTTC SI4220** Capstone Project (2)
- **ATTTC 4880** Cooperative Practicum (8)
- **ATTTC 4990** Seminar in Automotive Tech (1)

### Sales and Service Technology Courses Required (17 credit hours)
- **STT 1143** Fundamental Selling Techniques (3)
- **STT 3103** Sales Personalities & Profiles (3)
- **STT 3203** Customer Service Techniques (3)
- **STT 3363** Contract & Sales Negotiation (3)
- **STT 3563** Principles of Supervision (3)
- **STT 4102** Developing Team Leadership Skills (2)
Support Courses Required (4 credit hours)
- TBE 3070 Advanced Spreadsheet Applications (1)
- TBE 3250 Business Communication (3)

Electives - Select one course (3 credit hours)
- BSAD 3200 Legal Environment of Business (3)
- COMM DV3080 Intercultural Communication (3)
- ENGL 3100 Professional and Technical Writing (3)
- SST 3153 Sales Engineering Techniques (3)
- SST 4203 Ethical Sales & Service (3)

Suggested Course Sequence
Please refer to this program in the online catalog (weber.edu/catalog) and/or contact the department for a suggested course sequence.

**AUTOMOTIVE TECHNOLOGY COURSES - ATTC**

ATTC 2680. Collision Repair Methods (3)
An overview of modern collision repair covering the areas of non-structural, structural, and painting and refinishing. A study of the methods and procedures of collision repair that will provide students with an understanding of body design including the frame, refinishing, and safety. Prerequisite: Junior standing.

ATTC 3020. Introduction to Hazardous Materials (2)
Environmental regulations, safe practices, disposal of hazardous substances, such as paints and solvents. Suggested prerequisite: CHEM PS1010 or PS/SI1110.

ATTC 3520. Fleet Management (2)
Overview of fleet operations and common management practices.

ATTC 3620. Automotive Business Practices (2)
Study of fleet and dealership fixed operations financial policies and procedures. Includes financial statement analysis.

ATTC 3990. Seminar in Automotive Technology (1)
Preparation for the practicum. Guest lecturers, group discussions and overview of new or upcoming automotive issues. Prerequisite: Junior standing.

ATTC 4020. Environmental Issues (2)
An overview of the environmental issues related to the use and service of vehicles, with emphasis on air quality topics.

ATTC 54220. Capstone Project (2)
The use of sophisticated diagnostic tools and equipment. Emphasis is on computer-aided diagnosis and the development of analytical thinking as it applies to technical problems. Includes lab. Prerequisite: AUSV 2220 or equivalent.

ATTC 4830. Directed Readings (1-3)
Individual readings supervised by a faculty member. Prerequisite: Approval of instructor.

ATTC 4880. Cooperative Practicum (8)
Supervised work experience with a sponsoring employer, designed to synthesize theory and practice. Full-time, upper division related employment and approval of faculty supervisor required.

ATTC 4990. Seminar in Automotive Technology (1)
Directed studies, group discussions and analysis of selected topics. Emphasis on environmental, regulatory, legal, safety, new product and other contemporary issues.

ATTC 5920. Short Courses and Workshops (1-4)
Consult the semester class schedule for the current offerings under this number.

**INTERIOR DESIGN TECHNOLOGY**

Advisors: Jan Slabaugh and Shauna Morris 801-626-7920

Interior Design Technology is a two-year program that precedes the four-year Interior Design Technical Sales degree. The two-year A.A.S. degree provides students academic preparation for employment as assistant designers, specifically in kitchen and bath, wholesale showrooms, and retail sales positions. Students are academically prepared to sit for the CKD (Certified Kitchen Designer) exam.

See also the four-year Interior Design Emphasis - Technical Sales degree on page 91.

**ASSOCIATE OF APPLIED SCIENCE DEGREE (A.A.S.)**

- Program Prerequisite: An interview with the program advisor is necessary prior to acceptance into the program.
- Grade Requirements: An overall GPA of 2.5 or "C+".
- Credit Hour Requirements: A total of 66 credit hours is required.
- Assessment Requirements: Students will be required to complete certain assessment instruments as part of the overall requirements for receiving their associate degree (IDT 2899).

Admission Requirements
All Interior Design students are required to meet with a faculty advisor each semester for course and program advisement. Call 801-626-6913 or 801-626-7920 for more information or to schedule an appointment.

General Education
Refer to pages 36-41 for Associate of Applied Science requirements. A minimum total of 20 credit hours is required including ENGL EN1010 (3), COMM HU2110 (3), MATH QL1030 (3) or MATH QL1050 (3), and ART CA1030 (3). Students also need to select a 3 credit hour general education course in either Life Science or Physical Science, and a 3 credit hour general education course in Social Science. Computer and Information Literacy as defined in this catalog is also required for the A.A.S. degree.

Course Requirements for A.A.S. Degree

**Interior Design Courses Required (29 credit hours)**
- IDT 1010 Introduction to Interior Design (3)
- IDT 1020 Presentation Techniques (2)
- IDT 1030 Residential Design (3)
- IDT 2010 Textiles (3)
- IDT 2020 Computer-aided Design & Drafting (3)
- IDT 2030 Professional Practice in Interior Design (3)
- IDT 2899 Associate Degree Assessment (0)
- IDT 3010 Historical Interiors (3)
- IDT 3020 American & Modern Interiors (3)
- IDT 3030 Materials (3)
- IDT 3060 Kitchen & Bath (3)

**Support Courses Required (17 credit hours)**
- ART 1120 Design: 2D (3)
- DGET 1340 Architectural Drafting for Interior Design (3)
- SST 1143 Fundamental Selling Techniques (3)
- SST 1303 Distribution Principles (3)
- SST 1602 Advanced Selling Techniques (2)
- SST 3103 Sales Personalities and Profiles (3)
### Suggested Course Sequence

Please refer to this program in the online catalog (weber.edu/catalog) and/or contact the department for a suggested course sequence.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>INTERIOR DESIGN COURSES - IDT</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IDT 1010. Introduction to Interior Design (3)</td>
<td>Su, F, S</td>
<td>Explores interior design as it relates to human factors. Introduces the elements and principles of design as they relate to interiors. Introduces a brief survey of American architecture and furnishings.</td>
</tr>
<tr>
<td>IDT 1020. Presentation Techniques (2)</td>
<td>F</td>
<td>Exploration of materials and applications of methods required for visual communications with interior design presentation. Emphasis in conceptualizing and quick-sketching techniques. Prerequisite: DGET 1340. Studio: four hours per week. One credit hour of IDT 2830, Directed Readings, is suggested with this course.</td>
</tr>
<tr>
<td>IDT 1030. Residential Design (3)</td>
<td>S</td>
<td>Course includes an in-depth study of the elements and principles of design and interior components as they relate to a residence. Introduces the design process: gathering information, analysis and conceptual drawings for residential design. Oral and visual presentation are introduced. Studio: four hours per week.</td>
</tr>
<tr>
<td>IDT 1860. Practicum (1-2)</td>
<td>Su, F, S</td>
<td>A course of occupational experiences in the interior design industry. A plan is created by the instructor and student to provide meaningful training in the student's career field. Open to all first year declared majors in Interior Design. Instructor's approval required.</td>
</tr>
<tr>
<td>IDT 2010. Textiles (3)</td>
<td>F</td>
<td>A study of fibers, yarns, fabric structure, codes and finishes as they relate to residential and commercial interiors.</td>
</tr>
<tr>
<td>IDT 2020. Computer-aided Design and Drafting (3)</td>
<td>S</td>
<td>Application of basic computer-aided drafting and design as it relates to current professional practice in interior design. Use of current software. Two one-hour lectures and three two-hour labs per week. Prerequisite: TBE TE1700 and instructor approval.</td>
</tr>
<tr>
<td>IDT 2030. Professional Practice in Interior Design (3)</td>
<td>S</td>
<td>Techniques and methods for conducting a professional design business. Includes contracts, specifications, and ethics. Four one-hour lectures per week.</td>
</tr>
<tr>
<td>IDT 2830. Directed Readings (1-3)</td>
<td>Su, F, S</td>
<td>Individually chosen readings or specialized topics supervised by a faculty member. Prerequisite: Approval of instructor.</td>
</tr>
<tr>
<td>IDT 2860. Practicum (1-2)</td>
<td>Su, F, S</td>
<td>A course of occupational experiences in the interior design industry. A plan is created by the instructor and student to provide meaningful training in the student's career field. Open to all second year declared majors in Interior Design. Instructor's approval required.</td>
</tr>
<tr>
<td>IDT 2899. Associate Degree Assessment (0)</td>
<td></td>
<td>This course is to serve as an assessment tool whereby all AAS degree seeking students in the College of Applied Science and Technology demonstrate their learned knowledge in at least three areas of Applied Technology study. At present, this knowledge will be demonstrated through the use of the Work Keys exams administered through the Campus Testing Center.</td>
</tr>
<tr>
<td>IDT 2990. Interior Design Seminar (1-2)</td>
<td>F</td>
<td>Professional issues presented by guest lecturers, field trips, and current discussions in interior design. One hour lecture per week. Total of three credit hours required; may be repeated up to six credit hours.</td>
</tr>
<tr>
<td>IDT 3010. Historical Interiors (3)</td>
<td>F</td>
<td>Historical survey and research of interior furnishing and architecture from Egyptian through English Victorian. Three one-hour lectures and one three-hour lab per week.</td>
</tr>
<tr>
<td>IDT 3020. American and Modern Interiors (3)</td>
<td>S</td>
<td>Historical survey and research of interiors, furnishings, and architecture from the 1880's to the present. Application of modern design in today's interiors. Three one-hour lectures and one three-hour lab per week.</td>
</tr>
<tr>
<td>IDT 3030. Materials (3)</td>
<td>F</td>
<td>Exploration and research of finishes and materials used within interiors. Practical application for specifying and installation of materials will be emphasized. Three one-hour lectures and one three-hour lab per week.</td>
</tr>
<tr>
<td>IDT 3040. Studio I Perspective/Rendering (2)</td>
<td>F</td>
<td>A continuation of Presentation Techniques I. Techniques, methods and approaches to graphic presentations. Emphasis is on perspective/rendering using pencils and markers. Studio: four hours per week.</td>
</tr>
<tr>
<td>IDT 3050. Studio II Design Process and Space Planning (3)</td>
<td>S</td>
<td>Advanced application of the design process with emphasis placed on space planning as it relates to residential and commercial spaces. One hour lecture, four hours studio per week. Prerequisite: IDT 3030.</td>
</tr>
<tr>
<td>IDT 3060. Kitchen &amp; Bath (3)</td>
<td>F</td>
<td>Application of basic kitchen and bath design layout principles which will meet the needs of families. Prepares the student for NKBA (National Kitchen and Bath Association) certification exams. One hour lecture, four hours studio per week. Prerequisite: IDT 3030.</td>
</tr>
<tr>
<td>IDT 4010. Barrier-Free Design (3)</td>
<td>F</td>
<td>Application of practices and procedures for barrier-free interiors. Emphasis will be on design for the disabled and elderly. One hour lecture, four hours studio per week. Prerequisite: IDT 3040.</td>
</tr>
<tr>
<td>IDT 4020. Commercial Design (3)</td>
<td>S</td>
<td>Application of practices and procedures of designing commercial interiors. Emphasis will be presentation and layouts for office, health care, and hospitality design. Three one-hour lectures and one one-hour lab per week. Prerequisite: IDT 3030.</td>
</tr>
<tr>
<td>IDT 4030. Studio V Senior Project (3)</td>
<td>S</td>
<td>An in-depth study of problem solving for residential or commercial interiors involving the design process of offices, health care facilities, hospitality or public institutions. One hour lecture, four hours studio per week. Prerequisite: IDT 3040.</td>
</tr>
<tr>
<td>IDT 4040. Studio VI Portfolio (1)</td>
<td>S</td>
<td>Developing and presenting a uniform portfolio for job search in the field of interior design. Emphasis is to compile a portfolio for presentation to prospective employers and clients. Studio: two hours per week. Students may add SST 4830 (2 cr). Prerequisite: IDT 3040. Two credit hours of IDT 4860, Internship, is suggested with this course.</td>
</tr>
<tr>
<td>IDT 4830. Directed Readings (1)</td>
<td></td>
<td>Individual readings supervised by a faculty member. Junior/Senior level with the approval of the instructor.</td>
</tr>
<tr>
<td>IDT 4860. Internship for Interior Design (3)</td>
<td>Su, F, S</td>
<td>A structured professional-level field experience. The student will be counseled and supervised as he/she applies and integrates their knowledge and skills through work experience with a qualified interior designer. The internship requires a minimum of 240 contact hours or 20 hours per week for twelve (12) weeks of on-the-job training. Prerequisite: Junior or Senior status. Students must receive instructor's consent.</td>
</tr>
</tbody>
</table>
## Sales and Merchandising

The sales and merchandising program is designed to prepare people for employment in selling at all levels of distribution and merchandising and middle management areas of retailing. Occupational opportunities include positions as salespeople (auto, insurance, real estate, etc.), middle management areas of sales managers and wholesale managers, retail salespeople, departmental managers, fashion coordinators, buyers, sales promotion managers, personnel directors, and display people. Students will supplement their course work with practical on-the-job training in local business establishments, receiving college credit for their work experience.

### Associate of Applied Science Degree (A.A.S.)

<table>
<thead>
<tr>
<th>Course Requirements for A.A.S. Degree</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Courses Required (14 credit hours)</strong></td>
</tr>
<tr>
<td>SST 1143</td>
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<tr>
<td>SST 1303</td>
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<tr>
<td>SST 1602</td>
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<tr>
<td>SST 2899</td>
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<tr>
<td>SST 3203</td>
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<tr>
<td>SST 3563</td>
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<tr>
<td><strong>Support Courses (23 credit hours)</strong></td>
</tr>
<tr>
<td>SST 1503</td>
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<tr>
<td>SST 1890</td>
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<tr>
<td>SST 2182</td>
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<td>SST 2353</td>
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<td>SST 2383</td>
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<td>SST 2443</td>
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<tr>
<td>SST 2703</td>
</tr>
<tr>
<td>SST 2991</td>
</tr>
</tbody>
</table>

### Admissions

All Sales and Merchandising students are required to meet with a faculty advisor at least annually for course and program advisement. Contact Steven Eichmeier at 801-626-7595 or call 801-626-6913 for more information or to schedule an appointment.

### General Education

Refer to pages 36-41 of the catalog for more information. ENGL EN1010 and COMM HU2110 are required. Computer and Information Literacy as defined in this catalog is also required for the A.A.S. degree.

### Course Requirements for A.A.S. Degree

<table>
<thead>
<tr>
<th><strong>Courses Required (minimum of 16 credit hours)</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>SST 3563</td>
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<tr>
<td>SST 3203</td>
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<tr>
<td>SST 3030</td>
</tr>
</tbody>
</table>

### Technical Sales

This program prepares individuals to serve as agents or sales representatives in selling technical products/services to other businesses, plants, professionals, and public and private institutions. This program offers a technical sales emphasis tailored toward specific technical fields such as computer science, electronic engineering, manufacturing engineering, and automotive technology.

### Interior Design Emphasis

<table>
<thead>
<tr>
<th><strong>Courses Required (minimum of 16 credit hours)</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>IDT 2010</td>
</tr>
<tr>
<td>IDT 2020</td>
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<tr>
<td>IDT 2030</td>
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<tr>
<td>IDT 2990</td>
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<td>IDT 3010</td>
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<tr>
<td>IDT 3020</td>
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<tr>
<td>IDT 3030</td>
</tr>
<tr>
<td>IDT 4020</td>
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<tr>
<td>DGET 1350</td>
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</tbody>
</table>

### Fashion Merchandising Emphasis

<table>
<thead>
<tr>
<th><strong>Courses Required (minimum of 15 credit hours)</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>IDT 2010</td>
</tr>
<tr>
<td>IDT 1300</td>
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<tr>
<td>SST 1602</td>
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<tr>
<td>SST 3103</td>
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<tr>
<td>SST 3153</td>
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<tr>
<td>SST 3203</td>
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<tr>
<td>SST 3603</td>
</tr>
</tbody>
</table>

### Course Requirements for Sales Emphasis

<table>
<thead>
<tr>
<th><strong>Courses Required (16 credit hours)</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>SST 1143</td>
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<tr>
<td>SST 1303</td>
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<td>SST 3103</td>
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<td>SST 3153</td>
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<tr>
<td>SST 3203</td>
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<tr>
<td>SST 3603</td>
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</tbody>
</table>

### Technical Sales

<table>
<thead>
<tr>
<th><strong>Courses Required (minimum of 15 credit hours)</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>SST 1503</td>
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<tr>
<td>SST 1890</td>
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<td>SST 2443</td>
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<td>SST 2703</td>
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<tr>
<td>SST 2991</td>
</tr>
</tbody>
</table>

### Minor

<table>
<thead>
<tr>
<th><strong>Program Prerequisite:</strong> An interview with the department chair or designee is necessary prior to acceptance into the program.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Grade Requirements:</strong> A grade of “C” or better in all courses used toward the minor.</td>
</tr>
<tr>
<td><strong>Credit Hour Requirements:</strong> Minimum of 15-16 credit hours. This program offers students who major in another field the option to obtain a minor in one of the emphasis areas in Sales and Service Technology. Course options are available for substitution or addition to the recommended courses should the student feel a need for a more specific or concentrated minor emphasis. Check with the SST Department for approval of substitute courses.</td>
</tr>
</tbody>
</table>

### Technical Sales

<table>
<thead>
<tr>
<th><strong>BACHELOR DEGREE (B.S. OR B.A.)</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Program Prerequisite:</strong> An interview with the department chair or designee is necessary prior to acceptance into the program.</td>
</tr>
<tr>
<td><strong>Minor:</strong> Not required.</td>
</tr>
</tbody>
</table>
**General Education**

Refer to pages 36-41 for Bachelor of Science or Bachelor of Arts requirements.

<table>
<thead>
<tr>
<th>Course Requirements for B.S. Degree</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>SST Courses Required (43 credit hours)</td>
<td></td>
</tr>
<tr>
<td>SST 1143  Fundamental Selling Techniques (3)</td>
<td></td>
</tr>
<tr>
<td>SST 1303  Distribution Principles (3)</td>
<td></td>
</tr>
<tr>
<td>SST 1401  Introduction to Sales &amp; Services Technology (1)</td>
<td></td>
</tr>
<tr>
<td>SST 1602  Advanced Selling Techniques (2)</td>
<td></td>
</tr>
<tr>
<td>SST 2383  Retail Merchandising and Buying Methods (3)</td>
<td></td>
</tr>
<tr>
<td>SST 3103  Sales Personalities &amp; Profiles (3)</td>
<td></td>
</tr>
<tr>
<td>SST 3153  Sales Engineering Techniques (3)</td>
<td></td>
</tr>
<tr>
<td>SST 3203  Customer Service Techniques (3)</td>
<td></td>
</tr>
<tr>
<td>SST 3363  Contract &amp; Sales Negotiation (3)</td>
<td></td>
</tr>
<tr>
<td>SST 3563  Principles of Supervision (3)</td>
<td></td>
</tr>
<tr>
<td>SST 3603  Sales Presentation Strategies (3)</td>
<td></td>
</tr>
<tr>
<td>SST 4102  Developing Team Leadership Skills (2)</td>
<td></td>
</tr>
<tr>
<td>SST 4203  Ethical Sales &amp; Service (3)</td>
<td></td>
</tr>
<tr>
<td>SST 4610  Senior Project I (1)</td>
<td></td>
</tr>
<tr>
<td>SST 4620  Senior Project II (3)</td>
<td></td>
</tr>
<tr>
<td>SST 4992  Senior Seminar (2)</td>
<td></td>
</tr>
</tbody>
</table>

**Technical Sales Core (minimum 20 credit hours)**

Select a minimum of 20 hours in consultation with the department chair.

<table>
<thead>
<tr>
<th>Support Course Required (1 credit hour)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>TBE 3090  Advanced Electronic Presentations (1)</td>
<td></td>
</tr>
</tbody>
</table>

**Support Course Electives (minimum 10 credit hours)**

Select from the following:

ACTG 2010  Survey of Accounting I (3)
ACTG 2020  Survey of Accounting II (3)
ATTCC 3520  Fleet Management (2)
ATTCC 3620  Automotive Business Practices (2)
ATTCC 4020  Environmental Issues (2)
BSAD 1010  Business and Society (3)
BSAD 3000  Small Business Management (3)
CHEF 4400  The Family in Stress (3)
COMM 3050  Theory and Literature of Interpersonal Communication (3)
COMM 3120  Advanced Public Speaking (3)
COMM 3810  Persuasive Communication (3)
COMM 3850  Advertising (3)
ENGL 3100  Professional & Technical Writing (3)
PSY 22000  Interpersonal Relationships (3)
PSY 3460  Social Psychology (3)
SST 1503  Introduction to Fashion Merchandising (3)
SST 2182  Credit and Collection Methods (2)

**INTERIOR DESIGN EMPHASIS - TECHNICAL SALES**

**BACHELOR DEGREE (B.S. OR B.A.)**

The four-year Interior Design Emphasis - Technical Sales degree provides students academic preparation for employment in residential and commercial design and as product representatives for architects and the interior design profession.

Students become knowledgeable in both residential and commercial design. They develop skills in sales, business practices, CAD, drafting, sketching, rendering, space planning, specification of materials, as well as history and theory. Art and drafting equipment are essential to the program of study.

In addition to classroom projects, students participate in various community projects, attend field trips, and participate locally in professional organizations such as ASID, IIDA and NKBA.

Upon completing the four-year Interior Design Technical Sales degree and two years work experience as a designer, graduates are eligible to sit for the NCIDQ (National Council for Interior Design Qualification) exam.

Students graduating with the Interior Design Technical Sales degree will meet guidelines for the practice of residential and commercial interior design, gain membership in professional organizations, apply for licensing, and be prepared to take the National Council for Interior Designer Qualification (NCIDQ) exam.

The practice of interior design has become complex, technical, and demanding, thus graduates need technical and sales skills to compete in the profession.

The interior design program is nationally endorsed by NKBA (National Kitchen/Bath Association). Completion of the bachelor’s degree program, a monitored 160-hour internship in the Kitchen/Bath industry, and submission of a NKBA Graduation Verification Form are required for certification by NKBA.

- **Program Prerequisite:** None.
- **Minor:** Not required.
- **Grade Requirements:** A grade of “C” or better in courses required for this major (a grade of “C-” is not acceptable) in addition to an overall GPA of 2.5 or higher.
- **Credit Hour Requirements:** A total of 124 hours is required for this program for graduation.

**Advisement**

All Interior Design students are required to meet with a faculty advisor each semester for course and program advisement. Contact Steven Eichmeier at 801-626-7595 or C. Daniel Litchford at 801-626-6913 for more information or to schedule an appointment.

**Admission Requirements**

Declare your program of study (see page 18). There are no admission or application requirements for this program.

**General Education**

Refer to pages 36-41 for Bachelor of Science or Bachelor of Arts requirements. In addition to courses taken for the AAS degree, a monitored 160-hour internship in the Kitchen/Bath industry, and submission of a NKBA Graduation Verification Form are required for certification by NKBA.

- **Grade Requirements:** A grade of “C” or better in courses required for this major (a grade of “C-” is not acceptable) in addition to an overall GPA of 2.5 or higher.
- **Credit Hour Requirements:** A total of 124 hours is required for this program for graduation.
The total of 25 credit hours is required, including American Institutions (3), ENGL EN2010 (3), 4 credit hours in Humanities/Creative Arts (ARTH CA1100 - Art and Architecture required for program), 3 credit hours in Social Science/Diversity, 6 credit hours in Physical Science or Life Science, and 6 credit hours in scientific inquiry.

**Course Requirements for B.S. Degree**

The requirements for the Interior Design AAS Degree must be met along with the requirements listed below.

### IDT and SST Courses Required (32 credit hours)

- **IDT 3040** Studio I Perspective/Rendering (2)
- **IDT 3050** Studio II Design Process/Space Planning (3)
- **IDT 4010** Barrier Free Design (3)
- **IDT 4020** Commercial Design (3)
- **IDT 4030** Studio V Senior Project (3)
- **IDT 4040** Studio VI Portfolio (1)
- **SST 3203** Customer Service Techniques (3)
- **SST 3363** Contract & Sales Negotiation (3)
- **SST 3563** Principles of Supervision (3)
- **SST 3603** Sales Presentation Strategies (3)
- **SST 4102** Developing Team Leadership Skills (2)
- **SST 4203** Ethical Sales & Service (3)

### Required Support Course (2 credit hours)

- **CMT 2360** Building Codes and Inspection (2)

### Recommended Courses

- **IDT 4860** Internship (3)
- **SST 4610** Senior Project (3)

### Suggested Course Sequence

Please refer to this program in the online catalog (weber.edu/catalog) and/or contact the department for a suggested course sequence.

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### SALES & SERVICE TECHNOLOGY COURSES - SST

**SST 1143. Fundamental Selling Techniques (3) Su, F, S**

A retail, wholesale, and direct selling course. Emphasis upon mastering and applying the fundamentals of selling. Preparation for and execution of sales demonstrations required.

**SST 1303. Distribution Principles (3) Su, F, S**

Examination of the distribution process of goods and services, the interrelationships of customer demands, production, pricing, promotion, and the movement of goods from producer to consumer.

**SST 1401. Introduction to Sales and Service Technology (1) Su, F, S**

This course is designed to help those new SST majors or those exploring the SST major field learn more about the career/employment options available. This course is also designed to review the various academic emphases, major requirements, and decision making process.

**SST 1503. Introduction to Fashion Merchandising (3) Su, F, S**

A study of the Fashion Merchandising industry, including careers in design, manufacturing, wholesaling, promotion, and retailing, including well-known designers, manufacturers, promotion media and apparel and accessory retail institutions.

**SST 1602. Advanced Selling Techniques (2) Su, F, S**

Study of advanced selling techniques, including persuasion, prospecting, client analysis, sales presentation organization and territory and time organization.

**SST 1890. Cooperative Work Experience (1-2) Su, F, S**

Open to all first year declared majors in Sales & Service. Provides academic credit for on-the-job experience. Grade and amount of credit will be determined by department.

**SST 2182. Credit and Collection Methods (2) Su, F, S**

The study of specific credit and collection methods for retail, wholesale, and service industries; including cost of retail credit, credit investigation, methods of collecting bad accounts, securing new business through credit applications, and credit control.

**SST 2383. Retail Merchandising and Buying Methods (3) Su, F, S**

The study of the retail buyer's duties, different buying organizations, and techniques, procedures of purchasing merchandise for resale and retail merchandising strategies.

**SST 2443. Advertising Methods (3) Su, F, S**

A study of advertising methods as they relate to local retail, wholesale, and service industries, including newspaper, magazine, radio, TV, mail, outdoor and special promotion events.

**SST 2703. Internet Sales and Service (3) Su, F, S**

The study of Internet sales, service and technology. Understanding the process of establishing an online business, setting up online shopping capabilities and database integration. Online customer service and retention, buyer behavior and current Internet sales issues are presented.

**SST 2890. Cooperative Work Experience II (1-2) Su, F, S**

Open to second year declared majors in Sales and Service. A continuation of SST 1890.

**SST 2899. Associate Degree Assessment (0)**

This course is to serve as an assessment tool whereby all AAS degree seeking students in the College of Applied Science and Technology demonstrate their learned knowledge in at least three areas of Applied Technology study. At present, this knowledge will be demonstrated through the use of the Work Keys exams administered through the Campus Testing Center.

**SST 2903. Professional Selling on the Internet (3) Su, F, S**

The study of selling and customer service techniques as they are applied to web site development and Internet sales.

**SST 2991. Sales/Service Technology Seminar (3) Su**

Directed studies, group discussions, and analysis of selected topics pertinent to sales and service technology. Also designed to prepare sales and service majors for the job market and career opportunities.

**SST 3103. Sales Personalities and Profiles (3) Su, F, S**

Utilization of personality profiling and behavioral styles profiling assessment instruments as applied to account representatives, retail salespersons, sales engineers, industrial product salespersons non-technical and service salespersons. Prerequisite: SST 1143.

**SST 3153. Sales Engineering Techniques (2 contact, 1 lab) Su, F, S**

A study of selling techniques required in order to sell products, systems, or services needed by industrial manufacturing, processing, mining, construction firms, or other related technical areas. Prerequisite: SST 3563 and TBE 3090.

**SST 3203. Customer Service Techniques (3) Su, F, S**

A study of customer service techniques required in order to sell products, systems, or services needed by industrial manufacturing, processing, mining, construction firms, or other related technical areas.

**SST 3363. Contract and Sales Negotiation Techniques (3) Su, F, S**

Principles, techniques and analysis of strategies involved in contract and sales negotiations. Development of integrated strategies through group and individual interaction. Prerequisite: SST 1143.
SST 3563. Principles of Supervision (3) Su, F, S
Practical application of first-line supervisory skills including choosing, organizing, training, and evaluating entry-level employees; making supervisory decisions; and solving first-line supervisory problems. Understanding the basic responsibilities of a supervisor in production organizations and service organizations.

SST 3603. Sales Presentation Strategies and Techniques (3) Su, F, S
Principles and practices for the five major categories of professional sales consultants. Prerequisites: SST 1143, 3153 and TBE 3090.

SST 4102. Developing Team Leadership Skills (2) Su, F, S
A skills based course designed to develop the interpersonal and leadership skills necessary to work effectively in teams and guide teams through the group stages of development. This course will be facilitated in such a way the participants will learn how to diagnose team developmental level and develop a high performing team by applying the principles of situational leadership and the DISC personality profiles system. Prerequisite: SST 3563.

SST 4203. Ethical Sales and Service (3) Su, F, S
Principles, techniques and analysis of ethics in the sales and service professions. Utilizes group interaction, individualized hands-on experiences and a field based experience.

SST 4610. Senior Project I (3) Su, F, S
A capstone project for students in their final year of the technical sales degree. Provides hands-on experiences in the areas of sales and service including sales, customer service techniques, presentation strategies, and team leadership development. This course focuses on working with sales and service problems in a departmentally approved work environment. Prerequisites: SST 3103, 3363, 3603.

SST 4620. Senior Project II (3) Su, F, S
A continuation of SST 4610. Prerequisites: SST 3103, 3363, 3603.

SST 4830. Directed Readings (1-3) F, S
Individual readings supervised by a faculty member. Prerequisite: Approval of instructor.

SST 4920. Short Courses, Workshops, etc. (1-2) F
Consult the semester class schedule for the current offering under this number. The specific title and credit authorized will appear on the student transcript.

SST 4992. Senior Seminar (2) Su, F, S
Research and discussion of sales and service related problems.

**DEPARTMENT**

**TELECOMMUNICATIONS & BUSINESS EDUCATION**

Chair: Dr. Alden A. Talbot
Location: Building 2, Room 218
Telephone Contact: Julie Warnick 801-626-6059
Professors: Diana J. Green, Alden A. Talbot; Associate Professors: Kenneth R. Cuddeback, Laura MacLeod, Allyson Saunders;
Instructor Specialist: Laura Anderson; Instructors: Pat McFerson, Joyce Porter

The Department of Telecommunications & Business Education offers an Associate of Applied Science Degree in Business Systems Technologies, an Associate of Applied Science Degree in Telecommunications, a Bachelor's Degree in Telecommunications Administration, and a Bachelor's Degree in Business Education with two emphases: a Composite Teaching degree or an emphasis in Business Systems Technologies. Minors are offered in Telecommunications, Business Systems Technologies, Multimedia, Business/Marketing Education, and Business Education. The last two minors require an education major. Also offered are a Telecommunications Certificate program and a Professional Network CISCO Option Certificate program.

The department offers courses in word processing, spreadsheets, database management, telecommunications, local area networks, desktop publishing, graphics, business communications, multimedia, network certification, and other related areas.

Telecommunications Administration graduates study both the voice side and the data side of the discipline. On the voice side, students learn about designing, installing, and managing phone systems, and making decisions regarding the purchase and operation of hardware and software. On the data side, students learn about computer networks, network operating systems, and computer application programs.

Business Education graduates are qualified to enter both the business world and the classroom. The Composite Teaching Emphasis qualifies individuals to teach business and marketing-related subjects at the secondary school level. The Business Systems Technologies Emphasis qualifies individuals for careers in information processing, administrative services, office administration, and supervision.

Business Systems Technologies Associate of Applied Science graduates are trained for employment as administrative assistants, information technology specialists, records managers, and other office-related positions.

**Departmental Policies**
Students for any degree from the Telecommunications & Business Education (TBE) programs are subject to the following policies:

1. To enroll in any intermediate or advanced computer course, the student must have a grade of C- or better in the preceding course.
2. TBE credits earned more than six years earlier than the proposed date of graduation must be evaluated by the department or validated through a challenge examination.
3. A student in TBE cannot obtain a degree from the department if any required course in the department has been taken for a grade more than three times.
4. Any deviation from the printed graduation requirements must be approved by the department chair PRIOR to taking the course(s) in question.

**TELECOMMUNICATIONS**

**ASSOCIATE OF APPLIED SCIENCE DEGREE (A.A.S)**

Please Note: A program change is pending approval. Please consult the online catalog at weber.edu/catalog.

- **Grade Requirements:** A grade of “C-” or better in courses required for this program in addition to an overall GPA of 2.5 or higher for all required Specific Major Courses and a minimum cumulative GPA for all courses of 2.00.
- **Credit Hour Requirements:** A total of 63 credit hours is required – 62 of these are required within the program. A total of 6 upper division credit hours (numbered 3000 or higher) is required within the program.
- **Assessment Requirements:** Students will be required to complete certain assessment instruments as part of the overall requirements for receiving their associate degree. Please see your advisor or your department for specific information regarding assessment.

**Advisement**
All two-year telecommunications students should meet with a faculty advisor for course and program advisement. Call Dr. Diana Green at 801-626-6821 or Kenneth Cuddeback at 801-626-6026 or call 801-626-6059 for more information or to schedule an appointment. Advisement may also be obtained in Building 2 room 218.
Admission Requirements
Declare a program of study (see page 18) with the department secretary (Building 2 room 218). There are no special admission or application requirements for this program.

General Education
Refer to pages 36-41 for Associate of Applied Science requirements. Computer Literacy as defined in this catalog is also required for the A.A.S. degree. TBE TE1700, Introduction to Microcomputer Applications, will partially fill the Computer Literacy requirement and COMM HU2110 and ECON SS1010 will be used to help fill both program and general education requirements.

Course Requirements for A.A.S Degree
Core Courses Required (11-14 credit hours)
- ENGL EN1010 Intro to Writing (3)
- ENGL EN2010 Intermediate Writing (3)
- Computer Literacy as defined in this catalog (2-4)
- MATH QL1030 Contemporary Mathematics (3)
- or MATH QL1040* Intro to Statistics (3)
- or MATH QL1050 College Algebra (4)

Specific Major Courses Required (40 credit hours)
TBE TE1700, Intro to Microcomputer Applications, or University Computer Literacy Exams (TBE TA1501, TB1502 and TC1503) are a prerequisite for all TBE courses listed below.
- TBE 1040 Speedbuilding Keyboarding (1)
- TBE 2010 Business English (3)
- TBE 2200 Microcomputer Operating Systems (3)
- TBE 2300 Intro to LAN Management (3)
- TBE 2415 Cisco TCP/IP Routing Protocols & Router Configuration (3)
- TBE 2435 Cisco Advanced LAN and WAN Switching and Routing Theory & Design (3)
- TBE 2500 Intro to Telecommunications (3)
- TBE 2710 Digital Switching Systems (3)
- TBE 2720 Transport Media & Emerging Technologies (3)
- TBE 2730 Digital Switching & Transport Applications (3)
- TBE 2899 Associate Degree Assessment (0)
- TBE 3070 Advanced Spreadsheet Applications (1)
- TBE 3080 Database Applications (1)
- TBE 3090 Advanced Electronic Presentations (1)
- TBE 3250 Business Communications (3)
- CEET 1105 Personal Computer Fundamentals (4)
- CEET 1110 Basic Electronics (2)

Support Courses Required (9 credit hours)
- ECON SS1010 Economics as a Social Science (3)
- COMM HU2110 Interpersonal & Small Group Communication (3)
- ACTG 2010 Survey of Accounting I (3)

Suggested Course Sequence
Please refer to this program in the online catalog (weber.edu/catalog) and/or contact the department for a suggested course sequence.

Telecommunications Administration Minor
BACHELOR DEGREE (B.S. OR B.A.)

Please Note: A program change is pending approval. Please consult the online catalog at weber.edu/catalog.

- Program Prerequisite: Completion or equivalent of a Weber State A.A.S. Degree in Telecommunication.
- Minor: Not required.
- Grade Requirements: A grade of “C-” or better in courses required for this major in addition to an overall GPA in TBE courses of 2.50 or higher. Also refer to page 36 for graduation requirements.

Credit Hour Requirements: A total of 120-126 credit hours is required for graduation. A total of 40 upper division credit hours is required (courses numbered 3000 and above) – 38 of these credit hours are required within the major.

Advisement
All Telecommunications Administration students should meet with a faculty advisor for course and program advisement. Call Kenneth Cuddeback at 801-626-6026 or Dr. Diana J. Green at 801-626-6821 or call 801-626-6059 for more information or to schedule an appointment. Advisement may also be obtained in Building 2 room 218.

General Education
Refer to pages 36-41 for Associate of Applied Science or Bachelor of Arts requirements. TBE TE1700, Introduction to Microcomputer Applications, will partially fill the Computer Literacy requirement. COMM HU2110 and ECON SS1010 will fill 6 credits of both program and general education requirements. TBE 4710 will fill 3 credits of the Bachelor of Science requirement.

Course Requirements for B.S. or B.A. Degree

To be taken in addition to the requirements for the A.A.S Degree in Telecommunication.

Specific Major Courses Required (29 credit hours)
- TBE 3532 Web Page Design and Development (3)
- TBE 3550 Supervising Information Technology (3)
- TBE 3730 Telecommunications Policy (3)
- TBE 4700 Data Network Design (3)
- TBE SI4710 Traffic Technology & Voice Network Design (3)
- TBE 4760 Telecommunications Internship (3)
- TBE 4790 Telecommunications Senior Project (2)

Select three courses from the following (9 credit hours)
- TBE 3200 Linux Systems Administration (3)
- TBE 3710 Fiber Optics in Telecommunications (3)
- TBE 3720 Wireless Telephony (3)

Support Courses Required (9 credit hours)
The following requirements must be completed with a grade of C- or higher.
- MGMT 3010 Organizational Behavior & Management (3)
- MGMT 4400 Advanced Organizational Behavior (3)
- MKTG 3010 Marketing Concepts & Practices (3)

Suggested Course Sequence
Please refer to this program in the online catalog (weber.edu/catalog) and/or contact the department for a suggested course sequence.
General

Course Requirements for Minor
TBE TE1700, Introduction to Microcomputer Applications, or Computer Information Literacy requirement is a prerequisite for all course listed below.

Courses Required (23 credit hours)
TBE 2200 Microcomputer Operating Systems (3)
TBE 2300 Intro to LAN Management (3)
TBE 2500 Intro to Telecommunications (3)
TBE 2710 Digital Switching Systems (3)
TBE 2720 Transport Media & Emerging Technologies (3)
TBE 2730 Digital Switching & Transport Applications (3)
TBE 4700 Data Network Design (3)
or TBE SI4710 Voice Network Design (3)
or CEET 1110 Basic Electronics (2)

TELECOMMUNICATIONS INSTITUTIONAL CERTIFICATE

» Grade Requirements: A minimum overall GPA of 2.00 or "C".
» Credit Hour Requirements: A total of 18 credit hours is required in addition to Computer Competency (at least 10 of which must be residence hours taken from WSU).

Course Requirements for Institutional Certificate
Computer Competency Requirement
Students must demonstrate computer competency in one of the following ways:
TBE TE1700 Intro to Microcomputer Applications (3)
or University Computer Competency Exams (TBE TA1501, TB1502, & TC1503)

Telecommunications Course Requirements (18 credit hours)
TBE 2300 Intro to LAN Management (3)
TBE 2500 Intro to Telecommunications (3)
TBE 2710 Digital Switching Systems (3)
TBE 2720 Transport Media & Emerging Technologies (3)
TBE 2730 Digital Switching & Transport Applications (3)
TBE 4700 Data Network Design (3)
or TBE SI4710 Traffic Technology & Voice Network Design (3)

PROFESSIONAL NETWORK CISCO OPTION

CERTIFICATION PROGRAM

» Grade Requirements: A minimum overall GPA of 2.00 or "C".
» Credit Hour Requirements: A total of 12 credit hours is required in addition to Computer Competency (at least 10 of which must be residence hours taken from WSU).

Course Requirements for Certification
Computer Competency Requirement (2-4 credit hours)
Students must demonstrate computer competency in one of the following ways:
TBE TE1700 Intro to Microcomputer Applications (3)
either LIBS TD1704 (1) or LIBS TD2201 (2)
or University Computer Competency Exams (TBE TA1501, TB1502, TC1503, & TD1504)

General Requirements (6 credit hours)
TBE 2300 Intro to LAN Management (3)
TBE 2500 Intro to Telecommunications (3)

CISCO Courses Required (6 credit hours)
TBE 2415 Cisco TCP/IP Routing Protocols and Router Configuration (3)
TBE 2435 Cisco Advanced LAN and WAN Switching and Routing Theory and Design (3)

BUSINESS SYSTEMS TECHNOLOGIES ASSOCIATE OF APPLIED SCIENCE DEGREE (A.A.S)

Please Note: A program change is pending approval. Please consult the online catalog at weber.edu/catalog.

» Grade Requirements: A grade of "C-" or better in courses required for this program in addition to an overall GPA of 2.50 or higher for all required TBE courses and a minimum cumulative GPA for all courses of 2.00.

» Credit Hour Requirements: A total of 63 credit hours is required – 53 of these are required within the program. A total of 9 upper division credit hours (courses numbered 3000 or higher) is required within the program.

» Assessment Requirements: Students will be required to complete certain assessment instruments as part of the overall requirements for receiving their associate's degree. Please see your advisor or your department for specific information regarding assessment.

Admission
All Business Systems Technologies students should meet with a faculty advisor for course and program advisement. Call Dr. Laura MacLeod at 801-626-6822 for more information or to schedule an appointment. Advisement may also be obtained in room 218 of building B2 or call 801-626-6059.

Admission Requirements
Declare your program of study (see page 18). There are no special admission or application requirements for this program.

General Education
Refer to pages 36-41 for Associate of Applied Science requirements. Computer Literacy as defined in this catalog is also required for the A.A.S. degree. TBE1700, Introduction to Microcomputer Applications, will partially fill the Computer Literacy requirement and COMM HU2110 and ECON SS1010 will partially fill the Computer Literacy as defined in this catalog.

Course Requirements for A.A.S. Degree
Core Courses Required (9-10 credit hours)
ENGL EN1010 Intro to Writing (3)
ENGL EN2010 Intermediate Writing (3)
Computer Literacy as defined in this catalog
MATH QL1030 Contemporary Mathematics (3)
or MATH QL1040 Intro to Statistics (3)
or MATH QL1050 College Algebra (4)

*recommended for those individuals going on for a bachelor's degree in the TBE Department

General Education Courses Required (9 credit hours)
Refer to pages 36-41 for Associate of Applied Science requirements.

Specific Major Courses Required (32 credit hours)
TBE TE1700, Intro to Microcomputer Applications, or University Computer Literacy Exams (TBE TA1501, TB1502 and TC1503) are a prerequisite for all TBE courses listed below.
TBE 1040 Speedbuilding Keyboarding (1)
TBE 2010 Business English Applications (3)
TBE 2200 Microcomputer Operating Systems (3)
TBE 2300 Intro to LAN Management (3)
TBE 2531 Exploring Multimedia Applications (3)
TBE 2533 2D Graphics (3)
TBE 2860 Business Systems Technologies Practicum (2)
Specific Major Courses Required (5 credit hours)

To be taken in addition to the requirements for the A.A.S. Degree in Business Systems Technologies.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>TBE 2899</td>
<td>Associate Degree Assessment (0)</td>
</tr>
<tr>
<td>TBE 3000</td>
<td>Advanced Word Processing (1)</td>
</tr>
<tr>
<td>TBE 3070</td>
<td>Advanced Spreadsheet Applications (1)</td>
</tr>
<tr>
<td>TBE 3100</td>
<td>Desktop Publishing (3)</td>
</tr>
<tr>
<td>TBE 3250</td>
<td>Business Communication (3)</td>
</tr>
<tr>
<td>TBE 3532</td>
<td>Web Page Design and Development (3)</td>
</tr>
<tr>
<td>TBE 3533</td>
<td>Multimedia Web Animation (3)</td>
</tr>
</tbody>
</table>

Support Courses Required (9 credit hours)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECON SS1011</td>
<td>Economics as a Social Science (3)</td>
</tr>
<tr>
<td>ACTG 2010</td>
<td>Survey of Accounting I (3)</td>
</tr>
<tr>
<td>COMM HU2110</td>
<td>Intro to Interpersonal &amp; Small Group Communication (3)</td>
</tr>
</tbody>
</table>

Suggested Course Sequence

Please refer to this program in the online catalog (weber.edu/catalog) and/or contact the department for a suggested course sequence.

**BUSINESS EDUCATION MAJOR:**

**COMPOSITE TEACHING EMPHASIS**

**BACHELOR DEGREE** *(B.S. OR B.A.)*

Please Note: A program change is pending approval. Please consult the online catalog at weber.edu/catalog.

- **Program Prerequisite:** Completion or equivalent of a Weber State A.A.S. Degree in Business Systems Technologies. Composite Teaching Emphasis majors must satisfy Teacher Education admission and certification requirements (see Teacher Education Department).
- **Minor:** Not required.
- **Grade Requirements:** A grade of "C-" or better in courses required for this major in addition to an overall GPA in TBE courses of 2.50 or higher. An overall GPA of 3.00 is required for admission to the Teacher Education program.
- **Credit Hour Requirements:** A total of 120-126 credit hours is required for graduation. A total of 40 upper division credit hours is required (courses numbered 3000 and above) – all of these credit hours are required within the major.

Advisement

Business Education Composite Teaching Emphasis students should meet with a faculty advisor for course and program advisement. Call Dr. Allyson Saunders at 801-626-6269 or call 801-626-6059 for more information or to schedule an appointment. Advisement may also be obtained in room 218 of building B2. Teaching majors should also consult with an advisor in the Jerry and Vickie Moyes College of Education (call 801-626-6269).

Admission Requirements

Complete the A.A.S. Degree in Business Systems Technologies or equivalent. Declare your program of study (see page 18). Composite Teaching majors must also satisfy Teacher Education admission and certification requirements (see Teacher Education Department).

General Education

Refer to pages 36-41 for either Bachelor of Science or Bachelor of Arts requirements. The following courses required for the Business Education teaching major will also satisfy general education requirements: CHF SS1500, COMM HU2110, and ECON SS1010.

Course Requirements for B.S. or B.A. Degree

To be taken in addition to the requirements for the A.A.S. Degree in Business Systems Technologies.

Specific Major Courses Required (14 credit hours)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>TBE 2500</td>
<td>Introduction to Telecommunications (3)</td>
</tr>
<tr>
<td>TBE 3080</td>
<td>Database Applications (1)</td>
</tr>
<tr>
<td>TBE 3090</td>
<td>Advanced Electronic Presentations (1)</td>
</tr>
<tr>
<td>TBE 3400</td>
<td>Training the Trainer (3)</td>
</tr>
<tr>
<td>TBE 3550</td>
<td>Supervising Information Tech (3)</td>
</tr>
<tr>
<td>TBE 4990</td>
<td>Senior Project (3)</td>
</tr>
</tbody>
</table>

Electives (6 credit hours)

Select 6 credit hours not previously taken from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>TBE 2534</td>
<td>Audio/Video Production for the Web (3)</td>
</tr>
<tr>
<td>TBE 3534</td>
<td>Advanced Multimedia Applications (3)</td>
</tr>
<tr>
<td>TBE 3535</td>
<td>Advanced Image Editing (3)</td>
</tr>
</tbody>
</table>

Support Courses Required (12 credit hours)

The following requirements must be completed with a grade of "C-" or higher.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>MGMT 3010</td>
<td>Organization Behavior &amp; MGMT (3)</td>
</tr>
<tr>
<td>MKTG 3010</td>
<td>Marketing Concepts &amp; Practices (3)</td>
</tr>
<tr>
<td>BSAD 3200</td>
<td>Legal Environment of Business (3)</td>
</tr>
<tr>
<td>FIN 1010</td>
<td>Personal Finance (3)</td>
</tr>
</tbody>
</table>

Secondary Education Requirements for the Jerry and Vickie Moyes College of Education must also be met. (36-40 credit hours)

TBE 3250, Business Communication (3), will meet the COMM HU2110 requirement for Teacher Education Certification.

**Suggested Course Sequence**

Please refer to this program in the online catalog (weber.edu/catalog) and/or contact the department for a suggested course sequence.

**BUSINESS EDUCATION MAJOR:**

**BUSINESS SYSTEMS TECHNOLOGIES EMPHASIS**

**BACHELOR DEGREE** *(B.S. OR B.A.)*

Please Note: A program change is pending approval. Please consult the online catalog at weber.edu/catalog.

- **Program Prerequisite:** Completion or equivalent of a Weber State A.A.S. Degree in Business Systems Technologies.
- **Minor:** Not required.
- **Grade Requirements:** A grade of "C-" or better in courses required for this major in addition to an overall GPA for TBE courses of 2.50 or higher.
- **Credit Hour Requirements:** A total of 120-126 credit hours is required for graduation. A total of 40 upper division credit hours is required (courses numbered 3000 and above) – all of these credit hours are required within the major.

Advisement

Business Systems Technologies Emphasis students should meet with a faculty advisor for course and program advisement. Call Dr. Laura MacLeod at 801-626-6822 or call 801-626-6059 for more information or to schedule an appointment. Advisement may also be obtained in room 218 of building B2.

Admission Requirements

Complete the A.A.S. Degree in Business Systems Technologies or equivalent. Declare your program of study (see page 18).

General Education

Refer to pages 36-41 for either Bachelor of Science or Bachelor of Arts requirements. The following courses required for the Business Education major will also satisfy general education requirements: COMM HU2110 and ECON SS1010.

Course Requirements for B.S. or B.A. Degree

To be taken in addition to the requirements for the A.A.S. Degree in Business Systems Technologies.

Specific Major Courses Required (14 credit hours)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>TBE 2500</td>
<td>Introduction to Telecommunications (3)</td>
</tr>
<tr>
<td>TBE 3080</td>
<td>Database Applications (1)</td>
</tr>
<tr>
<td>TBE 3090</td>
<td>Advanced Electronic Presentations (1)</td>
</tr>
<tr>
<td>TBE 3400</td>
<td>Training the Trainer (3)</td>
</tr>
<tr>
<td>TBE 3550</td>
<td>Supervising Information Tech (3)</td>
</tr>
<tr>
<td>TBE 4990</td>
<td>Senior Project (3)</td>
</tr>
</tbody>
</table>

Electives (6 credit hours)

Select 6 credit hours not previously taken from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>TBE 2534</td>
<td>Audio/Video Production for the Web (3)</td>
</tr>
<tr>
<td>TBE 3534</td>
<td>Advanced Multimedia Applications (3)</td>
</tr>
<tr>
<td>TBE 3535</td>
<td>Advanced Image Editing (3)</td>
</tr>
</tbody>
</table>
Support Courses Required (15 credit hours)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>MKTG 3010</td>
<td>Marketing Concepts &amp; Practices (3)</td>
</tr>
<tr>
<td>MGMT 3010</td>
<td>Organizational Behavior &amp; Management (3)</td>
</tr>
<tr>
<td>MGMT 4400</td>
<td>Advanced Organizational Behavior (3)</td>
</tr>
<tr>
<td>BSAD 3200</td>
<td>Legal Environment of Business (3)</td>
</tr>
<tr>
<td>SST 3203</td>
<td>Customer Service Techniques (3)</td>
</tr>
</tbody>
</table>

Suggested Course Sequence

Please refer to this program in the online catalog (weber.edu/catalog) and/or contact the department for a suggested course sequence.

BUSINESS EDUCATION

TEACHING MINOR

Please Note: A program change is pending approval. Please consult the online catalog at weber.edu/catalog.

| Grade Requirements: A grade of “C-” or better in courses used toward the minor with an overall GPA of 2.50 or better in all TBE courses. Students must have correct keyboarding ability with at least 40 wpm proficiency. |
| Credit Hour Requirements: A minimum of 24 credit hours. |

Advisement

The Business Education Teaching Minor must be cleared with the TBE Department by the beginning of a student’s junior year. Students must meet with a faculty advisor for course and program advisement. Call Dr. Allyson Saunders at 801-626-6823 or call 801-626-6059 for more information or to schedule an appointment. Advisement may also be obtained in room 218 of building B2.

Students who select the Business Education Teaching Minor must satisfy the Teacher Education admission and certification requirements (see Teacher Education Department in this catalog) and must have a teaching major. They must also student teach at least one class in relation to the minor.

Course Requirements for Minor

TBE TE1700, Introduction to Microcomputer Applications, or Computer literacy requirement is a prerequisite for all TBE courses listed below.

Required Courses (30 credit hours)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>TBE 2200</td>
<td>Microcomputer Operating Systems (3)</td>
</tr>
<tr>
<td>TBE 2531</td>
<td>Exploring Multimedia Applications (3)</td>
</tr>
<tr>
<td>TBE 3000</td>
<td>Advanced Word Processing (1)</td>
</tr>
<tr>
<td>TBE 3250</td>
<td>Business Communication (3)</td>
</tr>
<tr>
<td>TBE 3532</td>
<td>Web Page Design and Development (3)</td>
</tr>
<tr>
<td>TBE 3600*</td>
<td>Principles of Business/Marketing Ed (2)</td>
</tr>
<tr>
<td>TBE 3610*</td>
<td>Methods of Teaching Business/Marketing Ed</td>
</tr>
<tr>
<td>MG 2200</td>
<td>Survey of Accounting I (3)</td>
</tr>
<tr>
<td>MKTG 3010</td>
<td>Marketing Concepts &amp; Practices (3)</td>
</tr>
<tr>
<td>SST 2443</td>
<td>Advertising Methods (3)</td>
</tr>
<tr>
<td>SST 3203</td>
<td>Customer Service Techniques (3)</td>
</tr>
</tbody>
</table>

*Must be taken before student teaching.

BUSINESS SYSTEMS TECHNOLOGIES

MINOR OR BIS EMPHASIS

Please Note: A program change is pending approval. Please consult the online catalog at weber.edu/catalog.

For the BIS emphasis, refer to Bachelor of Integrated Studies (BIS) in the Interdisciplinary Programs section of this catalog.

| Grade Requirements: A grade of “C-” or better in courses used toward the minor with an overall GPA of 2.50 or higher in all TBE courses. |
| Credit Hour Requirements: Minimum of 19 credit hours. Students must have a correct keyboarding ability of at least 40 wpm proficiency. |

Advisement

Students should meet with a faculty advisor for course and program advisement. Call Dr. Laura MacLeod (for the Minor) at 801-626-6822 or call 801-626-6059 for more information or to schedule an appointment. Advisement may also be obtained in room 218 of Building B2.

Course Requirements for Minor or BIS Emphasis

TBE TE1700, Introduction to Microcomputer Applications, or Computer literacy requirement is a prerequisite for all courses listed below.

Required Course (4 credit hours)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>TBE 2531</td>
<td>Exploring Multimedia Applications (3)</td>
</tr>
<tr>
<td>TBE 3090</td>
<td>Advanced Electronic Presentations (1)</td>
</tr>
</tbody>
</table>
### Emphasis Areas

Select 15 credit hours from one of the following emphasis areas:

**• Business Systems Emphasis:**
- TBE 2010 Business English Applications (3)
- TBE 2200 Microcomputer Operating Systems (3)
- TBE 2300 Introduction to LAN Management (3)
- TBE 2500 Introduction to Telecommunications (3)
- TBE 2533 2D Graphics (3)
- TBE 3000 Advanced Word Processing (1)
- TBE 3070 Advanced Spreadsheet Applications (1)
- TBE 3080 Database Applications (1)
- TBE 3100 Desktop Publishing (3)
- TBE 3250 Business Communications (3)

**• Multimedia Emphasis:**
- TBE 2532/3532 Web Page Design and Development (3)
- TBE 2533 2-D Graphics (3)
- TBE 2534 Audio/Video Production for the Web (3)
- TBE 3100 Desktop Publishing (3)
- TBE 3533 Multimedia Web Animation (3)
- TBE 3534 Advanced Multimedia Applications (3)
- TBE 3535 Advanced Image Editing (3)
- DGET 3400 Technical Illustrations & Documentation (3)

  *(TBE 2533 recommended prerequisite for DGET 3400)*

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**TELECOMMUNICATIONS & BUSINESS EDUCATION COURSES - TBE**

**TBE 1040. Speedbuilding Keyboarding (1) F**  

**TBE TA1501.* Word Processing Competency Exam (1) Su, F, S**  
The computer competency exam for this course is a hands-on examination verifying a student’s skills at using word processing software. Practice materials are available on the web for studying the competencies covered on the test. The one hour exam must be completed during the semester registered. Two repeats of the exam may be taken during the semester with an additional fee charged. The grade for this course is credit/no credit.

**TBE TB1502.* Microcomputers, Operating Systems, and Electronic Presentations Competency Exam (1) Su, F, S**  
The computer competency exam for this course is a hands-on examination verifying a student’s skills at using Microcomputers, Operating Systems, and Electronic Presentations. Practice materials are available on the web for studying the competencies covered on the test. The one-hour exam must be completed during the semester registered. Two repeats of the exam may be taken during the semester with an additional fee charged. The grade for this course is credit/no credit.

**TBE TC1503.* Spreadsheets Competency Exam (1) Su, F, S**  
The computer competency exam for this course is a hands-on examination verifying a student’s skills at using spreadsheet software. Practice materials are available on the web for studying the competencies covered on the test. The one-hour exam must be completed during the semester registered. Two repeats of the exam may be taken during the semester with an additional fee charged. The grade for this course is credit/no credit.

**TBE TD1504.* Information Literacy Competency Exam (1) Su, F, S**  
This exam verifies a student’s information literacy competency. Web tutorials and an online course are available for students to use to study for this exam at their own pace. Sample questions and a practice test will be available. Students may also request assistance with studying for this exam at the library reference desk. The exam must be completed during the semester registered. Repeats of the exam may be taken during the semester with an additional fee charged for each time the exam is taken after the first time. The grade for this course will be credit/no credit. Students may also fulfill this exam requirement by passing (with a C- or better) LIBS TD1704.

  *Note: After registering for any of the Computer & Information Literacy exams (TBE TD1501-TD1504), schedule an exam time online at [http://weber.edu/edu/tbe](http://weber.edu/edu/tbe) (click on Computer Literacy and “Schedule Exam Time”). Failure to do this constitutes non-attendance and may result in no credit for the exam. No exams are given during final exam week.*

**TBE TE1700. Introduction to Microcomputer Applications (3) Su, F, S**  
Use of microcomputers and software including basic components of word processing, Windows, e-mail, Internet, spreadsheets, graphic presentations, information security, ethics, and international issues. Keyboarding 25 wpm recommended.

**TBE TA1701. Introduction to Word Processing (1) Su, F, S**  
Basic components of word processing including creating, retrieving, editing documents and importing graphics. Keyboarding 25 wpm recommended.

**TBE TB1702. Introduction to Microcomputers, E-mail, Operating Systems, and Electronic Presentations (1) Su, F, S**  
Use of microcomputers and software including basic components: Windows, e-mail, Internet, electronic presentations, information security, ethics, and international issues. Keyboarding 25 wpm recommended.

**TBE TC1703. Introduction to Spreadsheets (1) Su, F, S**  
Basic components of spreadsheets for creating, manipulating, and applying formulas and creating graphs. Keyboarding 25 wpm recommended.

**TBE 2010. Business English Applications (3) F, S**  
Includes Business English essentials: grammar, punctuation, and proofreading. Prerequisite: TBE TE1700 or TBE TA1701. Keyboarding 40 wpm recommended.

**TBE 2200. Microcomputer Operating Systems (3) F, S**  
Study of hardware and software components through managing programs, directories, files, and disks. Includes integrating applications, customizing windows, and managing printing. Prerequisite: TBE TE1700 or TB1702.

**TBE 2300. Introduction to LAN Management (3) F, S**  
Local area networking concepts including needs analysis, applications, topologies and configurations, and troubleshooting using hands-on labs. Prerequisite: TBE 2200.

**TBE 2415. Cisco TCP/IP Routing Protocols and Router Configuration (3) F**  
This course is the first in a two-course series designed to prepare students to pass the examinations for Cisco Certified Network Associate (CCNA). This course covers the OSI model, network components and topologies, IP addressing, beginning router configuration and routing protocols. Prerequisite: TBE 2300.

**TBE 2435. Cisco Advanced LAN and WAN Switching and Routing Theory and Design (3) S**  
This course is the second in a two-course series designed to prepare students to pass the examinations for Cisco Certified Network Associate (CCNA). This course covers advanced router configurations,
LAN switching theory and VLANs, advanced LAN and LAN switched design, Novell IPX, WAN theory design and technology, PPP, frame relay, ISDN, network troubleshooting, national SCANS skills, and threaded case studies. Prerequisite: TBE 2415 or CS 2705.

TBE 2500. Introduction to Telecommunications (3) F, S
Fundamental voice and data concepts of telecommunications, including state-of-the-art technologies and applications.

TBE 2531. Exploring Multimedia Applications (3) F
Capabilities and limitations of multimedia technology, evaluation of multimedia products, and creation of a multimedia portfolio. Prerequisite: TBE TE1700 or TA1701.

TBE 2532/3532. Web Page Design and Development (3) F, S
Build familiarity with features of software in order to plan, design, and implement a successful web site, and to understand the techni- calities of the World Wide Web and the Internet. Prerequisite: TBE TE1700 or TA1701 and TB1702 or equivalent. Course can be taken once as 2532 or as 3532 for credit, not both.

TBE 2533. 2-D Graphics (3) F
Course covers the fundamentals of 2-D graphic drawing, painting, and editing software such as PhotoShop, Illustrator, and Paint Shop Pro. Emphasis is on the creation of printed and electronic business publications. Images will be scanned and edited in PhotoShop. Vector and bitmap graphics will be created using Adobe Illustrator and Paint Shop Pro. Prerequisite: TBE TE1700 or 1701 and 1702 or equivalent.

TBE 2534. Audio/Video Production for the Web (3) S
Students will create short digital movies for use in web presen- tations. Using video editing software such as Adobe Premiere, students will combine and edit video clips and audio files to create movies. Audio files used in the movies will be recorded and edited using audio software. Prerequisite: TBE TE1700.

TBE 2610. NetWare Administration (3) F
This is the introductory course to Novell Administration involving setting up, managing, and using basic network services, including file systems, network printing, security, and Z.E.N. Works. After completing this course and successfully passing the Novell test, the candidate becomes a Certified Novell Administrator (CNA). Prere- quisite: Computer Competency or TBE TE1700.

TBE 2710. Digital Switching Systems (3) F
The management and the financial impact of switching systems and their technologies from central offices to PBXs and key systems. Prerequisite: TBE 2500.

TBE 2720. Transport Media & Emerging Technologies (3) F
Investigation into the common types of telecommunication transport media, including the usual uses, operating characteristics, business applications, and emerging technologies in the marketplace. Prerequisite: TBE 2500.

TBE 2730. Digital Switching and Transport Applications (3) F, S
Study of a telephone switch including planning, managing, and troubleshooting. Security issues are discussed and incorporated when students complete hands-on lab projects. Prerequisites or Co-requisites: TBE 2710 and TBE 2720.

TBE 2860. Business Systems Technologies Practicum (1-6) S
Open to all students who meet the minimum requirements of the department for business-related on-the-job experiences. Approval of instructor and employer is required. Amount of credit will be determined by the department.

TBE 2899. Associate Degree Assessment (0) Su, F, S
This course is to serve as an assessment tool whereby all AAS degree seeking students in the College of Applied Science and Technol- ogy demonstrate their learned knowledge in at least three areas of Applied Technology study. At present, this knowledge will be demon- strated through the use of the Work Keys exams administered through the Campus Testing Center.

TBE 2920. Short Courses, Workshops, Institutes, and Special Programs (1-4) F, S
Consult the class schedule for the current offering under this number. The specific title and credit authorized will appear on the student transcript.

TBE 3000. Advanced Word Processing (1) F, S
Use of word processing software including sorts, tables, columns, reports, merges, graphics, and macros. Prerequisite: TBE TE1700 or TA1701.

TBE 3070. Advanced Spreadsheet Applications (1) Su, F, S
Use of spreadsheet software including macros, sorts, advanced for- mulas, graphs, and creative presentations. Prerequisite: TBE TE1700 or 1703.

TBE 3080. Database Applications (1) F, S
Use of database software to design and create a database, including objects such as tables, queries, reports, and forms. Use of advanced management features such as macros, switchboards, referential integ- rity, and compound criteria. Prerequisite: TBE TE1700 or TB1702.

TBE 3090. Advanced Electronic Presentations (1) Su, F, S
Use of electronic slide presentation software to create slides consist- ing of short paragraphs, bulleted lists, graphic images, movie clips, audio clips, data charts, diagrams, and imported data from other software. Emphasis will also be placed on slide design and anima- tion of slide elements. Prerequisite: TBE TE1700 or equivalent.

TBE 3100. Desktop Publishing (3) F, S
Use of desktop publishing software including analyzing, design- ing, creating, and editing brochures, flyers, and other publications. Prerequisite: Word processing background.

TBE 3200. Linux Systems Administration (3) F
This course gives students a solid foundation in the fundamentals of the Linux operating system. Students gain system-level experience through problem-solving exercises at the command line and in the graphical user interface (GUD). By the end of the course, students will have learned the major, essential, command-line commands necessary to be accomplished users of Linux. Prerequisite: TBE 2200.

TBE 3250. Business Communication (3) Su, F, S
Application of oral and written communication, including diver- sity and international aspects of communication. Prerequisite: ENGL EN2010.

TBE 3300. Advanced LAN Security Management (3) S
Advanced concepts of Local Area Network management including performance, maintenance, security, and TCP/IP protocols using hands-on labs. Course will utilize common security tools for all current operating systems. Extensive use of Linux network security tools will be used. Prerequisite: TBE 2300 and TBE 3200 or instructor permission.

TBE 3400. Training the Trainer (3) S
Real-world strategies and techniques to provide better employee training, including development of materials and methods to enhance the learning process.

TBE 3415. Cisco CCNPB-Advanced Router Configuration (3)
Building Scalable Cisco Networks (BSCN). Addresses tasks network managers and administrators need to perform when managing
access and controlling overhead traffic in growing routed networks once basic connectivity has been established. Discusses router capabilities used to control traffic over LANs and WANs, as well as connecting corporate networks to an Internet Service Provider (ISP). Prerequisite: TBE 2435 or CCNA Certification.

**TBE 3425. Cisco CCNP-Building Cisco Switched Networks (3)**

Building Cisco Multilayer Switched Networks (BCMSN). Teaches network administrators how to build campus networks using multi-layer switching technologies over high speed Ethernet. Teaches how routing and switching concepts and implementations technologies work together. Prerequisite: TBE 2435 or CCNA Certification.

**TBE 3435. Cisco CCNP-Remote Access Networks (3)**

Teaches how to build a remote access network to interconnect central sites to branch offices and home office/telecommuters. Further teaches students how to control access to the central site as well as maximizes bandwidth utilization over remote links. Prerequisite: TBE 2435 or CCNA Certification.

**TBE 3445. Cisco CCNP-Internetwork Troubleshooting (3)**

Hands-on lab exercises. Covers developments in Cisco IOS and Catalyst software. Teaches how to baseline and troubleshoot an environment using Cisco routers and switches for multiprotocol client hosts and servers connected with : Ethernet, Fast Ethernet, and Token Ring LANs; and Serial, Frame Relay and ISDN BRI WANs. Prerequisite: TBE 2435 or CCNA Certification.

**TBE 3533. Multimedia Web Animation (3)**

Introduces various types of current motion-related technologies. Students discuss technical issues affecting animation such as speed and compression. Students go in-depth into two software packages to create movies and animated GIFs. Programs such as Macromedia Flash, Paint Shop Pro, and Photoshop will be used. Prerequisite: TBE TE1700.

**TBE 3534. Advanced Multimedia Applications (3)**

Students will design and produce advanced multimedia projects applicable for business and industry. These projects will be produced by combining animation, audio, graphics, video, and text into interactive multimedia presentations. Prerequisites: TBE TE1700 and TBE 3533.

**TBE 3535. Advanced Image Editing (3)**

Students learn advanced skills in image editing software. Emphasis will be placed on advanced layer techniques, advanced retouching and repairing techniques, prepress and color management, and web image optimization. The course will involve a combination of lecture and lab. Prerequisite: TBE 2533.

**TBE 3550. Supervising Information Technology (3)**

Analyzing Information Technology (IT) systems and procedures including planning and implementation, departmental structure and operations, and the responsibilities and productivity of IT personnel. Prerequisite: TBE 2500 required.

**TBE 3600. Principles of Business/Marketing Education (2)**

Professionalism, curriculum, standards, counseling, tech prep, competency-based testing, research, and current issues and trends in Business/Marketing Education. Must be taken before student teaching.

**TBE 3610. Methods of Teaching Business/Marketing Education Subjects (3)**

Analysis and research into methods of teaching business and marketing subjects with emphasis on teaching demonstrations and practices, objectives, outcome measurements, testing, and grading. Must be taken before student teaching. Prerequisite: TBE TE1700.

**TBE 3710. Fiber Optics in Telecommunications (3)**

Introduction to Fiber Optical Communications prepares tomorrow’s information system professionals with fundamental concepts and skills needed to bring them to the forefront of the information transformation as it is characterized by broadband high-speed optical networks for Internets, WAN, and LAN. Prerequisites: TBE 2710 and TBE 2720.

**TBE 3720. Wireless Telephony (3)**

An examination of the growing wireless telecommunications market and wireless applications for industry and commercial use. An analysis of competing technologies in relation to network design, equipment configurations, hardware technologies, and a study of emerging wireless technologies versus traditional wire-based services. Prerequisites: TBE 2710 and TBE 2720.

**TBE 3730. Telecommunications Policy (3)**

Explores how the structural, competitive economic, and environmental forces affect the continuing transformation of the telecommunications industry both domestically and internationally. Discussion of the impact of contemporary issues on the provider and the consumer of telecommunications services including the taxation of electronic commerce. Prerequisite: TBE 2710 and TBE 2720.

**TBE 4700. Data Network Design (3)**

Architecture, technologies, and standards associated with the design and management of modern data networks. Hands-on experience in configuring and troubleshooting various network components and architectures. Prerequisite: TBE 2710 and 2720.

**TBE 4710. Traffic Technology & Voice Network Design (3)**

Develop an understanding of network facilities and their uses. Understand and use correct network design principles in stand-alone and multi-PBX environments. Prerequisite: TBE 2710, 2720, and MATH QL1050.

**TBE 4760. Telecommunications Internship (1-4)**

Must be completed senior year in a telecommunications environment with company placement and objectives approved by the department. Simultaneous enrollment in TBE 4790 is required. Prerequisite: TBE 4700 and 4710.

**TBE 4790. Telecommunications Senior Project (2)**

Capstone project applying the principles of telecommunications to the development of a telecommunications system within a company. Simultaneous enrollment in TBE 4760 is required. Prerequisite: TBE 4700 and 4710.

**TBE 4800. Independent Research (1-4)**

Directed research and study on an individual basis. Prerequisite: Permission of instructor.

**TBE 4860. Business Systems Technologies Practicum (1-6)**

Open to all students who meet the minimum requirements of the department for business-related on-the-job experiences. Approval of instructor and employer is required. Amount of credit will be determined by the department.

**TBE 4920. Short Courses, Workshops, Institutes, and Special Programs (1-4)**

Consult the semester class schedule for the current offering under this number. The specific title and credit authorized will appear on the student transcript.

**TBE 4990. Senior Project (3)**

Research, analysis, presentation, and discussion of topics relative to graduating majors and minors.