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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<td>Technology Assistance Center</td>
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<td>Automotive Technology</td>
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<td>Interior Design Technology</td>
<td>88-91</td>
</tr>
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<td>Sales and Merchandising</td>
<td>90</td>
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<td>Technical Sales</td>
<td>91</td>
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<tr>
<td>Telecommunications &amp; Business Education</td>
<td>93</td>
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<td>Telecommunications Administration</td>
<td>94</td>
</tr>
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<td>Business Education &amp; Business Systems Technologies</td>
<td>96</td>
</tr>
</tbody>
</table>

### Department Chairs

- Computer and Electronics Engineering Technology: Dr. William G. Clapp 626-6898
- Computer Science: Dr. David Hart 626-7929
- Engineering Technology: Mr. Keith Allred 626-6305
- Manufacturing & Mechanical Engineering Technology: Mr. Carl Grunander 626-6913
- Telecommunications & Business Education: Dr. Alden A. Talbot 626-6059

### Degrees Offered

- **Bachelor of Science degree programs are offered in:**
  - Automotive Technology
  - Computer and Design Graphics Technology
  - Computer Engineering Technology
  - Construction Management Technology
  - Electronics Engineering Technology
  - Manufacturing Engineering Technology
  - Mechanical Engineering Technology
  - Technical Sales
  - Technical Sales - Interior Design Emphasis

  **Bachelor of Applied Technology (BAT)* degree programs are offered in:**
  - Computer Drafting & Design
  - Information Technology

  *This program is described in the Interdisciplinary Programs section of this catalog. Contact the college advisor listed above for more information.

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

### Minors are available in:

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

* Teaching minor is also available.

### Certificates are available in:

- Professional Network (CISCO & Microsoft options)
- Telecommunications
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 provide individuals for a wide variety of positions in technology-based businesses 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 Associate and Bachelor of Science degrees in the following technology programs:

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

* The BS degree in these programs are accredited by the Technology Accreditation Commission of the Accreditation Board for Engineering and Technology (ABET), 111 Market Plaza, 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 1991 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 clearinghouse, 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.

DEPARTMENT

COMPUTER AND ELECTRONICS ENGINEERING TECHNOLOGY

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

Teaching Assistants: Linda Thornock 801-626-7836

The Computer and Electronics Engineering Technology Department (CEET) provides applied-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 off-the-shelf computer systems and networking.

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 customized and off-the-shelf computer systems.

EET: The Electronics Engineering Technology BS program is more hardware oriented in support of electronic devices, circuit design, power systems, telecommunications, 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.

WEBER STATE UNIVERSITY 2004 – 2005 CATALOG
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 the General Education Requirements (see pages 36-41) for Associate of Applied Science degrees. 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</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEET 1105 Fundamentals (4)</td>
<td></td>
</tr>
<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 &amp; DC Circuits (4)</td>
<td></td>
</tr>
<tr>
<td>CEET 1150 Embedded Controllers (4)</td>
<td></td>
</tr>
<tr>
<td>CEET 2000 Engineering Seminar (1)</td>
<td></td>
</tr>
<tr>
<td>CEET 2110 Semiconductor Devices (4)</td>
<td></td>
</tr>
<tr>
<td>CEET 2140 Communications Circuits (4)</td>
<td></td>
</tr>
<tr>
<td>CEET 2899 Associate Degree Assessment (0)</td>
<td></td>
</tr>
</tbody>
</table>

Required Computer Science Courses

(2 classes, 8 credit hours)

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS SI1130 Introduction to Unix &amp; C (4)</td>
<td></td>
</tr>
<tr>
<td>CS SI1220 Object-Oriented Programming Using C++(4)</td>
<td></td>
</tr>
</tbody>
</table>

Required Support Courses (20 credit hours)

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Math QL1080 Pre-Calculus (5)</td>
<td></td>
</tr>
<tr>
<td>Math SI1210 Calculus I (4)</td>
<td></td>
</tr>
<tr>
<td>Engl EN1010 Intro to Writing (3)</td>
<td></td>
</tr>
<tr>
<td>Engl EN2010 Intermediate Writing (3)</td>
<td></td>
</tr>
<tr>
<td>Phsx PS/SI2210 Physics for Scientists &amp; Engineers I (5)</td>
<td></td>
</tr>
</tbody>
</table>

Other Courses Required (6 credit hours)

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gen Ed Social Science Elective</td>
<td></td>
</tr>
<tr>
<td>Comm HU1050 Intro to Interpersonal Communications (3)</td>
<td></td>
</tr>
</tbody>
</table>

Suggested Course Sequence

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

**Computer Engineering Technology**

**Bachelor of Science Degree (B.S.)**

- **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 75 credit hours (37 for A.A.S. and 38 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 above. There are no additional special admission or application requirements for this program.

General Education

Refer to General Education Requirements (see 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 (6 classes, 18 credit hours)

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEET 3000 Engineering Ethics (1)</td>
<td></td>
</tr>
<tr>
<td>CEET 93010 Advanced Circuit Analysis I (4)</td>
<td></td>
</tr>
<tr>
<td>or Math SI1220 Calculus II (4)</td>
<td></td>
</tr>
<tr>
<td>or Math QL 1040 Intro to Statistics (3)</td>
<td></td>
</tr>
<tr>
<td>CEET 3050 Assembly Language &amp; Device Drivers (4)</td>
<td></td>
</tr>
<tr>
<td>CEET 4000 Engineering Seminar (1)</td>
<td></td>
</tr>
<tr>
<td>CEET 4010 Project Management (3)</td>
<td></td>
</tr>
<tr>
<td>CEET 4020 Senior Project (3)</td>
<td></td>
</tr>
<tr>
<td>CEET 4890 Cooperative Work Experience (2)</td>
<td></td>
</tr>
</tbody>
</table>

Electives CEET Courses (select 1 class, 4 credit hours)

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEET 3070 Engineering Technology Research (4)</td>
<td></td>
</tr>
<tr>
<td>CEET 4040 Digital Signal Processing (4)</td>
<td></td>
</tr>
<tr>
<td>CEET 4060 Advanced Communications (4)</td>
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</tr>
<tr>
<td>CEET 4800 Individual Studies (1-4)</td>
<td></td>
</tr>
<tr>
<td>CEET 4900 Special Topics (4)</td>
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</tbody>
</table>

Required Computer Science Courses

(3 classes, 12 credit hours)

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 3100 Operating Systems (4)</td>
<td></td>
</tr>
<tr>
<td>CS 3705 Local Area Networks (4)</td>
<td></td>
</tr>
<tr>
<td>CS 4740 Internet Firewalls &amp; Network Security (4)</td>
<td></td>
</tr>
</tbody>
</table>

Elective Computer Science Courses

(select 1 class, 4 credit hours)

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 3230 Internet Multimedia Services and Applications (4)</td>
<td></td>
</tr>
<tr>
<td>CS 3730 Client/Server Network Programming (4)</td>
<td></td>
</tr>
<tr>
<td>CS 4780 Object Oriented Windows Application Development (4)</td>
<td></td>
</tr>
<tr>
<td>CS 4830 Advanced Topics in Computer Science (4)</td>
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</tbody>
</table>

Required Support Courses (8 credit hours)

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engl 3100 Professional &amp; Technical Writing (3)</td>
<td></td>
</tr>
<tr>
<td>or CEET 3070* Engineering Technology Research (4)</td>
<td></td>
</tr>
<tr>
<td>or Math QL1040 Intro to Statistics (3)</td>
<td></td>
</tr>
<tr>
<td>or CEET SI3010 Advanced Circuit Analysis II</td>
<td></td>
</tr>
</tbody>
</table>

* Department clearance required.
Electronics 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 33 credit hours in 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 Electronics 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 the General Education Requirements (see pages 36-41) for Associate of Applied Science degrees. 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 (33 credit hours)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEET 1110</td>
<td>Basic Electronics (2)</td>
<td></td>
</tr>
<tr>
<td>CEET 1120</td>
<td>Information Technology (2)</td>
<td></td>
</tr>
<tr>
<td>CEET 1130</td>
<td>Digital Systems (4)</td>
<td></td>
</tr>
<tr>
<td>CEET 1140</td>
<td>AC and DC Circuits (4)</td>
<td></td>
</tr>
<tr>
<td>CEET 1150</td>
<td>Embedded Controllers (4)</td>
<td></td>
</tr>
<tr>
<td>CEET 2000</td>
<td>Engineering Seminar (1)</td>
<td></td>
</tr>
<tr>
<td>CEET 2110</td>
<td>Semiconductor Devices (4)</td>
<td></td>
</tr>
<tr>
<td>CEET 2120</td>
<td>Power and Control Circuits (4)</td>
<td></td>
</tr>
<tr>
<td>CEET 2130</td>
<td>PC Board Design (4)</td>
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</tr>
<tr>
<td>CEET 2140</td>
<td>Communications Circuits (4)</td>
<td></td>
</tr>
<tr>
<td>CEET 2899</td>
<td>Associate Degree Assessment (0)</td>
<td></td>
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</tbody>
</table>

Required Support Courses (24 credit hours)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Math QL1080</td>
<td>Pre-Calculus (5)</td>
<td></td>
</tr>
<tr>
<td>Math SI210</td>
<td>Calculus I (4)</td>
<td></td>
</tr>
<tr>
<td>Engl EN1010</td>
<td>Intro to Writing (3)</td>
<td></td>
</tr>
<tr>
<td>Engl EN2100</td>
<td>Intermediate Writing (3)</td>
<td></td>
</tr>
<tr>
<td>CS SI1130</td>
<td>Intro to UNIX &amp; C (4)</td>
<td></td>
</tr>
<tr>
<td>Phsx PS/PS2210</td>
<td>Physics for Scientists &amp; Engineers I (5)</td>
<td></td>
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</table>

Other Required Courses (15 credit hours)

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

Suggested Course Sequence

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

Electronics Engineering Technology

BACHELOR OF SCIENCE DEGREE (B.S.)

» Program Prerequisites: A.A.S. degree in Electronics Engineering Technology (EET) 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 71 credit hours (33 for A.A.S. and 38 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 Electronics 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 above. There are no additional special admission or application requirements for this program.

General Education

Refer to General Education Requirements (see pages 36-41) for Bachelor of Science degrees. Consult with your advisor for specific general education guidelines.

Course Requirements for B.S. Degree

Required CEET Courses (30 credit hours)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEET 3000</td>
<td>Engineering Ethics (1)</td>
<td></td>
</tr>
<tr>
<td>CEET S3010</td>
<td>Advanced Circuit Analysis I (4)</td>
<td></td>
</tr>
<tr>
<td>CEET 3020</td>
<td>Advanced Circuit Analysis II (4)</td>
<td></td>
</tr>
<tr>
<td>CEET 3040</td>
<td>Instrumentation &amp; Measurements (4)</td>
<td></td>
</tr>
<tr>
<td>CEET 4000</td>
<td>Engineering Seminar (1)</td>
<td></td>
</tr>
<tr>
<td>CEET 4010</td>
<td>Project Management (3)</td>
<td></td>
</tr>
<tr>
<td>CEET 4020</td>
<td>Senior Project (3)</td>
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<tr>
<td>CEET 4030</td>
<td>Controls &amp; Systems (4)</td>
<td></td>
</tr>
<tr>
<td>CEET 4040</td>
<td>Digital Signal Processing (4)</td>
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</tr>
<tr>
<td>CEET 4890</td>
<td>Cooperative Work Experience (2)</td>
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</table>

Other Courses Required (6 credit hours)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEET 3040</td>
<td>Instrumentation &amp; Measurements (4)</td>
<td></td>
</tr>
</tbody>
</table>

Suggested Course Sequence

Please refer to this program in the on-line catalog (weber.edu/catalog) and/or contact the department for a suggested course sequence.
Electives CEET Courses (select courses that total a minimum of 8 credit hours)

- CEET 3030 FPA & ASC Design (4)
- CEET 3050 Assembly Language & Device Drivers (4)
- CEET 3070 Engineering Technology Research (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)

Required Support Courses (8 credit hours)

- Eng 3100 Professional & Technical Writing (3)
- CEET 3070 Engineering Technology Research (4)
- Phsx 32220 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)

* Department clearance required.

Suggested Course Sequence

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

**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**

**CEET Courses Required (20 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 3050 Assembly Language and Device Drivers (4)

**COMPUTER AND ELECTRONICS ENGINEERING TECHNOLOGY COURSES - CEET**

**CEET 1105. Personal Computer Fundamentals (4) F, S**

Introduction to personal computers and computer architecture. Includes computer hardware and software principles, products, and applications. A+ certification concepts emphasized. Lecture and lab combination. Laboratory activities to include configuring, installing, testing, troubleshooting, and analyzing personal computers. Prerequisite: Credit for or concurrent enrollment in Math 1010.

**CEET 1110. Basic Electronics (2) F, S**

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) F, S**

Introduction to the concepts and fundamentals of information technology. An 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) F, S**

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) F, S**

Introduction to AC and DC circuit fundamentals, analysis, theorems, laws, components, measuring devices, and equipment. Lecture and lab combination. Laboratory activities to include circuit design, construction, and analysis of AC/DC circuits. The introduction and use of measuring instruments, power supplies, and signal generators. Prerequisite: CEET 1110 and credit for or concurrent enrollment in Math 1010.

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

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

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

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 choices. The student will research related topics and write a paper.

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

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 include radio frequency circuits, modulation, detection, transmitters, receivers, transmission lines, antennas, and measurement instruments. Digital communications topics 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 SI 1210.

**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: Philo HU 1120.

**CEET SI 3010. 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 SI 1210.

**CEET 3020. Advanced Circuit Analysis II (4) F, S**
Continuation of Advanced Circuit Analysis I, CEET SI 3010. 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 SI 3010.

**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 210.

**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 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 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 choices. The student will research related topics and make a presentation. 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, team meetings, design reviews, and demonstrations. Prerequisites: 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 complete 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 include 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...
combined. 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 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. David Hart  
**Location:** Technical Education Building, Room 110  
**Telephone:** Mary Ellen Jones 801-626-7929  
**Academic Advisor:** Dona Bilyeu-Dittman 801-626-6919  
**Salt Lake Program Coordinator:** Richard Fry 801-957-4769  
**Technical Support Specialist:** Steve Painter 801-626-7182  
**Technical Support Specialist:** Nathan Younger  
**Professor:** Robert L. Capener; **Associate Professors:** Delroy Brinkerhoff, David G. Hart, Kirby McMaster, Ronald D. Peterson; **Assistant Professors:** Greg Anderson, David L. Ferro, William E. Hoggan, Brian Rague; **Instructor Specialist:** Stephen K. Weaver; **Instructors:** Nicole A. Anderson, Robert Hilton, 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 emphasis in Systems Integration; 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 of 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 Systems Integration Emphasis is a system integration and hardware approach emphasizing system networking, drivers and internals. 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.

**COMPUTER SCIENCE**

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

- **Grade Requirements** A grade of "C" or better must be earned in all required CS and support courses (a grade of "C-" is not acceptable). In addition, an overall GPA for 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.

**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 (see 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 the A.A.S. General Education Requirements (core and breadth). Comm HU1050 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 Exam with a score of 3 or higher receive 8 hours of credit and specific credit for CS SI1023 (4). Students who pass the A/B Exam with a score of 3 or higher receive 8 hours of credit and specific credit for CS SI1022 (4) and CS SI1023 (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 1020</td>
<td>Introduction to Computer Science (4)</td>
</tr>
<tr>
<td>CS SI1130</td>
<td>Introduction to UNIX &amp; C (4)</td>
</tr>
<tr>
<td>CS SI1220</td>
<td>Object-Oriented Programming Using C++ (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 (4)</td>
</tr>
</tbody>
</table>
Support Courses Required (13 credit hours)

- Math QL1080 Pre-Calculus (5)
- Math 1140 Discrete Math (4)
- CEET 1105 PC Fundamentals (4)

Suggested Course Sequence

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

COMPUTER SCIENCE MAJOR

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

- Program Prerequisites: 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 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 courses. Also refer to general grade 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

- Complete an A.A.S. degree in Computer Science or equivalent.
- Complete each of the following courses (or their equivalent) with an average grade of 2.7 ("B-") or higher: CS SI1220, CS SI2650, CS SI2750 and Engl EN1010.
- 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 HU1050 as part of the Humanities general education requirement. It is recommended that Computer Science majors take Phsx PS/SI210 for the Systems Integration Emphasis or Phsx 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 or higher receive 8 hours of credit and specific credit for CS SI1023 (4). Students who pass the A/B exam with a score of 3 or higher receive 8 hours of credit and specific credit for CS SI1022 (4) and CS SI1023 (4). Contact the Computer Science department for more information.

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:

- Systems Integration Emphasis (37 credit hours)
  - CS 3100 Operating Systems (4)
  - CS 3200 Data Structures and Algorithms Using C++ (4)
  - CS 3210 UNIX System Programming & Internals (4)
  - CS 3230 Internet Multimedia Services & Applications Using Java (4)
  - CS 4780 Object Oriented Windows Application Development (4)
  - CS 4790 Advanced Visual Basic Application Development (4)
  - CS 3540 Database Administration (4)
  - CS 3450 Windows Enterprise Infrastructure Administration (4)
  - CS 3705 Local Area Networks (4)
  - CS 3730 Client/Server Networking Programming (4)
  - CS 4740 Internet Firewalls & Network Security (4)

Support Courses Required

- Engl 3100 Professional & Technical Writing (3)
- or TBE 3250 Business Communication (3)
- Six credit hours of electives courses selected in consultation with department advisor

- Software Engineering Emphasis (42-43 credit hours)
  - CS 3100 Operating Systems (4)
  - CS 3200 Data Structures & Algorithms Using C++ (4)
  - CS 3230 Internet Multimedia Services & Applications Using Java (4)
  - CS 4780 Object Oriented Windows Application Development (4)
  - CS 4790 Advanced Visual Basic Application Development (4)
  - CS 3540 Database Administration (4)
  - CS 3450 Windows Enterprise Infrastructure Administration (4)
  - CS 3705 Local Area Networks (4)
  - CS 3730 Client/Server Networking Programming (4)
  - CS 4740 Internet Firewalls & Network Security (4)

Support Courses Required

- Engl 3100 Technical Writing (3)
- or TBE 3250 Business Communication (3)
- Math SI1210 Calculus I (4)
- Math SI1220 Calculus II (4)
- Math QL1040 Introduction to Statistics (4)
- or Math 3410 Probability & Statistics (3)

- Customized Option (27 credit hours)
  - plus a minor or first bachelor degree

- CS 3100 Operating Systems (4)
- CS 3200 Data Structures & Algorithms Using C++ (4)
- CS 3230 Internet Multimedia Services & Applications Using Java (4)
- CS 4780 Object Oriented Windows Application Development (4)
- CS 4790 Advanced Visual Basic Application Development (4)
**Credit Hour Requirements:**

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**

- CS 1020 Introduction to Computer Science (4)
- CS 2550 Database Design & Application Development (4)
- CS 3250 Programming II (4)
- CS 3260 Advanced Object Oriented Programming (4)
- CS 3350 World Wide Web and the Internet (4)
- CS 4800 Individual Projects & Research (1-4)
- CS 4810 Senior Project (1-4)
- CS 4890 Cooperative Work Experience (1-4)

**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 or from the following electives list.

- CS 2410B Supporting Windows 95 (2)
- CS 2410A Network+ (2)
- CS SI2650 Computer Architecture & Assembly Language (4)
- CS SI2750 Object-Oriented Analysis & Design (4)
- CS 2550 Database Design & Application Development (4)
- CS SI2650 Computer Architecture & Assembly Language (4)
- CS SI1130 Introduction to UNIX and C (4)

**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:** 28 hours for the Minor and 22-23 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 (28 credit hours)**

- **CS Course Recommended** or equivalent background at entrance
  - CS 1020 Introduction to Computer Science (4)

**Required Courses (8 credit hours)**

- CS SI1130 Introduction to UNIX and C (4)
- CS SI1220 Object-Oriented Programming Using C++ (4)

**Electives (20 credit hours)**

Select three of the following courses (12 credit hours)

- CS 2550 Database Design & Application Development (4)
- CS SI2650 Computer Architecture & Assembly Language (4)
- CS SI2750 Object-Oriented Analysis & Design (4)
- CS SI2650 Computer Architecture & Assembly Language (4)
- CS SI2650 Computer Architecture & Assembly Language (4)
- CS SI1130 Introduction to UNIX and C (4)
- CS SI3200 Microsoft Networking Courses Required (16 credit hours)
  - CS 2410 Network+ and Routing Basics (4)
  - CS 2410A and CS 2410B Supporting Windows 95 (2)

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<td>Microsoft Networking Courses Required (16 credit hours)</td>
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<td>Computer Architecture &amp; Assembly Language (4)</td>
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</tr>
<tr>
<td>CS SI2750</td>
<td>Object-Oriented Analysis &amp; Design (4)</td>
</tr>
</tbody>
</table>

**Professional Network Microsoft Option Certificate Program**

- **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).
CS 2420 or CS 2420A Microsoft® Windows (4)
and CS 2420B Supporting Microsoft® Windows Operating Systems (2)
and CS 2430 Supporting Microsoft® Windows Professional and Server (2)
or CS 2430A Supporting Microsoft® Windows Infrastructure and Directory Services (4)
and CS 2430B Implementing and Administering Microsoft® Windows Network Infrastructure (2)
or CS 2440B Implementing and Administering Microsoft® Windows Directory Services (2)
or CS 2440A Microsoft® SQL Server System Administration & Implementation (4)
or CS 2440C Implementing and Administering Microsoft® SQL Server System Administration (2)
and CS 2440D Implementing a Database Design on Microsoft® SQL Server (2)
or CS 2440E Microsoft® Internet Information Server (2)

CS 2410, CS 2420, CS 2430 and CS 2440 are semester long courses taught through the Computer Science Department and include the material of the corresponding A and B course for each number. Courses with A, B and C designation will be taught by the Professional Certification Program of Weber State University's Office of Continuing Education.

Computer Programming Class Required (4 credit hours)

**Computer Science Courses - CS**

**CS 1020. Introduction to Computer Science (4)**

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 11023. Selected Programming Language (4)**

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 1020 or previous experience with PC DOS and Windows and basic skills in Algebra.

**CS 11130. Introduction to UNIX and C (4)**

Introduction and application 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 1020 or previous experience with PC DOS and Windows and basic skills in Algebra.

**CS 11220. Object-Oriented Programming Using C++ (4)**

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 1130.

**CS 2140. Computer Systems Administration (4)**

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 1130.

**CS 2150. Structured Computing in a Selected Language (4)**

Introduction to structured problem solving using data enumeration and encapsulation in a selected language. The language for a particular instance of this course will be based upon demand. Prerequisites: CS 1020 or equivalent prior experience in operating systems, and basic skills in fundamental Algebra.

**CS 2180. Network+ and Routing Basics (4)**

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 network, and a NetWare network. Recommended Prerequisite: CEET 1105.

**CS 2180A. Network+ (2)**

This course will orient students to the basics of local area networks (LANs), wide area networks (WANs), giving them a background in various topologies. Students will be introduced to installing and configuring simple LANs and WANs. They will install a network operating system. Prerequisite: CEET 1105 or consent of instructor.

**CS 2180B. Supporting Windows 95 (2)**

This course helps students gain the knowledge and skills to install, configure, customize, optimize, maintain, and troubleshoot the Microsoft® Windows 95 operating system in a networked environment. This is the second half of CS 2180.

**CS 2180C. Supporting Windows 95 (2)**

This course helps students gain 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 2180.
CS 2420A. Microsoft® Windows Network Operating Systems (2)
This course is to provide students with the knowledge necessary to understand and identify the tasks involved in supporting Microsoft® Windows networks. This is an introductory course designed to provide an overview of networking concepts and how they are implemented in Microsoft® Windows. Prerequisites: CS 2410A and CEET 1105 or consent from instructor.

CS 2420B. Supporting Microsoft® Windows Professional and Server (2)
This course provides students with the knowledge and skills necessary to install and configure Microsoft® Windows 2000 Professional on stand-alone and client computers that are part of a workgroup or domain. In addition, this course provides the skills and knowledge necessary to install and configure Windows 2000 Server to create file, print, Web, and Terminal servers. Prerequisite: CS 2420A.

CS 2430. 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 2420.

CS 2430A. Supporting Microsoft® Windows Network Infrastructure (2)
This course is for support professionals who are new to Microsoft® Windows 2000 and will be responsible for installing, configuring, managing, and supporting a network infrastructure that uses the Microsoft® Windows 2000 Server products. It is assumed that students have experience supporting a Windows Server-based network. Prerequisite: CS 2420.

CS 2430B. Implementing and Administering Microsoft® Windows Directory Services (2)
Provides the knowledge and skills required to install, configure and support Microsoft® Windows active directory services. This course focuses on implementing group policy and understanding the tasks required to centrally manage users and computers. It is assumed that students have experience supporting a Windows Server-based network. Prerequisite: CS 2430A. This is the second half of CS 2430.

CS 2440. 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® SQL Server (IIS). Students will learn how to install, configure, and implement all components of a Web site. Prerequisite: CS 2420.

CS 2440A. Microsoft® SQL Server System Administration (2)
This course provides students with the knowledge and skills required to install, configure, administer, and troubleshoot Microsoft® SQL Server client/server database management system. This is the first half of CS 2440.

CS 2440B. Implementing a Database Design on Microsoft® SQL Server (2)
This course provides the technical skills required to implement a database solution with the Microsoft® SQL Server client/server database management system, based on a case-study design. Lab exercises allow hands-on implementation of the case-study. This is the second half of CS 2440.

CS 2440C. Microsoft® Internet Information Server (2)
This instructor-led course 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 that comprise IIS. They will also have hands-on experience setting up a Web site.

CS 2550. Database Design and Application Development (4) F 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-relationship 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. Prerequisites: CS SI1220 and Math 1140.

CS SI2650. Computer Architecture and Assembly Language (4) F S
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 EIDE), 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 1020 and 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, SMD, 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 SI2650.

CS SI2750. Object Oriented Analysis and Design (4) F S
An introductory Software Engineering 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 good programming style through applications of object-oriented project development within a variety of problem domains. Covers UML and current Software Engineering models. Prerequisites: CS SI1220 and Math 1140.

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 SI2750 or equivalent experience 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 SI1220.

**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 SI1220.

**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 Infrastructure and Administration (4)**
This is the second course for understanding Windows operating systems and includes administration in a client/server active directory environment. Taught in a networking setting it builds upon complex issues learned in previous courses, and provides the knowledge and skills necessary to install, configure, network and administer both clients and servers in the active directory environment. Prerequisite: CS 2705.

**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: CS SI3200.

**CS SI3200. Data Structures and Algorithms Using C++ (4) F, 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, reusable code, and object-oriented implementation. Prerequisites: CS 2550 and CS SI2750.

**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 SVR4 source code will be included in the course. Prerequisite: CS SI2750.

**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. Prerequisites: CS SI2750 and CS 3350.

**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 SI2750.

**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 1220. 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 3450A. Designing a Microsoft® Windows Networking Services Infrastructure (2)**
Provides students with the knowledge and skills necessary to design a networking services infrastructure based on the needs of an organization that supports required network applications. Solutions will use DHCP, OSPF, RIP, IP & IGMP. In addition, this course prepares students for the related MCSE certification exam. This is the first half of CS 3450. Prerequisite: CS 2430 or CS 2430A and CS 2430B.

**CS 3450B. Designing a Microsoft® Windows Directory Services Infrastructure (2)**
Provides students with the knowledge and skills necessary to design a directory services infrastructure in an enterprise network. Strategies are presented to assist the student in identifying and designing an Active Directory structure that meets the needs of an organization. In addition, this course prepares students for the related MCSE certification exam. This is the second half of CS 3450. Prerequisite: CS 2430 or CS 2430A and C. S 2430B.

**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 3460A. Designing a Secure Microsoft® Windows Network (2)
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. This is the first half of CS 3460. Prerequisite: CS 2430 or Approval of the Instructor.

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. Local Area Networks (4) F, S
This course will develop an understanding of what is required in terms of both hardware and software to build, install, maintain and support local area networks. Novell, Microsoft, and Linux configurations will emphasize extensive laboratory applications. This will include the layout, cabling, network cards, card setting, equipment interface, installation of software (peer-to-peer and server/client systems will be interfaced together) and network troubleshooting. This training will help prepare students to take portions of the Novell CNE and Microsoft® MCSE examinations. Prerequisites: CS SI1330, CS 2705, and CS 3040.

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 STREAM'S, 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 3210, CS 3350, and CS 3705.

CS 3750. 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 3100, Eng 3100 or TBE 3250.

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 SI3200.

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-Window programming and the use of Sun, SGI, and PC (Intel/Cyrix) machines. Prerequisite: CS SI3200.

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. Prerequisite: CS SI3200.

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 theory, 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, CS 3100 or TBE 3250, and CS 3705 or CS 3540 or CS 3450. Recommended: CS 3210 and CS 3730.

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 SI3200.

CS 4790. Advanced Visual Basic Application Development (4) F
This course is designed to teach sound concepts in application design, development and implementation using the most current Visual Basic technology. Students will develop applications using RAD and OOP techniques. Skills mastered in this course will include: Component design and deployment (COM, DCOM and COM+), use of classes and objects, database access (ADO) multiple
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, 111 Market Place, Suite 1050, Baltimore, MD 21202-4012, telephone (410) 347-7700. 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 30 credit hours 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 the General Education Requirements (see pages 36-41) for Associate of Applied Science degrees. 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 the A.A.S. Degree

Manufacturing Engineering Technology

Courses Required (19 credit hours)
- MFET 1150 Pre-Professional Seminar in Manufacturing (1)
- MFET 1210/L Machining Principles I (3)
- MFET 2150/L Metal Form, Casting, & Welding (w/lab) (4)
- MFET S2300 Statics & Strength of Materials (5)
- MFET S2410 Quality Concepts and Statistical Applications (3)
- MFET 2440/L Computer Numeric Control (CNC) in Manufacturing (w/lab) (3)
- MFET 2899 Associate Degree Assessment (0)

Technical Courses Required (12 credit hours)
- CDGT 1250 Computer Aided Drafting (3)
- CDGT 1260 Advanced Computer Aided Drafting (3)
- CDGT 2450 Geometric Dimension & Tolerancing (2)
- Computer and Information Literacy exams/courses (2/4)
- CEET 1110 Basic Electronics (2)

Support Courses Required (22 credit hours)
- Comm HU1050 Intro to Interpersonal Communication (3)
- Chem PS/11110 Elementary Chemistry (5)
- Math QL1080 Pre-Calculus (5)
- Math SI1210 Calculus I (4)
- Phsx PS/SI2010/L General Physics (w/lab) (5)
- or Phsx PS/SI2210/L Physics for Scientists & Engineers (w/lab) (5)

Other Courses Required (12 credit hours)
- Engl EN1010 Intro to Writing (3)
- Engl EN2010 Intermediate Writing (3)
- Econ SS1010 Economics as a Social Science (3)
- GenEd HU/CA Elective (3)

Suggested Course Sequence

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

MANUFACTURING ENGINEERING TECHNOLOGY

BACHELOR OF SCIENCE DEGREE (B.S.)

The addition of a welding emphasis is pending as of this printing. Contact the Manufacturing and Mechanical Engineering Department for information.

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 is 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 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 the General Education Requirements (see 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 courses required for the A.A.S. Degree in Manufacturing Engineering Technology.

MANUFACTURING ENGINEERING TECHNOLOGY

Courses Required (45 credit hours)
- MFET 3010 Tool Design (3)
- MFET 3310/3310L Material Selection & Heat Treat (3)
- MFET 3320 Machine Design (2)
- MFET 3340/3340L Applied Fluid Power (3)
- MFET 3350/3350L Manufacturing Process Simulation (3)
- MFET 3610/3610L Machining Processes II (3)
- MFET 3710/L Computer Aided Manufacturing and Rapid Prototyping (3)
- MFET 3810 Statistical Process Control & Reliability (3)
- MFET 3910 Six Sigma Methods and Tools in Manufacturing (5)
- MFET 4580/4850L Process Automation (3)
- MFET 4610 Senior Project Production Planning and Estimating (5)
- MFET 4610L Senior Project Lab (2)
- MFET 4620L Senior Project Lab (2)
- MFET 4995 Certified Manufacturing Technologist (CMfgT) Exam (1)

Technical Electives
A minimum of 3 credit hours of technical electives chosen from the following list are required.
- CDGT 3470 Applications in CAD (3)
- MFET 3460/3460L Engineering Design using Solid Modeling (3)
- MFET S4600 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 on-line 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

AMERICAN PRODUCTION AND INVENTORY CONTROL SOCIETY (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 the American Production and Inventory Control Society (APICS) 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)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>MFET 3510</td>
<td>Basics of Supply Chain Management</td>
</tr>
<tr>
<td>MFET 3550</td>
<td>Principles of Supervision</td>
</tr>
<tr>
<td>MFET 4050</td>
<td>Detailed Scheduling &amp; Planning I</td>
</tr>
<tr>
<td>MFET 4150</td>
<td>Execution &amp; Control of Operations</td>
</tr>
<tr>
<td>MFET 4250</td>
<td>Detailed Scheduling &amp; Planning II</td>
</tr>
<tr>
<td>MFET 4350</td>
<td>Principles of Lean Manufacturing</td>
</tr>
<tr>
<td>MFET 4590</td>
<td>Production Plan &amp; Process Control</td>
</tr>
<tr>
<td>MFET 4750</td>
<td>Master Planning of Resources</td>
</tr>
</tbody>
</table>

**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 engineering technologists will be discussed by manufacturing 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 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, resultant & 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: Phsx PS/SI210/L or Phsx PS/SI2210/L and Math S1210.

**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 & 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 2120 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) F**

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.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MFET 2830</td>
<td>Directed Readings in Manufacturing Engineering Technology (1-3)</td>
<td>F, S</td>
<td>Individual research on topics requested by industry or which meet special needs of Manufacturing Engineering Technology students. Prerequisite: Departmental approval.</td>
</tr>
<tr>
<td>MFET 2890</td>
<td>Cooperative Work Experience (1-3)</td>
<td>F, S</td>
<td>Open to all second year students in Manufacturing Engineering Technology. A continuation of MFET 1890.</td>
</tr>
<tr>
<td>MFET 2899</td>
<td>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>MFET 2920</td>
<td>Short Courses, Workshops, Institutes and Special Programs (1-3)</td>
<td></td>
<td>Consult the semester class schedule for the current offering under this number. The specific title and credit authorized will appear on the student transcript. Prerequisite: Departmental approval.</td>
</tr>
<tr>
<td>MFET 3010</td>
<td>Tool Design (3)</td>
<td>F</td>
<td>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; CDGT 2450.</td>
</tr>
<tr>
<td>MFET 3060</td>
<td>Codes, Weld Inspection, and Quality Assurance (3)</td>
<td>F</td>
<td>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. Prerequisites: MFET 2150/L.</td>
</tr>
<tr>
<td>MFET 3320</td>
<td>Machine Design (2)</td>
<td>F</td>
<td>Application of engineering fundamentals to the design of individual 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.</td>
</tr>
<tr>
<td>MFET 3340</td>
<td>Applied Fluid Power (2)</td>
<td>F</td>
<td>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; Phsx PS/SI2010/L or Phsx PS/SI2210/L. Co-requisite: MFET 3340L.</td>
</tr>
<tr>
<td>MFET 3340L</td>
<td>Applied Fluid Power Lab (1)</td>
<td>F</td>
<td>Application of the theory taught in MFET 3340. One 2-hour lab per week. Co-requisite: MFET 3340.</td>
</tr>
<tr>
<td>MFET 3350</td>
<td>Plastic and Composite Manufacturing (2)</td>
<td>F</td>
<td>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.</td>
</tr>
<tr>
<td>MFET 3350L</td>
<td>Plastic and Composite Manufacturing Lab (2)</td>
<td>F</td>
<td>Application of theory taught in MFET 3350. Two 2-hour labs per week. Prerequisite: Co-requisite: MFET 3350.</td>
</tr>
<tr>
<td>MFET 3460</td>
<td>Engineering Design using Solid Modeling (2)</td>
<td>F</td>
<td>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: CDGT 1250 and TBE TE1700. Co-requisite: MFET 3460L.</td>
</tr>
<tr>
<td>MFET 3510</td>
<td>Basics of Supply Chain Management (2)</td>
<td>F</td>
<td>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.</td>
</tr>
<tr>
<td>MFET 3550</td>
<td>Manufacturing Supervision (3)</td>
<td>S</td>
<td>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.</td>
</tr>
<tr>
<td>MFET 3560</td>
<td>Advanced Quality Engineering (2)</td>
<td>F</td>
<td>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.</td>
</tr>
<tr>
<td>MFET 3570</td>
<td>Manufacturing Quality Auditing (2)</td>
<td>F</td>
<td>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.</td>
</tr>
</tbody>
</table>
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 CM1 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 dimensioning & 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 Lab (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-bar 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, CDGT 1250, CDGT 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, ultrasounds, and radiography and other NDT processes. Prerequisites: Math 1210 and Phys S/2210 or Phys Ps/2210.

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) S
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 in 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, manufactur-
ing 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 manufactu-
ring & workplace organization, value stream mapping, setup
reduction & batch size reduction, quality at the source, point of use
storage, total productive maintenance, pull systems/kanbans, tack
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 routines in: Controlling servo and
non-servo robots, computer-aided manufacturing systems and CIM
cell, programmable logic controllers, and other devices used in

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 Ergonomics 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 branching, 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 Manage-
ment, Cost Estimating, Engineering Economics and Production
Management that will be necessary to successfully complete their
Senior Project experience. Students must apply and gain depart-
mental 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 consecu-
tive semesters. Co-requisite: MFET 4610 (with MFET 4610L only).

MFET 4650. Software Quality Engineering Principles (2) F
This course prepares the student for the Certified 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 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 MFET 4920. Short Courses, Workshops, Institutes and Special Programs (1-3) F

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 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 computer hardware and software (Inventor) to design 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 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 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 credits is required with a minimum of 11 credit hours in 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 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 the General Education Requirements (see pages 36-41) for Associate of Applied Science degrees. 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

#### Mechanical Engineering Technology

<table>
<thead>
<tr>
<th>Courses Required (11 credit hours)</th>
</tr>
</thead>
<tbody>
<tr>
<td>MET 1000</td>
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<tr>
<td>MET 2100</td>
</tr>
<tr>
<td>MET 2200</td>
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<tr>
<td>MET 2300</td>
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<tr>
<td>MET 2899</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Support Courses Required (45 credit hours)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Math QL1080</td>
</tr>
<tr>
<td>Math SI1210</td>
</tr>
<tr>
<td>Math SI1220</td>
</tr>
<tr>
<td>Phsx PS/SI2210/L</td>
</tr>
<tr>
<td>Phsx SI2220/L</td>
</tr>
<tr>
<td>Chem PS/SI1110</td>
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<tr>
<td>CDGT 1250</td>
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<tr>
<td>CDGT 1260</td>
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</tbody>
</table>

| 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 – a minimum of 45 of these is required within the major. A total of 40 upper division credits is also required (courses numbered 3000 and above) – 34 of these are required within the major. Transfer students are required to take a minimum of 30 credit hours at Weber State University. |
| Assessment Requirement: Students will be required to complete certain assessment instruments as part of the overall requirements for receiving their bachelor 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). Refer to the Program Prerequisite listed above. There are no additional special admission or application requirements for this program.

#### General Education

Refer to General Education Requirements (see pages 36-41) for Bachelor of Science degrees. Consult with your advisor for specific general education guidelines.

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

#### Mechanical Engineering Technology

<table>
<thead>
<tr>
<th>Courses Required (35 credit hours)</th>
</tr>
</thead>
<tbody>
<tr>
<td>MET 3000</td>
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<tr>
<td>MET 3100</td>
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<tr>
<td>MET 3200</td>
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<tr>
<td>MET 3300</td>
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<tr>
<td>MET 3400</td>
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<tr>
<td>MET 3500</td>
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<tr>
<td>MET SI3600</td>
</tr>
<tr>
<td>MET 3600</td>
</tr>
</tbody>
</table>
MET 4200 Mechanical Design with FEA (3)
MET SI4400 Fluid Mechanics (3)
MET 4500, 4510 Senior Project (4)
MET SI4600 Heat Transfer (3)
MET 4990 Seminar in MET (1)

Support Courses Required (7 credit hours)
CEET 1140 AC and DC Circuits (4)
TBE 3250 Business Communications (3)
or Engl 3100 Professional & Technical Writing (3)

Technical Electives
A minimum of 5 credit hours of technical electives chosen from the following list are required. At least 3 credit hours must be upper division.

BusAdm 3000 Small Business Management (3)
CDGT 2450 Geo Dimensioning & Tolerancing (2)
CDGT 2650 Advanced Mechanical Design (3)
CDGT 3470 Applications in CAD (3)
CS SI2200 Object Oriented Programming Using C++ (4)
Math QL1040 Intro to Statistics (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 3100 Tool Design (3)
MET 3340/L Applied Fluid Power (3)
MET 3350/L Plastic & Composite Manufacturing (4)
MET 3460/3460L Engineering Design using Solid Modeling (3)
MET 4210 Cost Estimating & Engineering Economics (3)
MET 4590 Production Planning & Process Control (3)

Other Required Courses (15 credit hours)
Gen Ed Humanities/ Creative Arts 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 on-line catalog (weber.edu/catalog) and/or contact the department for a suggested course sequence.

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: CDGT 1250, Math QL1080.

MET SI2100. Statics (3 F)
A study of the forces associated with rigid bodies in equilibrium. Development of problem solving skills. Co-requisite: Math SI1210. Credit or concurrent enrollment in Phsx PS/S2210/L recommended.

MET 2200. Engineering Technology Materials (3 F)
Material selection for resistance to both load and environment. Design parameters for material selection of various metal and nonmetal systems. Corrosion, service failures and mechanical behavior of engineering alloys and composites at high and low temperatures. Lecture plus laboratory work in materials testing.

MET SI2300. Strength of Materials (4 S)
Stress-strain relationships, properties of areas, shear and moment diagrams, materials properties and reduction of data from strain gage rosettes. Analysis of stress, strain and deformation due to axial, torsional and flexural loading. Lecture plus laboratory work in selected topics. Prerequisite: MET SI2100.

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 MET SI2100.

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 3000. Dynamics of Particles (3 F)
Concepts of force, mass and acceleration, work and energy, impulse and momentum applied to problems involving particles. Analysis in a simple and logical manner applying a few well-understood, basic principles. Prerequisites: MET SI2100, Math SI2120, Phsx 2210.

MET 3100. Dynamics of Rigid Bodies (3 S)
Moment of inertia of mass; kinematics of rigid bodies; basic concepts of force, mass and acceleration, or work and energy, and of impulse and momentum are applied to problems involving rigid bodies. Lecture plus computer-based laboratory work. Prerequisite: MET 3000.

MET 3200. Machine Design I (3 F)
Beam deflections, columns, singularity functions, theories of failure and machine design problems. Lecture plus laboratory work using mechanical test equipment and computer software. Prerequisite: MET SI2300.

MET 3300. Machine Design II (3 S)
Application of engineering technology fundamentals to machine design. Techniques involved in designing and selecting individual machine parts. Prerequisite: MET 3200.

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: TBE1700, MET SI2300.

MET 3400. Machine Design II (3 S)
Application of engineering technology fundamentals to machine design. Techniques involved in designing and selecting individual machine parts. Prerequisite: MET 3200.

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: MET 3200, CEET 1140.
MET SI3600. Thermodynamics (3) S
Basic principles of energy and energy transfer. Properties, gas laws, first and second laws of thermodynamics. Applications of thermodynamic systems. Lecture plus laboratory work in thermodynamics. Prerequisite: Math SI1210, Phys 2210, Chem PS/SI1110.

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 3200.

MET 4200. Mechanical Design with FEA (3) F
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

MET SI4400. Fluid Mechanics (3) F
The behavior of fluids under static and dynamic conditions is studied and analyzed. Classical problems of fluid mechanics. Applications of fluid mechanics systems. Lecture plus laboratory work in fluid mechanics. Prerequisite: MET SI3600.

MET 4500, 4510. Senior Project (2,2)
A mechanical engineering technology project will be selected for team participation. Projects will require planning, analysis, design, development, production, testing and documentation. Prerequisite: MET 3400.

MET SI4600. Heat Transfer (3) S
Fundamental principles of conduction, convection and radiation are studied. Analytical and numerical methods. Applications of heat transfer systems. Lecture plus laboratory work in heat transfer. Prerequisites: MET SI3600, MET SI4400.

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
Review for the Fundamentals of Engineering (FE) examination. Prerequisites: MET SI4400, MET 4500.

PARSON CONSTRUCTION MANAGEMENT TECHNOLOGY

Location: Engineering Technology Building, Room 236
Telephone Contact: Karey Sizemore 801-626-7761
E-Mail: ParsonCMT@weber.edu
Faculty: Assistant Professors - Steven Peterson, Jeff Plant

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 preparing the student 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 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 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 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 HU1050 (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 2330  Concrete Technology (3)
CMT 2340  Construction Surveying (2)
CMT 2360  Building Codes & Inspection (2)
CMT 2640  Architectural Estimating (2)
CMT 2880  Internship (3)
CMT 2899  Associate Degree Assessment (0)

Business & Management Courses Required (9 credit hours)
Acctng 2010  Survey of Accounting I (3)
Econ SS2010  Principles of Microeconomics (3)
BusAdm 3200  Legal Environment of Business (3)
Support Courses Required (20 credit hours)
Comm HU1050  Interpersonal Communications (3)
Math QL1080  Pre-calculus (5)
TBE TE1700  Microcomputer Applications (3)
LibSci 2202  Internet Navigator
Phsx PS/SI2010  General Physics (5)
Geosci PS1540  Environmental Geosciences (3)
Geosci 1550  Environmental Geosciences Lab (1)

Suggested Course Sequence
Please refer to this program in the on-line 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, Business and Management courses is required (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 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 also required for graduation. There are provisions to recognize those with significant construction industry experience. Contact Justin Finnerty at Career Services/College of Applied Science & Technology; Ph: 801-626-7860 (jfinnerty@weber.edu) for possible internships.

Advisement
All Construction Management Technology students are encouraged to meet with a faculty advisor at the beginning of their freshman and junior 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 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 HU1050 (Oral Communication), Math QL1080 (Math and Statistics), Econ SS2010 (Social Science) and Phsx PS/SI2010, Geosci PS1540 (Physical Sciences), and Botany 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 due. Check with program advisor for current requirements.

Construction Management Technology
Courses Required (58 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 2330  Concrete Technology (3)
CMT 2340  Construction Surveying (2)
CMT 2360  Building Codes & Inspection (2)
CMT 2640  Architectural Estimating (2)
CMT 2880  Internship (3)
CMT 2899  Associate Degree Assessment (0)
CMT 4550  Construction Equipment & Methods (3)
CMT 4550  Construction Safety (2)
CMT 4610/20  Senior Project (2/2)
CMT 4890  Practicum (2)

Business Courses Required (21 credit hours)
Acctng 2010  Survey of Accounting I (3)
Econ SS2010  Principles of Microeconomics (3)
BusAdm 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 hours must be upper level):
Econ SS2020  Principles of Macroeconomics (3)
Econ 3400  Labor Economics (3)
BusAdm 3000  Small Business Management (3)
BusAdm 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 HU1050 Interpersonal Communications (3)
Botany LS1403 Environment Appreciation (3)
Phsx PS/SI2010 General Physics (5)
Math QL1080 Pre-calculus (5)
Geosci PS/L540 Environmental Geosciences (3)
Geosci 1550 Environmental Geosciences Lab (1)
Geosci 4100 Engineering Geology (3)

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

Construction Management Technology

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)
Quant SI2600 Business Statistics I (3)
Quant SI3610 Business Statistics II (3)
Business Electives - Business/Management/Finance/Marketing Electives (6)

Check the college catalog under BusAdm for possible selections.

Recommended Electives (6 credit hours)
Select 6 hours from the following courses as approved by the CMT program coordinator.
CMT 1500 Computer Applications in Construction
CMT 2330 Concrete Technology (3)
CMT 2340 Construction Surveying (2)
CMT 2640 Architectural Estimating (2)
CMT 3115 Construction Cost Estimating (3)
CMT 3130 Construction Planning & Scheduling (3)
CMT 3210 Construction Management (3)
CMT 3260 Mechanical & Electrical Systems (4)
CMT 3350 Applied Structures (4)
CMT 4120 Construction Accounting and Finance (3)
CMT 4150 Construction Equipment & Methods (3)
CMT 4550 Construction Safety (2)

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 also 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 & 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 Stee-work, Concrete, Masonry, Metals, Curtain-walls, Finishes. Applicable building codes, written specifications, and cost estimating will be discussed as they relate to these 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 1700. 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 SI 2330. 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 QL1050 (or Math QL1080 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/CDGT 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 QL1060) 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 the 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 Phsx 2010.

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: Acctng 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)
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.

COMPUTER AND DESIGN GRAPHICS TECHNOLOGY
Location: Engineering Technology Building, Room 214
Telephone 801-626-6305

The Computer and Design Graphics 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.

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

Advisement
All Computer and Design Graphics 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 Literacy as defined in this catalog is also required for the A.A.S. degree.

Course Requirements for A.A.S. Degree

Computer and Design Graphics Technology

Courses Required (29 credit hours)
- CDTG 1050 Basic Drafting (3)
- CDTG 1150 Basic Architectural Drafting (3)
- CDTG 1250 Computer Aided Drafting (3)
- CDTG 1260 3D Computer Aided Drafting (3)
- CDTG 1350 Advanced Architectural Drafting (3)
- CDTG 2250 Descriptive Geometry (2)
- CDTG 2450 Geometric Dimensioning & Tolerancing (2)
- CDTG 2650 Advanced Mechanical Drafting and Design (3)
- CDTG 2660 Structural Detailing (3)
- CDTG 2899 Associate Degree Assessment (0)

Technical Courses Required (9 credit hours)
- MfET 1210/L Machining Principles I (3)
- MfET 2360 Manufacturing Processes & Materials (3)
- MfET 2410 Quality Assurance and Improvement (3)

Support Courses Required (22 credit hours)
- Engl EN1010 Intro to Writing (3)
- Engl EN2010 Intermediate Writing (3)
- Comm HU1050 Intro to Interpersonal & Small Group Communication (3)
- Math QL1080 Pre-Calculus (5)
- or Math QL1050 College Algebra (4)
- & Math 1060 Trigonometry (3)
- Phx PS/SI2010 General Physics I with lab (5)
- TBE TE1700 Intro to Microcomputer Applications (3)

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

COMPUTER AND DESIGN GRAPHICS TECHNOLOGY

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

Grade Requirements: A grade of C or better in all CDGT 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 Computer and Design Graphics 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.

BACHELOR OF SCIENCE DEGREE (B.S.)

Program Prerequisite: A.A.S. degree in Computer and Design Graphics 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 CDGT 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.
**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 computer and design graphics 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 Prequisite above. There are no additional special admission or application requirements for this program.

**General Education**

Refer to pages 36-41 for Bachelor of Science degree requirements. TBE TE1700. Microcomputer Applications, will fill the Computer Literacy requirement and Comm HU1050 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 Computer and Design Graphics Technology.

### Computer and Design Graphics Technology

**Courses Required (34 credit hours)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CDGT 1050</td>
<td>Basic Drafting (3) Su, F, S</td>
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<tr>
<td>CDGT 1150</td>
<td>Blueprint Reading (3) F, S</td>
<td></td>
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<tr>
<td>CDGT 1340</td>
<td>Architectural Drafting for Interior Design (3) F</td>
<td></td>
</tr>
<tr>
<td>CDGT 1350</td>
<td>Blueprint Reading (3) Su, F, S</td>
<td></td>
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<tr>
<td>CDGT 1890</td>
<td>Cooperative Work Experience (1-3) Su, F, S</td>
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<tr>
<td>CDGT 2350</td>
<td>Advanced Architectural Drafting (4) F</td>
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<tr>
<td>CDGT 2440</td>
<td>Descriptive Geometry (2) F</td>
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<tr>
<td>CDGT 2450</td>
<td>Geometric Dimensioning and Tolerancing (2) F</td>
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**Support Courses Required (10 credit hours)**

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<th>Course Code</th>
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<th>Credits</th>
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<tbody>
<tr>
<td>MET 2300</td>
<td>Statics &amp; Strength of Materials (5)</td>
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<tr>
<td>MET 3220</td>
<td>Machine Design (2)</td>
<td></td>
</tr>
<tr>
<td>MET 3550</td>
<td>Supervision Principles (3)</td>
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</tr>
</tbody>
</table>

**Suggested Course Sequence**

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

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**COMPUTER AND DESIGN GRAPHICS TECHNOLOGY COURSES - CDGT**

**CDGT 1050. Basic Drafting (3) Su, F, S**

A beginning course for two and four year technology students who need a related drafting class, and students wanting to explore a drafting class. Includes sketching, instruments and their use, lettering, geometric construction, shape and size description, sectional views, auxiliary views, threads and fasteners, and an introduction to working drawings.

**CDGT 1150. Blueprint Reading (3) F, S**

The abbreviations, symbols, terms, principles, and procedures for reading blueprints. Introduction to orthographics, oblique, isometric and perspective sketching.

**CDGT 1250. Computer Aided Drafting (3) Su, F, S**

An introduction to the fundamentals of computer aided drafting. An overview of CAD terminology and hardware. The use of CAD to create working drawings. Prerequisite: CDGT 1050 or equivalent. This course may be taken concurrently with CDGT 1050.

**CDGT 1260. 3D Computer Aided Drafting (3) F, S**

The use of CAD to create industrial level working drawings. Includes ANSI standards, precision dimensions, fits and tolerances, surface finishes, machining processes, 3D wireframe, menu customization, and surface and solid modeling. Prerequisite: CDGT 1150 and 1250.

**CDGT 1340. Architectural Drafting for Interior Design (3) F**

A beginning course for interior design students who need an introduction to basic drafting skills including sketching, instruments and their use, lettering, geometric construction, shape and size description. Also an introduction to the fundamentals of architectural working drawings and procedures used in developing a set of residential plans, including architectural standards, design procedures and building requirements.

**CDGT 1350. Basic Architectural Drafting (3) F, S**

The study of architectural working drawings. Covers procedures used in developing a complete set of residential plans. Includes architectural drafting standards, design procedures, and building code requirements. Prerequisites: CDGT 1050 and CDGT 1250.

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

Open to all first year students in Computer and Design Graphics 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.

**CDGT 2350. Advanced Architectural Drafting (4) F**

The use of CAD in generating the working drawings for a small commercial structure. Includes layout and dimensioning of an index sheet, floor plan, footing and foundation plan, elevations, and site plan and the detail drawings needed to support the commercial structure. Prerequisite: CDGT 1350.

**CDGT 2440. Descriptive Geometry (2) F**

Instruction in view relationships, special visualization and graphical solutions of problems concerning true length, true angles, true size and shape, dimensions, intersections, and shortest distance between lines and planes. Prerequisite: CDGT 1250.

**CDGT 2450. Geometric Dimensioning and Tolerancing (2) F**

Instruction in geometric dimensioning and tolerancing per current ANSI standards as it applies to dimensioning machine parts for interchangeability. Hands-on verification of geometric tolerances. Prerequisite: CDGT 1250 and MET 1210.

**CDGT 2640. Architectural Estimating (2) S**

Developing costs and materials estimates of a building project. Involves manual and computer applications in working with architectural drawings and reference material. Prerequisites: Math 1010 or higher, CDGT 1350 or CMT 1150, CMT 1310, and CMT 1500. Cross-listed with CMT 2640.
**CDGT 2650. Advanced Mechanical Drafting and Design (3) S**
Uses CAD to lay out advanced production drawings and design. Uses the Machine's Handbook, ANSI standards, geometric dimensioning and tolerances and manufacturer's reference materials. Supports the design and drafting required for senior project. Prerequisites: CDGT 1260 and CDGT 2450.

**CDGT 2660. Structural Detailing (3) S**
General course using CAD covering AISC standard detailing, welding symbols, connections, details, shapes and plates. Design of bolted and welded connectors, beams, columns and framing. Prerequisites: Math 1080 (or Math 1050 & 1060) and CDGT 1250.

**CDGT 2830. Directed Readings (1-3) F, S**
Directed readings in Computer and Design Graphics Technology including mechanical and architectural areas. Must have department approval.

**CDGT 2890. Cooperative Work Experience (1-3) Su, F, S**
Open to all advanced students in Computer and Design Graphics 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.

**CDGT 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.

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

**CDGT 3100. Tool Design (3) F**
Tool design principals used for workplace control in manufacturing and production. Topics include responsibilities of a tool designer, the design process, economics of design, tooling materials, and tool drawings and specifications. Other topics will include jigs, fixtures, gages, dies and tooling required by specialized manufacturing processes. Prerequisites: MET 1210/1210L and CDGT 2450, CDGT 2650 and Math QL1080.

**CDGT 3300. Graphical Kinematics and Animations (3) S**
Graphical representation of the motion of bodies without reference to the forces that cause the motion. Devices will be modeled and the limits of movement of components defined so that overall machine design can be animated and analyzed. Prerequisites: CDGT 1260 and MET 2300.

**CDGT 3400. Technical Illustration and Documentation I (3) F**
Projects in design presentation using CAD and other computer graphics software as the primary medium. Image capture, image processing and manipulation, types of views, use of color, composition, page layout, integration of text, and forms of output. Prerequisites: CDGT 1260 and CDGT 2350.

**CDGT 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 1700 and CDGT 1250.

**CDGT 3640. Cost Estimating and Control (3) S**
Project management and cost structure, including cost of engineering, CAD systems, marketing, production and inventory. Calculate breakeven 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 1700.

**CDGT 3890. Cooperative Work Experience (1-3) Su, F, S**
Open to all advanced students in Computer and Design Graphics 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.

**CDGT 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: CDGT 2350 and CDGT 2660.

**CDGT 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: CDGT 3300 and CDGT 3400.

**CDGT 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: CDGT 3470.

**CDGT 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: MIF 3320.

**CDGT 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.

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

**CDGT 4890. Cooperative Work Experience (1-3) Su, F, S**
Open to all advanced students in Computer and Design Graphics 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.
Engineering is a broad field consisting of a variety of disciplines including aerospace, biological, chemical, civil, computer, electrical, environmental, manufacturing, mechanical, nuclear and petroleum engineering. The Pre-engineering program at Weber State University offers the first two years of a professional engineering curriculum for students pursuing the engineering degree. While no formal degree is awarded, the program is designed to prepare students for transfer into an engineering program at other universities in Utah or throughout the United States that offer engineering degrees.

In planning a program of study, students should be aware that many Pre-engineering courses have mathematics and science prerequisites and that improper scheduling of courses can lengthen the time required to complete the engineering degree. Students should also be aware that requirements may vary according to the school to which the student wishes to transfer. Students are therefore encouraged to meet with the Pre-engineering coordinator prior to beginning their Pre-engineering program.

### PRE-ENGINEERING

**Coordinator:** Dr. Kirk D. Hagen  
**Location:** ET 214  
**Telephone:** 801-626-6998  
**E-mail:** engr@weber.edu

Pre-engineering courses have mathematics and science prerequisites and that improper scheduling of courses can lengthen the time required to complete the engineering degree. Students should also be aware that requirements may vary according to the school to which the student wishes to transfer. Students are therefore encouraged to meet with the Pre-engineering coordinator prior to beginning their Pre-engineering program.

### TWO-YEAR TRANSFER PROGRAM

**Course Requirements for Pre-engineering**

**Pre-engineering Course Required**

- Engr 1010 Introduction to Engineering (2)

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

- Math 11210 Calculus I (4)
- Math 11220 Calculus II (4)
- Math 22210 Calculus III (4)
- Math 2250 Linear Algebra & Diff Equations (4)
- Math 2300 Scientific Computing with C++ and Fortran (3)
- Math 2120 Principles of Chemistry I (5)

**Electives**

The following courses may be required depending on the specific engineering major and the school to which the student wishes to transfer. Consult the Pre-engineering coordinator to determine which courses apply to your engineering discipline.

- Engr 1050 Electrical Engineering for Non-majors (4)
- Engr 2000 Statics (3)
- Engr 2020 Dynamics (3)
- Engr 2410 Strength of Materials (3)
- Engr 2410 Electrical Circuits (5)
- Engr 2530 Digital Circuits (4)
- Engr 2600 Thermodynamics I (3)
- Math 31710 Boundary Value Problems (3)
- Math 32720 Differential Equations II (3)
- Math 42710 Partial Differential Equations (3)
- Math 22220/L Physics for Sci & Eng II (w/lab) (5)
- Chem 11220 Principles of Chemistry II (5)

**PRE-ENGINEERING COURSES - ENGR**

Engr 1010 Introduction to Engineering (2)  
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 1050. Electrical Engineering for Non-majors (4)**

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 S1210.

**Engr 2000. Statics (3)**

Vector mechanics, force and moment systems, equilibrium of particles and rigid bodies, friction and moments of inertia. Prerequisites: Math S1210 and Phsx PS/SI2210.

**Engr 2020. Dynamics (3)**

Fundamentals of position, velocity and acceleration. Kinematics and kinetics of particles. Newton’s laws, conservation of momentum and energy. Dynamics of rigid bodies. Prerequisite: Engr 2000 with a grade of “C” or higher.

**Engr 2040. Strength of Materials (3)**

Fundamentals of stress and strain, Hooker’s law, torsion, bending of beams, combined stresses and design of members. Prerequisite: Engr 2020 with a grade of “C” or higher.

**Engr 2410. Electrical Circuits (5)**

Ohm’s law, Kirchoff’s laws and network theorems. Power in DC and AC circuits, LRC circuits and Fourier analysis of functions. Prerequisite: credit or concurrent enrollment in Math S1210.

**Engr 2530. Digital Circuits (4)**

Combined lecture/laboratory course that introduces the fundamentals of digital circuits; e.g., number systems, codes, combinational logic, etc.

**Engr 2600. Thermodynamics I (3)**

Thermodynamic properties, equations of state, first and second laws of thermodynamics. Analysis of open and closed systems, availability and irreversibility, power and refrigeration cycles. Prerequisites: Math S1210 and Phsx PS/SI2210.

**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.

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### DEPARTMENT

**SALES AND SERVICE TECHNOLOGY**

**Chair:** Mr. Carl Grunander  
**Location:** Technical Education Building, Room 101  
**Telephone:** Cheryl Ewart 801-626-6913  
**Professors:** Desiree Cooper Larsen, Richard K. DeMoss, Carl L. Grunander, C. Daniel Litchford, Lloyd Ott, Jan Siabaugh;  
**Associate Professors:** John Cline, Rick L. Dove, Steven Eichmeier, Rondo H. Erickson;  
**Assist. Professors:** Vel S. Casler, Steven Stuart;  
**Instructor Specialists:** Lynn Adams, John Kelly, Shauna Morris;  
**Instructor:** Roger Crockett, Benyamin T. 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 science degrees in Automotive Technology and Technical Sales.

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**Data maintained by: Department of Technology, 3000 Center Street, Room 1106, 801-626-6913**

**Chair:** Mr. Carl Grunander  
**Location:** Technical Education Building, Room 101  
**Telephone:** Cheryl Ewart 801-626-6913  
**Professors:** Desiree Cooper Larsen, Richard K. DeMoss, Carl L. Grunander, C. Daniel Litchford, Lloyd Ott, Jan Siabaugh;  
**Associate Professors:** John Cline, Rick L. Dove, Steven Eichmeier, Rondo H. Erickson;  
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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 science degrees in Automotive Technology and Technical Sales.

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**Pre-Engineering Courses - ENGR**

**Engr 1010. Introduction to Engineering (2)**

Introduction to engineering for students in the pre-engineering program. Engineering as a profession and career opportunities.
Automotive Service Technology

Program Leader: Richard K. DeMoss
Faculty: Lynn Adams, John Cline, Roger Crockett, Rondo H. Erickson, Ben Shekar and Steven Stuart
Program Coordinator: Lisa Burr, 801-626-7350
Secretary: 801-626-6579

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.

- Chrysler CAP is a program with technical coverage specializing exclusively in current Chrysler products.
- General Motors ASEP is a program with technical coverage specializing exclusively in current General Motors products.
- General Motors BSEP is a Collision Repair Program with emphasis on environmental and safety topics. Technical coverage specializes in current General Motors' products.
- Honda PACT is a program (pending approval) 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 products.
- ATEP is a comprehensive program covering all major manufacturer'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 options are fully accredited by the National Automotive Technicians Education Foundation (NATEF). Partnerships with four of the world's largest automotive corporations, Chrysler, 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 program also has the following manufacturer's training centers located on campus allowing faculty and students access to the latest equipment, data, and vehicles.

Daimler Chrysler Training Center
Coordinator: Richard K. DeMoss
Advisor: Robert Wilkes

The Daimler Chrysler Training Center provides short, current product information courses for Daimler Chrysler 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: Richard K. DeMoss
Advisor: John Kelly

The General Motors Training Center provides short, current product information courses for GM 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.

Toyota Training Center
Coordinator: Richard K. DeMoss
Advisor: Lorin Munsee

The Toyota Training Center provides short, current product information courses for Toyota 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.

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 Coordinator: Lisa Burr, 801-626-7350

- 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 69 credit hours is required except for the BSEP option which requires a total of 64 credit hours and 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 for specific information regarding assessment.

Advisement

Automotive Service Technology 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 and meet with your specific program coordinator or faculty advisor.

General Education

Refer to the General Education Requirements (see pages 36-41) for Associate of Applied Science degrees. The following general education courses are required for this degree: Chem PS 1010 (3) or
Automotive Service Courses Required (38 credit hours)

AutoSv 1100 Principles of Technology I (2)
AutoSv 1300 Technical Mathematics (3)
or Math QL1030 Contemporary Mathematics (3)
AutoSv 2899 Associate Degree Assessment (0)
AutoSv 2990 Seminar (1)

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)

OPTION REQUIREMENTS

Select one of the following options (see the option advisor for a suggested course sequence):

• Chrysler CAP Option

Program Coordinator: Lisa Burr, 801-626-7350

Automotive Service Courses Required (45 credit hours)

AutoSv 1051 Chrysler Brakes (2)
AutoSv 1052 Chrysler Steering & Suspension (2)
AutoSv 1150 Chrysler Engines (3)
AutoSv 1250 Chrysler Drive Mechanisms (2)
AutoSv 1351/1352 Chrysler Specialized Electricity/Electronics (2/2)
or AutoSv 1350 Chrysler Specialized Electricity & Electronics (4)
AutoSv 1550 Chrysler Auto Transmissions (4)
AutoSv 2050 Chrysler Fuel & Emission Control Sys (3)
AutoSv 2150 Chrysler Electrical Systems (3)
AutoSv 2250 Chrysler Diagnosis & Tune-up (4)
AutoSv 2350 Chrysler Air Condition & Heating (2)
AutoSv 2880 Cooperative Practicum (16)

• General Motors ASE Option

Program Coordinator: Lisa Burr, 801-626-7350

Automotive Service Courses Required (45 credit hours)

AutoSv 1041 GM Brakes (2)
AutoSv 1042 GM Steering & Suspension (2)
AutoSv 1140 GM Engines (3)
AutoSv 1240 GM Drive Mechanisms (2)
AutoSv 1341/1342 GM Specialized Electricity/Electronics (2/2)
or AutoSv 1340 GM Specialized Electricity & Electronics (4)
AutoSv 1540 GM Auto Transmissions (4)
AutoSv 2040 GM Fuel & Emission Control Sys (3)
AutoSv 2140 GM Electrical Systems (3)
AutoSv 2240 GM Diagnosis & Tune-up (4)
AutoSv 2340 GM Air Conditioning & Heating (2)
AutoSv 2880 Cooperative Practicum (16)

• General Motors BSEP Option

Program Coordinator: Lisa Burr, 801-626-7350

Automotive Service Courses Required (38 credit hours)

AutoSv 1021 Brakes (2)
AutoSv 1022 Suspension & Steering (2)
AutoSv 1080 Non-Structural Analysis Repair (4)
AutoSv 1180 Structural Analysis & Repair (4)
AutoSv 1321/1322 Specialized Electricity/Electronics (2/2)
or AutoSv 1320 Specialized Electricity & Electronics (4)
AutoSv 2080 Painting & Refinishing (4)
AutoSv 2280 Air Conditioning & Heating (2)
AutoSv 2480 Auto Body Business Practices (2)
AutoSv 2880 Cooperative Practicum (14)

Automotive Technology Course Required (credit hours)

AutoTc 3020 Intro to Hazardous Materials (2)

• Honda PACT Option

Note: This program is pending approval. Please contact the Program Coordinator for more information.

Program Coordinator: Lisa Burr, 801-626-7350

Automotive Service Courses Required (45 credit hours)

AutoSv 1031 Honda Brakes (2)
AutoSv 1032 Honda Steering & Suspension (2)
AutoSv 1130 Honda Engines (3)
AutoSv 1230 Honda Drive Mechanisms (2)
AutoSv 1331/1332 Honda Specialized Electricity/Electronics (2/2)
or AutoSv 1330 Honda Specialized Electricity & Electronics (4)
AutoSv 1530 Honda Auto Transmissions (4)
AutoSv 2030 Honda Fuel & Emission Control Sys (3)
AutoSv 2130 Honda Electrical Systems (3)
AutoSv 2230 Honda Diagnosis & Tune-up (4)
AutoSv 2330 Honda Air Condition & Heating (2)
AutoSv 2880 Cooperative Practicum (16)

• Toyota T-Ten Option

Advisor: Rondo Erickson 801-626-6321

Automotive Service Courses Required (45 credit hours)

AutoSv 1061 Toyota Brakes (2)
AutoSv 1062 Toyota Steering & Suspension (2)
AutoSv 1160 Toyota Engines (3)
AutoSv 1260 Toyota Drive Mechanisms (2)
AutoSv 1361/1362 Toyota Specialized Electricity/Electronics (2/2)
or AutoSv 1360 Toyota Specialized Electricity & Electronics (4)
AutoSv 1560 Toyota Auto Trans (4)
AutoSv 2060 Toyota Fuel & Emissions Systems (3)
AutoSv 2160 Toyota Electrical Systems (3)
AutoSv 2260 Toyota Diagnosis & Tune-up (4)
AutoSv 2360 Toyota Air Conditioning (2)
AutoSv 2880 Cooperative Practicum (16)

• ATEP Option

Advisor: Steven Stuart 801-626-6903

Automotive Service Courses Required (45 credit hours)

AutoSv 1021 Brakes (2)
AutoSv 1022 Suspension & Steering (2)
AutoSv 1120 Engines (3)
AutoSv 1220 Drive Mechanisms (2)
AutoSv 1321/1322 Specialized Electricity/Electronics (2/2)
or AutoSv 1320 Specialized Electricity & Electronics (4)
AutoSv 1520 Automatic Transmissions (4)
AutoSv 2020 Fuel & Emission Control Sys (3)
AutoSv 2120 Electrical Systems (3)
AutoSv 2220 Diagnosis & Tune-up (4)
AutoSv 2320 Air Conditioning & Heating (2)
AutoSv 2860 Automotive Shop Practice (16)

• Heavy Duty Truck Option

Advisor: Roger Crockett 801-626-7511

Automotive Service Courses Required (44 credit hours)

AutoSv 1071 Heavy Duty Truck Brakes (2)
AutoSv 1072 Heavy Duty Truck Steering & Suspension (3)
AutoSv 1170 Heavy Duty Truck Engines (5)
AutoSv 1270 Heavy Duty Truck Drive Mechanism (8)
AutoSv 1321/1322 Specialized Electricity/Electronics (2/2)
or AutoSv 1320 Specialized Electricity & Electronics (4)
AutoSv 2170 Heavy Duty Truck Electrical Systems (3)
AutoSv 2270 Heavy Duty Truck Engine Diagnosis (3)
AutoSv 2370 Heavy Duty Truck Air Conditioning (2)
AutoSv 2880 Cooperative Practicum (14)
### AUTOMOTIVE SERVICE TECH COURSES - AUTOSV

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Description</th>
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<tbody>
<tr>
<td>AutoSv 1020. Brakes, Suspension and Steering (4)</td>
<td>Operational principles and major overhaul procedures of brake, suspension and steering systems.</td>
<td></td>
</tr>
<tr>
<td>AutoSv 1021. Brakes (2)</td>
<td>Principles, repair and adjustment of the brake system. (AutoSv 1021 &amp; AutoSv 1022 constitute AutoSv 1020.)</td>
<td></td>
</tr>
<tr>
<td>AutoSv 1022. Suspension and Steering (2)</td>
<td>Principles, repair and adjustment of the suspension and steering systems. (AutoSv 1021 &amp; AutoSv 1022 constitute AutoSv 1020.)</td>
<td></td>
</tr>
<tr>
<td>AutoSv 1032. Honda Steering and Suspension (2)</td>
<td>Principles of operation, diagnosis and repair of Honda steering and suspension systems. Includes Honda training modules.</td>
<td></td>
</tr>
<tr>
<td>AutoSv 1041. G.M. Brakes (2)</td>
<td>Principles of operation, diagnosis and repair of General Motors brake systems.</td>
<td></td>
</tr>
<tr>
<td>AutoSv 1042. G.M. Steering and Suspension (2)</td>
<td>Principles of operation, diagnosis and repair of General Motors steering and suspension systems.</td>
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</tr>
<tr>
<td>AutoSv 1051. Chrysler Brakes (2)</td>
<td>Principles of operation, diagnosis and repair of Chrysler brake systems.</td>
<td></td>
</tr>
<tr>
<td>AutoSv 1052. Chrysler Steering and Suspension (2)</td>
<td>Principles of operation, diagnosis and repair of Chrysler steering and suspension systems.</td>
<td></td>
</tr>
<tr>
<td>AutoSv 1061. Toyota Brakes (2)</td>
<td>Principles of operation, diagnosis &amp; repair of Toyota brake systems.</td>
<td></td>
</tr>
<tr>
<td>AutoSv 1062. Toyota Steering and Suspension (2)</td>
<td>Principles of operation, diagnosis and repair of Toyota steering and suspension systems.</td>
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<tr>
<td>AutoSv 1071. H D Truck Brakes (2)</td>
<td>Operation, diagnosis, inspection, and repair of air brake systems. Equivalent to DATC proficiency #48530, 48601.</td>
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<tr>
<td>AutoSv 1072. 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>
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<tr>
<td>AutoSv 1080. Non-Structural Analysis and Repair (4)</td>
<td>Safety, welding processes, panel repair and replacement, trim application, water and wind leakage.</td>
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<tr>
<td>AutoSv 1100. 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>
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<tr>
<td>AutoSv 1120. Engines (3)</td>
<td>Operational principles of basic gasoline and diesel engine systems and major overhaul of the complete automotive engine.</td>
<td></td>
</tr>
<tr>
<td>AutoSv 1130. Honda Engines (3)</td>
<td>Operational principles and major overhaul procedures of Honda engines. Includes Honda training modules.</td>
<td></td>
</tr>
<tr>
<td>AutoSv 1140. G.M. Engines (3)</td>
<td>Operational principles and major overhaul procedures of General Motors engines.</td>
<td></td>
</tr>
<tr>
<td>AutoSv 1150. Chrysler Engines (3)</td>
<td>Operational principles and major overhaul procedures of Chrysler engines.</td>
<td></td>
</tr>
<tr>
<td>AutoSv 1160. Toyota Engines (3)</td>
<td>Operational principles and major overhaul procedures of Toyota engines.</td>
<td></td>
</tr>
<tr>
<td>AutoSv 1170. 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>
<td></td>
</tr>
<tr>
<td>AutoSv 1180. Structural Analysis &amp; Repair (4)</td>
<td>Frame and unibody repair. Replacement of major panels, measuring and corrective pulling, and occupant safety systems.</td>
<td></td>
</tr>
<tr>
<td>AutoSv 1200. 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.</td>
<td></td>
</tr>
<tr>
<td>AutoSv 1220. Drive Mechanisms (2)</td>
<td>Theory, operation, diagnosis, maintenance, and overhaul of the clutch, standard transmission, automatic transmission, drive lines, differentials and front wheel drive units.</td>
<td></td>
</tr>
<tr>
<td>AutoSv 1230. Honda Drive Mechanisms (2)</td>
<td>Principles of operation, diagnosis and repair of Honda clutches, standard transmissions, drive lines, differentials and front wheel drive units. Includes Honda training modules.</td>
<td></td>
</tr>
<tr>
<td>AutoSv 1240. G.M. Drive Mechanisms (2)</td>
<td>Principles of operation, diagnosis and repair of General Motors clutches, standard transmissions, drive lines, differentials and front wheel drive units.</td>
<td></td>
</tr>
<tr>
<td>AutoSv 1250. Chrysler Drive Mechanisms (2)</td>
<td>Principles of operation, diagnosis and repair of Chrysler clutches, standard transmissions, drive lines, differentials and front wheel drive units.</td>
<td></td>
</tr>
<tr>
<td>AutoSv 1260. Toyota Drive Mechanisms (2)</td>
<td>Principles of operation, diagnosis and repair of Toyota clutches, standard transmissions, drive lines, differentials and front wheel drive units.</td>
<td></td>
</tr>
<tr>
<td>AutoSv 1270. 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>
<td></td>
</tr>
<tr>
<td>AutoSv SI1320. Specialized Electricity and Electronics (4)</td>
<td>Fundamentals, use of meters, wiring diagrams, wiring repair, semiconductors, microprocessors and selected devices.</td>
<td></td>
</tr>
<tr>
<td>AutoSv SI1321. Specialized Electricity (2)</td>
<td>Fundamentals, use of meters, wiring diagrams, wiring repair and selected electrical devices. (AutoSv SI1321 and AutoSv SI1322 constitute AutoSv SI1320.)</td>
<td></td>
</tr>
</tbody>
</table>
AutoSv SI1322. Specialized Electronics (2)
Semiconductor fundamentals, transistors, microprocessors and selected electronic devices. Prerequisite: AutoSv SI1321. (AutoSv SI1321 and AutoSv SI1322 constitute AutoSv SI1320.)

AutoSv SI1330. Honda Specialized Electricity and Electronics (4)
Fundamentals, use of meters, wiring diagrams, wiring repair, semiconductors, microprocessors and selected Honda electronic devices. Includes 46 Honda IST modules.

AutoSv SI1331. Honda Specialized Electricity (2)
Fundamentals, use of meters and Honda wiring diagrams, wiring repair and selected electrical devices. Includes 24 Honda IST modules. (AutoSv SI1331 and AutoSv SI1332 constitute AutoSv SI1330.)

AutoSv SI1332. Honda Specialized Electronics (2)
Semiconductor fundamentals, transistors, microprocessors and selected Honda electronic devices. Includes 22 Honda IST modules. Prerequisite: AutoSv SI1331. (AutoSv SI1331 and AutoSv SI1332 constitute AutoSv SI1330.)

AutoSv SI1340. G.M. Specialized Electricity and Electronics (4)
Fundamentals, use of meters, wiring diagrams, wiring repair, semiconductors, microprocessors and selected General Motors devices.

AutoSv SI1341. G.M. Specialized Electricity (2)
Fundamentals, use of meters and General Motors wiring diagrams, wiring repair and selected electrical devices. (AutoSv SI1341 and AutoSv SI1342 constitute AutoSv SI1340.)

AutoSv SI1342. G.M. Specialized Electronics (2)
Semiconductor fundamentals, transistors, microprocessors and selected General Motors electronic devices. Prerequisite: AutoSv SI1341. (AutoSv SI1341 and AutoSv SI1342 constitute AutoSv SI1340.)

AutoSv SI1350. Chrysler Specialized Electricity and Electronics (4)
Fundamentals, use of meters, wiring diagrams, wiring repair, semiconductors, microprocessors and selected Chrysler devices.

AutoSv SI1351. Chrysler Specialized Electricity (2)
Fundamentals, use of meters and Chrysler wiring diagrams, wiring repair and selected electrical devices. (AutoSv SI1351 and AutoSv SI1352 constitute AutoSv SI1350.)

AutoSv SI1352. Chrysler Specialized Electronics (2)
Semiconductor fundamentals, transistors, microprocessors and selected Chrysler electronic devices. Prerequisite: AutoSv SI1351. (AutoSv SI1351 and AutoSv SI1352 constitute AutoSv SI1350.)

AutoSv SI1360. Toyota Specialized Electricity & Electronics (4)
Fundamentals, use of meters, wiring diagrams, wiring repair, semiconductors, microprocessors and selected Toyota components.

AutoSv SI1361. Toyota Specialized Electricity (2)
Fundamentals, use of meters and Toyota wiring diagrams, wiring repair and selected electrical devices. (AutoSv SI1361 and AutoSv SI1362 constitute AutoSv SI1360.)

AutoSv SI1362. Toyota Specialized Electronics (2)
Semiconductor fundamentals, transistors, microprocessors and selected Toyota electronic components. Prerequisite: AutoSv SI1361. (AutoSv SI1361 and AutoSv SI1362 constitute AutoSv SI1360.)

AutoSv 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.

AutoSv 1520. Automatic Transmissions (4)
Theory, operation, diagnosis and overhaul procedures of automatic transmissions.

AutoSv 1530. Honda Automatic Transmissions (4)
Theory, operation, diagnosis and overhaul procedures of Honda automatic transmissions. Includes Honda training modules.

AutoSv 1540. G.M. Automatic Transmissions (4)
Theory, operation and diagnosis and overhaul procedures of General Motors automatic transmissions.

AutoSv 1550. Chrysler Automatic Transmissions (4)
Theory, operation, diagnosis and overhaul procedures of Chrysler automatic transmissions.

AutoSv 1560. Toyota Automatic Transmissions (4)
Theory, operation, diagnosis and overhaul procedures of Toyota automatic transmission.

AutoSv 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.

Theory, operation, diagnosis and repair of fuel and emission control systems. Three one-hour lectures and three labs per week.

AutoSv 2021. Fuel Injection Systems (2)
Induction and exhaust systems, fuel injection, and super and turbo charging. (AutoSv 2021 and AutoSv 2022 constitute AutoSv 2020.)

AutoSv 2022. Emission Control Systems (2)
Theory, operation, diagnosis and repair of emission control systems. (AutoSv 2021 and AutoSv 2022 constitute AutoSv 2020.)

Theory, operation, diagnosis and repair of General Motors engine management, ECM inputs & outputs, basic scan tool, basic OBD-II, fuel and emission systems. Recommended co-requisite: AutoSv 1340.

AutoSv 2050. Chrysler Fuel and Emission Control Systems (3)
Theory, operation, diagnosis and repair of Chrysler fuel and emission control systems.

AutoSv 2060. Toyota Fuel & Emission Control Systems (3)
Theory, operation, diagnosis and repair of Toyota fuel and emission control systems.

AutoSv 2080. Painting and Refinishing (4)
Surface preparation and application of contemporary paints. Matching, blending and complete vehicle refinishing.

AutoSv 2120. Electrical Systems (3)
Theory, operation, diagnosis and repair of batteries, starting, charging, ignition, computer control systems, and electrical accessories. Recommended prerequisite: AutoSv SI1320.

AutoSv 2121. Electrical Systems I (2)
Theory, operation, diagnosis and repair of batteries, starting and charging systems. Recommended prerequisite: AutoSv SI1320. (AutoSv 2121, AutoSv 2122 and AutoSv 2123 constitute AutoSv 2120.)
### AutoSv 2122. Electrical Systems II (2)
Theory, operation, diagnosis and repair of electronic and distributorless ignition systems, and computer control systems. Recommended prerequisite: AutoSv SI1320. (AutoSv 2121, AutoSv 2122 and AutoSv 2123 constitute AutoSv 2120.)

### AutoSv 2123. Electrical Systems III (1)
Theory, operation, diagnosis and repair of electrical accessories. Recommended prerequisite: AutoSv SI1320. (AutoSv 2121, AutoSv 2122 and AutoSv 2123 constitute AutoSv 2120.)

### AutoSv 2130. Honda Electrical Systems (3)
Theory, operation, diagnosis and repair of Honda batteries, starting, charging, ignition, computer control systems and body electrical systems. Includes 28 Honda IST modules. Prerequisite: AutoSv SI1330.

### AutoSv 2140. G.M. Electrical Systems (3)
Theory, operation, diagnosis and repair of General Motors batteries, starting, charging, ignition, computer control and electrical accessory systems. Prerequisite: AutoSv SI1340.

### AutoSv 2150. Chrysler Electrical Systems (3)
Theory, operation, diagnosis and repair of Chrysler batteries, starting, charging, ignition, computer control and electrical accessory systems. Prerequisite: AutoSv SI1350.

### AutoSv 2160. Toyota Electrical Systems (3)
Theory, operation, diagnosis and repair of Toyota batteries, starting, charging, ignition, computer control and electrical accessory systems. Prerequisite: AutoSv SI1360.

### AutoSv 2170. H D Truck Electrical Systems (3)
Theory, operation, diagnosis and repair of batteries, starting, charging and electrical accessories. Equivalent to DATC proficiency #48304, 48305.

### AutoSv 2220. Diagnosis and Tune-Up (4)
Diagnosis, adjustment, and repair of the systems which affect engine performance. Use of diagnostic equipment is emphasized. Recommended prerequisites: AutoSv 1120, AutoSv 2020 and AutoSv 2120.

### AutoSv 2221. Diagnosis and Tune-Up I (2)
Diagnosis, adjustment, and repair of systems which affect engine performance. Use of engine analyzers and exhaust analyzers is emphasized. Recommended prerequisites: AutoSv 1120, AutoSv 2020 and AutoSv 2122. (AutoSv 2221, AutoSv 2222 and AutoSv 2223 constitute AutoSv 2220.)

### AutoSv 2222. Diagnosis and Tune-Up II (1)
Diagnosis, adjustment, and repair of computerized control systems. Use of computer scan tools and meters is emphasized. Recommended prerequisites: AutoSv 1120, AutoSv 2020 and AutoSv 2122. (AutoSv 2221, AutoSv 2222 and AutoSv 2223 constitute AutoSv 2220.)

### AutoSv 2223. Diagnosis and Tune-up III (1)
Diagnosis, adjustment and repair of computerized control systems. Use of laboratory style oscilloscopes is emphasized. Recommended prerequisites: AutoSv 1120, AutoSv 2020 and AutoSv 2122. (AutoSv 2221, AutoSv 2222 and AutoSv 2223 constitute AutoSv 2220.)

### AutoSv 2230. Honda Diagnosis (4)
Diagnosis, adjustment and repair of systems which affect Honda engine performance. Use of diagnostic equipment and systematic analysis procedures is emphasized. Includes 28 Honda IST modules. Prerequisites: AutoSv 1130, AutoSv 2030 and AutoSv 2130.

### AutoSv 2240. G.M. Diagnosis and Tune-up (4)
Diagnosis, adjustment and repair of systems which affect General Motors engine performance. Use of diagnostic equipment is emphasized. Advanced Tech-2, advanced OBD-II, and Advanced Strategy Based Diagnosis. Recommended prerequisites: AutoSv 1140, AutoSv 1340, AutoSv 2040 and AutoSv 2140.

### AutoSv 2250. Chrysler Diagnosis and Tune-up (4)
Diagnosis, adjustment and repair of systems which affect Chrysler engine performance. Use of diagnostic equipment is emphasized. Prerequisites: AutoSv 1150, AutoSv 2050 and AutoSv 2150.

### AutoSv 2260. Toyota Diagnosis & Tune-up (4)
Diagnosis, adjustment and repair of systems which affect Toyota engine performance. Use of diagnostic equipment is emphasized. Prerequisites: AutoSv 1160, AutoSv 2060 and AutoSv 2160.

### AutoSv 2270. H D Truck Engine Diagnosis (3)
Engine starting, diagnosis, fuel pump timing, compression and cylinder leakage testing, and tune-up. Equivalent to DATC proficiency #48144, 48164, 48302.

### AutoSv 2320. Air Conditioning and Heating (2)
Operation and servicing of automotive air conditioning and heating systems and components.

### AutoSv 2330. Honda Air Conditioning and Heating (2)
Theory, operation, diagnosis and repair of Honda air conditioning and heating systems. Includes 16 Honda IST modules. Prerequisite: AutoSv SI1330.

### AutoSv 2340. G.M. Air Conditioning and Heating (2)
Theory, operation, diagnosis and repair of General Motors air conditioning and heating systems. Prerequisite: AutoSv SI1340.

### AutoSv 2350. Chrysler Air Conditioning and Heating (2)
Theory, operation, diagnosis and repair of Chrysler air conditioning and heating systems. Prerequisite: AutoSv SI1350.

### AutoSv 2360. Toyota Air Conditioning & Heating (2)
Theory, operation, diagnosis and repair of Toyota air conditioning and heating systems. Prerequisite: AutoSv SI1360.

### AutoSv 2370. H D Truck Air Conditioning (2)
Operation, environmental concerns, diagnosis and repair of air conditioning and heating systems and components. Equivalent to DATC proficiency #48800, 48801.

### AutoSv 2400. Theory of Internal Combustion Engines (2)
New developments, construction, operation, science and theory of gas, diesel, and airplane engines. For students with previous mechanical training.

### AutoSv 2480. Auto Body Business Practices (2)
Estimating, scheduling work, purchasing, inventory, insurance practices and applied customer relations.

### AutoSv 2500. Small Internal Combustion Engines (2)
Theory, construction, maintenance and reconditioning of small two and four-cycle internal combustion engines. Emphasis on motorcycle and high performance recreational vehicle engines.

### AutoSv 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.

### AutoSv 2880. Cooperative Practicum (4,6,8)
Supervised work experience, at the sponsoring dealership, which applies directly to previous academic courses. Full-time employment and approval of faculty supervisor required.
AutoSv 2890. Cooperative Work Experience (1-6)
Open to second year Automotive Service students. A continuation of AutoSv 1890. NOTE: AutoSv 2890 may be taken in lieu of AutoSv 2860, when appropriate work experience is available and the student obtains departmental approval.

AutoSv 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.

AutoSv 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.

AutoSv 2990. Seminar in Automotive Service Technology (1-3)
Directed studies, group discussions and analysis of selected topics pertinent to automotive service.

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 corporations, 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.

AUTOMOTIVE TECHNOLOGY

BACHELOR OF SCIENCE DEGREE (B.S.)

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.

Admission Requirements
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.

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'S1110, Comm HU1050, SocLgy SS/DEV1020, Botany LS1403, and Geogr PS'S1010.

Course Requirements for B.S. Degree

Automotive Service Courses Required (41 credit hours)

AutoSv 10_1* Brakes (2)
AutoSv 10_2* Suspension and Steering (2)
AutoSv 1100 Principles of Technology II (2)
AutoSv 11_0* Engines (3)
AutoSv 1200 Principles of Technology II (2)
AutoSv 12_0* Drive Mechanisms (2)
AutoSv 13_1* Specialized Electricity (2)
AutoSv 13_2* Specialized Electronics (2)
AutoSv 15_0* Automatic Transmissions (4)
AutoSv 20_0* Fuel & Emission Control Systems (3)
AutoSv 21_0* Electrical Systems (3)
AutoSv 22_0* Diagnosis & Tune-up (4)
AutoSv 23_0* Air Conditioning & Heating (2)
AutoSv 2480 Auto Body Business Practices (2)
AutoSv 2860 Automotive Shop Practice (6)

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

Automotive Technology Courses Required (20 credit hours)

AutoTc 3520 Fleet Management (2)
AutoTc 3620 Automotive Business Practices (2)
AutoTc 4020 Environmental Issues (2)
AutoTc 41220 Advanced Diagnosis (2)
AutoTc 4880 Cooperative Practicum (8)
AutoTc 4990 Seminar in Automotive Tech (1+1)

*Taken twice - 1 credit hour each semester for a total of 2 credit hours.

Sales and Service Technology Courses Required (15 credit hours)

SST 1143 Fundamental Selling Techniques (3)
SST 3103 Sales Personalities & Profiles (3)
SST 3153 Sales Engineering Techniques (3)
SST 3203 Customer Service Techniques (3)
SST 3363 Contract & Sales Negotiation (3)

Support Courses Required (33-35 credit hours)

Botany LS1403 Environment Appreciation (3)
Chem PS1010 Introduction to Chemistry (3)
or Chem PS'S1110 Elementary Chemistry (5)
Comm HU1050 Intro to Interpersonal Comm (3)
Geogr PS'S1010 Natural Environments of the Earth (3)
Mgmt 3010 Organiz Behavior & Management (3)
or SST 3563 Principles of Supervision (3)
Math QL1030 Contemporary Mathematics (3)
SocLgy SS/DEV1020 Social Problems (3)
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>AutoTc 1700</td>
<td>Intro to Microcomputer Apps</td>
<td>(3)</td>
</tr>
<tr>
<td>AutoTc 1704</td>
<td>Internet Navigator</td>
<td>(1)</td>
</tr>
<tr>
<td>TBE 3070</td>
<td>Spreadsheet Applications</td>
<td>(1)</td>
</tr>
<tr>
<td>TBE 3080</td>
<td>Database Applications</td>
<td>(1)</td>
</tr>
<tr>
<td>TBE 3250</td>
<td>Business Communications</td>
<td>(3)</td>
</tr>
</tbody>
</table>

**Electives (6-11 credit hours)**

Select one course from Group 1 and one course from Group 2.

- **Group 1**
  - AutoSv 1080: Non-Structural Analysis & Repair | (4) |
  - AutoSv 1180: Structural Analysis & Repair | (4) |
  - AutoSv 2080: Painting & Refinishing | (4) |
  - Math QL1080: Pre-Calculus | (5) |

- **Group 2**
  - BusAdm 3200: Legal Environment of Business | (3) |
  - Comm DV3080: Intercultural Communication | (3) |
  - Comm 3550: Organizational Communication | (3) |
  - ChFam 4400: The Family In Stress | (3) |
  - ForLng 3850: Study Abroad | (1-6) |
  - ForLng 4850: Study Abroad | (1-6) |
  - Geogr 3360: Economic Geography | (3) |
  - Mgmt 4400: Advanced Organizational Behavior | (3) |
  - Psych 4510: Industrial & Organizational Behavior | (3) |
  - SST 4102: Developing Team Leadership Skills | (2) |
  - SST 4203: Ethical Sales & Service | (3) |

**Suggested Course Sequence**

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

## AUTOMOTIVE TECHNOLOGY COURSES - AUTOTC

**AutoTc 3020. Introduction to Hazardous Materials (2)**
Environmental regulations, safe practices, disposal of hazardous substances, such as paints and solvents. Suggested prerequisite: Chem 1010 or Chem 1110.

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

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

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

**AutoTc 34220. Advanced Diagnosis (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: AutoSv 2220 or equivalent.

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

**AutoTc 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.

**AutoTc 4990. Seminar in Automotive Technology (1-3)**
Directed studies, group discussions and analysis of selected topics. Emphasis on environmental, regulatory, legal, safety, new product and other contemporary issues.

**AutoTc 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. The four-year Interior Design Technical Sales degree (see page 91) 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 the Foundation of Interior Design Education Research (FIDER) 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 (see page 91), a monitored 160-hour internship in the Kitchen/Bath Industry, and submission of a NKBA Graduation Verification Form are required for certification by NKBA.

**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).

**Advisement**

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.

**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 Associate of Applied Science requirements. A minimum total of 20 credit hours is required including Engl EN1010 (3), Comm HU1050 (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 3 credit hour general education course in Social Science. Computer 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 1053 Introduction to Interior Design (3)
- IDT 1203 Presentation Techniques (2)
- IDT 1213 Residential Design (3)
- IDT 2243 Professional Practice in Interior Design (3)
- IDT 2303 Computer-aided Design & Drafting (3)
- IDT 2353 Consumer Textiles (3)
- IDT 2899 Associate Degree Assessment (0)
- IDT 3213 Materials (3)
- IDT 3233 History of Interiors (3)
- IDT 3263 American & Modern Interiors (3)
- IDT 3323 Studio III Kitchen & Bath (3)

Support Courses Required (17 credit hours)

- Art 1160 Design: 2D (3)
- CDGT 1340 Architectural Drafting for Interior Design (3)
- SFT 1143 Fundamental Selling Techniques (3)
- SFT 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 on-line catalog (weber.edu/catalog) and/or contact the department for a suggested course sequence. See page 91 for the Interior Design Bachelor's Degree.

INTERIOR DESIGN TECHNOLOGY COURSES - IDT

IDT 1053. Introduction to Interior Design (3) S

Excludes interior design as it relates to human factors. Intro-\ucts the elements and principles of design as they relate to interiors. Introduces a brief survey of American architecture and furnishings.

IDT 1203. Presentation Techniques (2) F

Exploration of materials and applications of methods required for visual communications with interior design presentation. Emphasis in conceptualizing and quick-sketching techniques. Prerequisite: CDGT 1340. Studio: four hours per week.

IDT 1213. Residential Design (3) S

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.

IDT 1890. Cooperative Work Experience (1-2) S

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.

IDT 2243. Professional Practice in Interior Design (3) S

Techniques and methods for conducting a professional design business. Includes contracts, specifications, and ethics. Four one-hour lectures per week.

IDT 2303. Computer-aided Design and Drafting (3) S

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 lab sessions per week.

See page 91 for the Interior Design Bachelor's Degree.
IDT 4253. Commercial Design (3) S
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 three-hour lab per week. Prerequisite: IDT 3213.

IDT 4303. Studio IV Barrier-Free Design (3) F
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 3203.

IDT 4313. Studio V Senior Project (3) S
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 3203.

IDT 4323. Studio VI Portfolio (1) S
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 3203.

IDT 4860. Internship for Interior Design (3) Su, F, S
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.

SALES AND MERCHANDISING

Advisors: Carl Grunander 801-626-6912
Steve Eichmeier 801-626-7595

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.

SALES AND MERCHANDISING

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 2.00 or "C."

» Credit Hour Requirements: A total of 63 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's degree. Please see your advisor or your department for specific information regarding assessment.

Advisement

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.

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. Engl EN1010 and Comm HU1050 are required. Computer literacy as defined in this catalog is also required for the A.A.S. degree.

Course Requirements for A.A.S. Degree

Courses Required (14 credit hours)

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>SST 1143</td>
<td>3</td>
</tr>
<tr>
<td>SST 1303</td>
<td>3</td>
</tr>
<tr>
<td>SST 1602</td>
<td>2</td>
</tr>
<tr>
<td>SST 2899</td>
<td>3</td>
</tr>
<tr>
<td>SST 3203</td>
<td>3</td>
</tr>
<tr>
<td>SST 3563</td>
<td>3</td>
</tr>
</tbody>
</table>

Support Courses (23 credit hours)

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>SST 1503</td>
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</tr>
<tr>
<td>SST 1890</td>
<td>3</td>
</tr>
<tr>
<td>SST 2182</td>
<td>3</td>
</tr>
<tr>
<td>SST 2353</td>
<td>3</td>
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<tr>
<td>SST 2383</td>
<td>3</td>
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<tr>
<td>SST 2443</td>
<td>3</td>
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<tr>
<td>SST 2503</td>
<td>3</td>
</tr>
<tr>
<td>SST 2991</td>
<td>3</td>
</tr>
</tbody>
</table>

SALES AND SERVICE TECHNOLOGY

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

MINOR

» Grade Requirements: A grade of "C" or better in all courses used toward the minor.

» Credit Hour Requirements: 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.

Course Requirements for Fashion Merchandising Emphasis

Courses Required (minimum of 15 credit hours)

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>IDT 2353</td>
<td>3</td>
</tr>
<tr>
<td>SST 1503</td>
<td>3</td>
</tr>
<tr>
<td>SST 2703</td>
<td>3</td>
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<tr>
<td>SST 2383</td>
<td>3</td>
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<tr>
<td>SST 2443</td>
<td>3</td>
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<tr>
<td>SST 3563</td>
<td>3</td>
</tr>
<tr>
<td>Theatr 3243</td>
<td>3</td>
</tr>
</tbody>
</table>

Course Requirements for Interior Design Emphasis

Courses Required (minimum of 16 credit hours)

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>IDT 1053</td>
<td>3</td>
</tr>
<tr>
<td>IDT 1203</td>
<td>3</td>
</tr>
<tr>
<td>IDT 1213</td>
<td>3</td>
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<tr>
<td>IDT 2243</td>
<td>3</td>
</tr>
<tr>
<td>IDT 2303</td>
<td>3</td>
</tr>
<tr>
<td>IDT 2990</td>
<td>3</td>
</tr>
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<td>IDT 3213</td>
<td>3</td>
</tr>
<tr>
<td>IDT 3253</td>
<td>3</td>
</tr>
<tr>
<td>IDT 3263</td>
<td>3</td>
</tr>
<tr>
<td>IDT 4253</td>
<td>3</td>
</tr>
<tr>
<td>CDGT 1350</td>
<td>3</td>
</tr>
</tbody>
</table>
### Technical Sales

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

**Program Prerequisite:** An interview with the department chair or designee is necessary prior to acceptance into the program.

**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 2.00 or higher.

**Credit Hour Requirements:** A total of 120 hours is required for graduation – a minimum of 43 of these is required within the major. A total of 40 upper division credit hours is required for this program for graduation.

**Advisement:**
- All Technical Sales 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 C. Daniel Litchford at 801-626-6139 or call 801-626-6913 for more information or 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 Bachelor of Science requirements.

### Course Requirements for Sales Emphasis

#### Course Requirements (16 credit hours)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>SST 1143</td>
<td>Fundamental Selling Techniques (3)</td>
</tr>
<tr>
<td>SST 1303</td>
<td>Distribution Principles (3)</td>
</tr>
<tr>
<td>SST 1602</td>
<td>Advanced Selling Techniques (2)</td>
</tr>
<tr>
<td>SST 3103</td>
<td>Sales Personalities &amp; Profiles (3)</td>
</tr>
<tr>
<td>SST 3153</td>
<td>Sales Engineering Techniques (3)</td>
</tr>
<tr>
<td>SST 3203</td>
<td>Customer Service Techniques (3)</td>
</tr>
<tr>
<td>SST 3603</td>
<td>Sales Presentation Strategies (3)</td>
</tr>
</tbody>
</table>

#### Technical Sales

**Advisors:** Carl Grunander 801-626-6912  
Steve Eichmeier 801-626-7595

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.

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

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

**Support Course Required (1 credit hour)**
- TBE 3090 Electronic Presentations (1)

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

Select from the following:
- AutoTc 3520 Fleet Management (2)
- AutoTc 3620 Automotive Business Practices (2)
- AutoTc 4020 Environmental Issues (2)
- BusAdm 1010 Business and Society (3)
- BusAdm 3000 Small Business Management (3)
- ChFam 4400 The Family in Stress (3)
- Comm 3050 Theory & 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)
- Psych SS2000 Interpersonal Relationships (3)
- Psych 3460 Social Psychology (3)
- SST 1503 Introduction to Fashion Merchandising (3)
- SST 2182 Credit and Collection Methods (2)
- SST 2443 Advertising Methods (3)
- SST 2703 Computer-Aided Design for Sales and Merchandising (3)
- SST 4830 Directed Readings (1-3)
- SST 4920 Short Courses, Workshops... (1-2)
- TBE 3070 Advanced Spreadsheet Applications (1)
- TBE 3080 Advanced Database Applications (1)
- TBE 3100 Desktop Publishing (3)
- TBE 3110 Advanced Desktop Publishing (3)
- TBE 3250 Business Communication (3)
- TBE 3400 Training the Trainer (3)

### Interior Design Emphasis, Technical Sales Major

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

**Program Prerequisite:** Complete the requirements for the Interior Design AAS Degree.

**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 2.00 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. Call 801-626-6913 or 801-626-7920 for more information or to schedule an appointment.

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**WEBER STATE UNIVERSITY 2004 – 2005 CATALOG**

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**General**
- PROFILE
- ENROLLMENT
- STUDENT AFFAIRS
- ACADEMIC INFO
- DEGREE REQ
- GEN ED

**Interdisciplinary**
- PYE
- HNRS
- BIS/ BAT
- LIBSCI
- INTRO MINORS

**Applied Science & Technology**
- CEET
- CS
- MFET/MET
- CMT
- CDGT
- ENGR
- AUTOS/AUTOTC
- IDT
- SST
- TBE

**Arts & Humanities**
- MEDUC
- CHFAM
- ATLH/AT
- HEALTH/NUTR
- PE/REC
- EDUC

**Business & Econ**
- MBA
- MPACC/ACCTNG
- BUSADM
- FIN
- LDM
- MGMT
- MKTG
- ECON/QUANT
- IS/T

**Education**
- CLS
- DENSCL
- PARAMD
- HTHSCI
- HASHIM
- NURSNG
- RADTEC
- DMS
- NUCMED
- RADTHIR
- RESTHY

**Science**
- BOTANY
- CHEM
- GEOSCI
- MATH/MATHED
- MICRO
- PHSX
- ZOOOL

**Social & Behavioral Sciences**
- MCJ(CJ)
- ECON
- GEOGR
- HIST
- POLSC
- PHIL
- PSYCH
- SOCLWK
- GENRT
- SOCIOLOGY
- ANTHRO
- AEROSP
- MLSCI
- NAVSCI

**Continuing Ed**
- Davis Campus
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 requirements. In addition to courses taken for the AAS degree, a total of 25 credit hours is required, including American Institutions (3), Engl EN2010 (3), 4 credit hours in Humanities/Creative Arts (Art 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
To be taken in addition to the requirements for the Interior Design AAS Degree.

IDT and SST Courses Required (32 credit hours)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>IDT 3203</td>
<td>Studio I Perspective/Rendering</td>
<td>2</td>
</tr>
<tr>
<td>IDT 3303</td>
<td>Studio II Design Process/Space Planning</td>
<td>3</td>
</tr>
<tr>
<td>IDT 4303</td>
<td>Studio IV Barrier Free Design</td>
<td>3</td>
</tr>
<tr>
<td>IDT 4253</td>
<td>Commercial Design</td>
<td>3</td>
</tr>
<tr>
<td>IDT 4313</td>
<td>Studio V Senior Project</td>
<td>3</td>
</tr>
<tr>
<td>IDT 4323</td>
<td>Studio VI Portfolio</td>
<td>1</td>
</tr>
<tr>
<td>SST 3203</td>
<td>Customer Service Techniques</td>
<td>3</td>
</tr>
<tr>
<td>SST 3363</td>
<td>Contract &amp; Sales Negotiation</td>
<td>3</td>
</tr>
<tr>
<td>SST 3563</td>
<td>Principles of Supervision</td>
<td>3</td>
</tr>
<tr>
<td>SST 3603</td>
<td>Sales Presentation Strategies</td>
<td>3</td>
</tr>
<tr>
<td>SST 4102</td>
<td>Developing Team Leadership Skills</td>
<td>2</td>
</tr>
<tr>
<td>SST 4203</td>
<td>Ethical Sales &amp; Service</td>
<td>3</td>
</tr>
</tbody>
</table>

Required Support Course (2 credit hours)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMT 2360</td>
<td>Building Codes and Inspection</td>
</tr>
</tbody>
</table>

Recommended

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>SST 4610</td>
<td>Senior Project</td>
</tr>
</tbody>
</table>

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

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 & 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 & 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. Prerequisite: SST 2703 or faculty approval.

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 and service 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.

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**Department of 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 Professor:** Laura MacLeod; **Assistant Professors:** Kenneth R. Cuddleback, Allyson Saunders; **Instructor Specialist:** Laura Anderson; **Instructor:** Pat McFerson, Joyce Porter

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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)**

- **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 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's 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 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 HU1050 and Econ SS1010 will be used to help fill both 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 and Router Configuration (3)
  - TBE 2435 Cisco Advanced LAN and WAN Switching and Routing Theory and 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 Advanced Database Applications (1)

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

- Econ SS1010 Economics as a Social Science (3)
- Comm HU1050 Intro to Interpersonal & Small Group Communication (3)
- Acctng 2010 Survey of Accounting I (3)

**Suggested Course Sequence**

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

**TELECOMMUNICATIONS**

**ADMINISTRATION MAJOR**

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

- **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 general grade requirements for graduation on page 36.

- **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.

**Admission Requirements**

Complete an A.A.S. Degree in Telecommunication or equivalent. Declare a program of study 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 either Bachelor of Science or Bachelor of Arts requirements. TBE TE1700, Introduction to Microcomputer Applications, will partially fill the Computer Literacy requirement. Comm HU1050 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.

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

- Mgmt 3010 Organizational Behavior & Mgmt (3)
- Mgmt 4400 Advanced Organizational Behavior (3)
- Mktg 3010 Marketing Concepts & Practices (3)

**Specific Major Courses Required (29 credit hours)**

- TBE 3090 Electronic Presentations (1)
- TBE 3250 Business Communications (3)
- CEET 1105 Personal Computer Fundamentals (4)
- CEET 1110 Basic Electronics (2)
- Econ SS1010 Economics as a Social Science (3)
- Comm HU1050 Intro to Interpersonal & Small Group Communication (3)
- Acctng 2010 Survey of Accounting I (3)
**Telecommunications Course Requirements (18 credit hours)**

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)

**Suggested Course Sequence**

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

**Telecommunications Minor**

- **Grade Requirements**: The following required curriculum used for this minor must be completed with a grade of AC-A or better and with a GPA of 2.50 or higher.
- **Credit Hour Requirements**: Minimum of 22 credit hours in TBE courses as listed below.

**Advisement**

Students should meet with a faculty advisor for course and program advisement. Call Mr. Ken Cuddeback at 801-626-6026 or Dr. Diana Green at 801-626-6821 for more information or to schedule an appointment. Advisement may also be obtained in room 218 of Building B2.

**Course Requirements for Minor**

- TBE TE1700, Introduction to Microcomputer Applications, or Computer and Information Literacy requirement is a prerequisite for all courses listed below.

**Courses Required (23 credit hours)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>TBE 2200</td>
<td>Microcomputer Operating Systems (3)</td>
</tr>
<tr>
<td>TBE 2300</td>
<td>Intro to LAN Management (3)</td>
</tr>
<tr>
<td>TBE 2500</td>
<td>Intro to Telecommunications (3)</td>
</tr>
<tr>
<td>TBE 2710</td>
<td>Digital Switching Systems (3)</td>
</tr>
<tr>
<td>TBE 2720</td>
<td>Transport Media &amp; Emerging Technologies (3)</td>
</tr>
<tr>
<td>TBE 2730</td>
<td>Digital Switching &amp; Transport Applications (3)</td>
</tr>
<tr>
<td>TBE 4700</td>
<td>Data Network Design (3)</td>
</tr>
<tr>
<td>or TBE SI4710</td>
<td>Voice Network Design (3)</td>
</tr>
<tr>
<td>CEET 1110</td>
<td>Basic Electronics (2)</td>
</tr>
</tbody>
</table>

**Professional Network Cisco Option**

**Certificate 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 Certificate**

**Computer Competency Requirement (2-4 credit hours)**

- TBE TE1700 Intro to Microcomputer Applications (3) and either LibSci/TBE TD1704 (1) or LibSci/TBE TD2201 (2)
- or University Computer Competency Exams (TBE TA1501, TB1502, TC1503, & TD1504)

**General Requirements (6 credit hours)**

- TBE 2435 Cisco Advanced LAN and WAN Switching Router Configuration (3)
- 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)**

- **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 to complete all major requirements 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.

**Advisement**

All Business Systems Technologies students should meet with a faculty advisor for course and program advisement. 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**

- 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 Systems is required.

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**General Education Requirements**

- 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 Systems is required.

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**Dean’s Office**

- Contact the department for a suggested course sequence.

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**Notes**

- General Education requirements are listed below.
- Consult the on-line catalog (weber.edu/catalog) for Associate of Applied Science requirements.

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**Certificate Program**

- 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)
Applications, will partially fill the Computer Literacy requirement and Comm HU1050 and Econ SS1010 will partially fill both program and general education requirements.

**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 (26 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 2500 Intro to Telecommunications (3)
- TBE 2531 Exploring Multimedia Applications (3)
- TBE 2860 Business Systems Technologies Practicum (2)
- TBE 2899 Associate Degree Assessment (0)
- TBE 3000 Advanced Word Processing (1)
- TBE 3070 Advanced Spreadsheet Applications (1)
- TBE 3100 Desktop Publishing (3)
- TBE 3250 Business Communication (3)

**Elective Courses (6 credit hours)**
Select 6 credit hours from the following:
- TBE 2532 or 3532 Web Page Design and Development (3)
- TBE 2533 2D Graphics (3)
- TBE 2534 Audio/Video Production for the Web (3)
- TBE 3533 Multimedia Web Animation (3)
- TBE 3534 Advanced Multimeda Applications (3)
- TBE 3535 Advanced Image Editing (3)

**Support Courses Required (9 credit hours)**
- Econ SS1010 Economics as a Social Science (3)
- Acctng 2010 Survey of Accounting I (3)
- Comm HU1050 Intro to Interpersonal & Small Group Communication (3)

**Suggested Course Sequence**
Please refer to this program in the on-line 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.)**

» **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.

**Advisement**
Business Education Composite Teaching Emphasis students should meet with a faculty advisor for course and program advisement. Call Dr. Allyson Saunders at 801-626-6823 or call 801-626-6059 for more information or to schedule an appointment.

**Program Prerequisite**: 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.

**Grade Requirements**: A grade of "C-" or better in courses required for Teacher Education Certification.

**Advisement**
Business Education Composite Teaching Emphasis students should meet with a faculty advisor for course and program advisement. Call Dr. Allyson Saunders at 801-626-6823 or call 801-626-6059 for more information or to schedule an appointment. Advisement may also be obtained in room 218 of building B2. Teaching majors should also consult with an advisor in the Jerry and Vickie Moyes College of Education (call 801-626-6269).

**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: ChFam SS1500, Comm HU1050, 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.

**Support Courses Required (12 credit hours)**
The following requirements must be completed with a grade of "C-" or higher.
- Mgmt 3010 Organization Behavior & Mgmt (3)
- Mktg 3010 Marketing Concepts & Practices (3)
- BusAdm 3200 Legal Environment of Business (3)
- Fin 1010 Personal Finance (3)

**Specific Major Courses Required (5 credit hours)**
- TBE 3600* Principles of Business/Marketing Ed (2)
- TBE 3610* Methods of Teaching Business/Marketing Education Subjects (3)

* Must be taken prior to student teaching.

**Course Requirements for A.T. Degree in Business Systems Technologies**
TBE 2305, Business Communication (3), will meet the Comm HU1020 requirement for Teacher Education Certification.

**Suggested Course Sequence**
Please refer to this program in the on-line catalog (weber.edu/catalog) and/or contact the department for a suggested course sequence.
**Grade Requirements:** A grade of "C-" or better in courses required for this major in addition to an overall GPA 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 HU1050 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.

**Support Courses Required (15 credit hours)**

- Mktg 3010: Marketing Concepts & Practices (3)
- Mgmt 3010: Organizational Behavior & Mgmt (3)
- Mgmt 4400: Advanced Organizational Behavior (3)
- BusAdm 3200: Legal Environment of Business (3)
- SST 3203: Customer Service Techniques (3)

**Specific Major Courses Required (11 credit hours)**

- TBE 3080: Advanced Database Applications (1)
- TBE 3090: Electronic Presentations (1)
- TBE 3400: Training the Trainer (3)
- TBE 3550: Supervising Information Tech (3)
- TBE 4990: Senior Project (3)

**Electives (9 credit hours)**

Select 9 credit hours not previously taken from the following:
- TBE 2532 or 3532 Web Page Design and Development (3)
- TBE 2533: 2D Graphics (3)
- TBE 2534: Audio/Video Production for the Web (3)
- TBE 3533: Multimedia Web Animation (3)
- TBE 3534: Advanced Multimedia Applications (3)
- TBE 3535: Advanced Image Editing (3)

**Suggested Course Sequence**

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

**BUSINESS EDUCATION**

**TEACHING MINOR**

**Grade Requirements:** A grade of "C-" or better in courses used toward the minor with an overall GPA of 2.50 or better in TBE courses. Students must have correct keyboarding ability with at least 40 wpm proficiency.

**Credit Hour Requirements:** A minimum of 21 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 (21 credit hours)**

- TBE 2010: Business English Applications (3)
- TBE 2200: Microcomputer Operating Systems (3)
- TBE 2300: Intro to LAN Management (3)
- TBE 2500: Intro to Telecommunications (3)
- TBE 2531: Exploring Multimedia Applications (3)
- TBE 3000: Advanced Word Processing (1)
- TBE 3060*: Principles of Business/Marketing Ed (2)
- TBE 3610*: Methods of Teaching Business/Marketing Education Subjects (3)

*Must be taken before student teaching.

**Elective Courses (3 credit hours)**

Select 3 credit hours from the following:
- TBE 2532 or 3532 Web Page Design and Development (3)
- TBE 2533: 2D 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)

**BUSINESS/MARKETING EDUCATION**

**TEACHING MINOR**

**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 30 credit hours.

**Advisement**

The Business/Marketing Education Teaching Minor must be cleared with the TBE Department by the beginning of a student's junior year. Students should 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/Marketing 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.
**BUSINESS SYSTEMS TECHNOLOGIES**

**MINOR OR BIS EMPHASIS**

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**

**Required Course (4 credit hours)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>TBE 2010</td>
<td>Business English Applications (3)</td>
</tr>
<tr>
<td>TBE 2200</td>
<td>Microcomputer Operating Systems (3)</td>
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<tr>
<td>TBE 2300</td>
<td>Intro to LAN Management (3)</td>
</tr>
<tr>
<td>TBE 2500</td>
<td>Intro to Telecommunications (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 3600</td>
<td>Principles of Business/Marketing Ed (2)</td>
</tr>
<tr>
<td>TBE 3610*</td>
<td>Methods of Teaching Business/Marketing Education Subjects (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.

**Required Courses (30 credit hours)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>TBE 2010</td>
<td>Business English Applications (3)</td>
</tr>
<tr>
<td>TBE 2200</td>
<td>Microcomputer Operating Systems (3)</td>
</tr>
<tr>
<td>TBE 2300</td>
<td>Intro to LAN Management (3)</td>
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<tr>
<td>TBE 2500</td>
<td>Intro to Telecommunications (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 3600</td>
<td>Principles of Business/Marketing Ed (2)</td>
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<tr>
<td>TBE 3610*</td>
<td>Methods of Teaching Business/Marketing Education Subjects (3)</td>
</tr>
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<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>

**Emphasis Areas**

Select 15 credit hours from one of the following emphasis areas:

### Business Systems Emphasis

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>TBE 2010</td>
<td>Business English Applications (3)</td>
</tr>
<tr>
<td>TBE 2200</td>
<td>Microcomputer Operating Systems (3)</td>
</tr>
<tr>
<td>TBE 2300</td>
<td>Intro to LAN Management (3)</td>
</tr>
<tr>
<td>TBE 2500</td>
<td>Intro to Telecommunications (3)</td>
</tr>
<tr>
<td>TBE 2533</td>
<td>2D Graphics (3)</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 3080</td>
<td>Advanced Database Applications (1)</td>
</tr>
<tr>
<td>TBE 3100</td>
<td>Desktop Publishing (3)</td>
</tr>
<tr>
<td>TBE 3250</td>
<td>Business Communications (3)</td>
</tr>
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</table>

### Multimedia Emphasis

<table>
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<th>Course Title</th>
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<tbody>
<tr>
<td>TBE 2532/3532</td>
<td>Web Page Design and Development (3)</td>
</tr>
<tr>
<td>TBE 2533*</td>
<td>2-D Graphics (3)</td>
</tr>
<tr>
<td>TBE 2534</td>
<td>Audio/Video Production for the Web (3)</td>
</tr>
<tr>
<td>TBE 3100</td>
<td>Desktop Publishing (3)</td>
</tr>
<tr>
<td>TBE 3533</td>
<td>Multimedia Web Animation (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>
<tr>
<td>CDGT 3400</td>
<td>Technical Illustrations &amp; Documentation (3)</td>
</tr>
</tbody>
</table>

(TBE 2533 recommended prerequisite for CDGT 3400)

**TELECOMMUNICATIONS & BUSINESS EDUCATION COURSES - TBE**

**TBE 1040. Speedbuilding Keyboarding (1) S**


**TBE TA1501.* Word Processing Competency Exam (.5) Su, 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 which may be completed at the student's own pace. 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.

**TBE TB1502.* Operating Systems and Database Competency Exam (.5) Su, F, S**

The computer competency exam for this course is a hands-on examination verifying a student's skills at using Operating Systems and E-Mail. Practice materials are available on the web for studying the competencies covered on the test which may be completed at the student's own pace. 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.

**TBE TC1503.* Spreadsheets Competency Exam (.5) 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 which may be completed at the student's own pace. 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.

**TBE TD1504.* Information Literacy Competency Exam (.5) 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) LibSci 1704.

* 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 (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.

**Exams (TBE TD1501-TD1504)**

- **TBE TD1501.** Spreadsheets Competency Exam (.5) Su, F, S
- **TBE TD1502.** Operating Systems and Database Competency Exam (.5) Su, F, S
- **TBE TD1503.** Information Literacy Competency Exam (.5) Su, F, S
- **TBE TD1504.** Information Literacy Competency Exam (.5) Su, F, S

For more information, visit the Computer & Information Literacy section of this catalog.
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, databases, and ethical 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 Windows and Databases (1) Su, F, S
Basic components of a microcomputer using a Windows environment to manage disks, access e-mail, and explore the Internet. Creating, editing, and querying a database system. 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) Su, F, S
Fundamental voice and data concepts of telecommunications, including state-of-the-art technologies and applications.

TBE 2531. Exploring Multimedia Applications (3) S
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 technicalities 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, editing, and 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 1700 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 presentations. 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 Netware 7 test, the candidate becomes a Certified Novell Administrator (CNA). Prerequisite: 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 telecommunications transport media, including the typical 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) F, 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 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.
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) Su, 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 formulas, graphs, and creative presentations. Prerequisite: TBE 1700 or 1703.

TBE 3080. Advanced Database Applications (1) Su, F, S
Use of database software including management, theory, and production of forms and reports. Prerequisite: TBE TE1700 or TB1702.

TBE 3090. Electronic Presentations (1) Su, F, S
Use of graphic software including data charts, diagrams, graphic images, text, slide shows, and imported data from other software. Prerequisite: TBE TE1700 or TA1701.

TBE 3100. Desktop Publishing (3) F, S
Use of desktop publishing software including analyzing, designing, 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 (GUI). 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 diversity and international aspects of communication. Prerequisite: English EN2010.

TBE 3300. Advanced LAN Security Management (3) F, S
Advanced concepts of local area network management including performance, maintenance, security, TCP/IP protocols using hands-on labs. Prerequisite: TBE 2300.

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 CCNP--Advanced Router Configuration (3) Su
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) Su
Building Cisco Multilayer Switched Networks (BCMSN). Teaches network administrators how to build campus networks using multilayer switching technologies over high speed Ethernet.

TBE 3445. Cisco CCNP--Internetwork Troubleshooting (3) Su
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 3510. Marketing Education Subjects (3) F, S
Introduction to business and marketing disciplines. 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 3533. Multimedia Web Animation (3) F
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) S
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) S
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) S
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) F
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) F
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) S
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, MAN, and LAN. Prerequisites: TBE 2710 and TBE 2720.
TBE 3720. Wireless Telephony (3) F
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, TBE 2720.

TBE 3730. Telecommunications Policy (3) F
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 telecommunication services including the taxation of electronic commerce. Prerequisite: TBE 2710, TBE 2720.

TBE 4700. Data Network Design (3) S
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 & 2720.

TBE 4710. Traffic Technology & Voice Network Design (3) S
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 4750. Telecommunications Internship (1-4) Su, F, S
Must be completed senior year in a telecommunication environment with company placement and objectives approved by the department. Simultaneous enrollment in TBE 4750 is required. Prerequisite: TBE 4700 & 4710.

TBE 4790. Telecommunications Senior Project (2) Su, F, S
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 & 4710.

TBE 4800. Independent Research (1-4) Su, F, S
Directed research and study on an individual basis. Prerequisite: Permission of instructor.

TBE 4860. Business Systems Technologies Practicum (1-6) F, 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 4920. Short Courses, Workshops, Institutes, and Special Programs (1-4) F, S
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) S
Research, analysis, presentation, and discussion of topics relative to graduating majors and minors.