

SCHOOL OF BUSINESS AND TECHNOLOGY

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING TECHNOLOGY

FACULTY

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DEPARTMENTAL GOALS

Goals/Objectives of the B.S. programs in Computer Science:

1. Relate the fundamentals of problem solving, communication, and team work to the fields of Computer Science and Information Systems.
2. Demonstrate the ability to obtain, modify, and share programming code with a team.
3. Given a professional project, evaluate possible solutions, and justify and critique the chosen solution.

The Department of Computer Science & Engineering Technology provides students the opportunity to prepare for professional opportunities in industry and education.

Particular areas of preparation attempt to address:

1. The delivery of broad-based technical programs that allow the graduate to accommodate new and advancing technologies.
2. The preparation of an adequate work force to meet area state and regional demands for technology in industry and education.
3. The maintenance of quality curriculum content, faculty, equipment and facilities to meet the standards set by appropriate state and national accrediting agencies.

PROGRAMS OF STUDY

- Majors:**
- B.S. Computer Science
 - Computer Science Option
 - Information Systems Option
 - B.S. Engineering Technology
 - Computer Electronics Engineer. Tech. Option
 - Environmental Engineering Tech. Option
 - Manufacturing Engineering Tech. Option
 - B.S. Applied Engineering Management
 - Electronics Technology Option
 - Manufacturing Technology Option

- Minors:**
- Computer Science
 - Computer Technology
 - Electronics
 - Forensics
 - General Technology
 - Information Systems

GENERAL INFORMATION

Technology curricula allows for a variety of exciting opportunities in the areas of Engineering Technology. Manufacturing Engineering Technology is currently accredited by the Engineering Technology Accreditation Commission (ETAC) of the Accreditation Board for Engineering and Technology (ABET), 415 North Charles Street, Baltimore, MD 21201 – Telephone: (410) 347-7700. Industrial Technology is currently accredited by the Association of Technology, Management, and Applied Engineering (ATMAE), 275 N. York Street, Suite 401, Elmhurst, IL 60126 – Telephone: (630) 443-4514. Each major is capped by a research project or realistic internship experience to facilitate the transition from school to the actual job scene.

Career opportunities are numerous in all technology fields and command competitive salaries. Examples of recent graduate placements are manufacturing engineering technologists, quality assurance managers, plant and production supervisors, production analysts, planners and schedulers, and estimators.

Within the Department of Computer Science & Engineering Technology there are several student organizations which promote professional development and social activities. These include student chapters of the Society of Manufacturing Engineers (SME), the Society of Women Engineers (SWE) and the Association of Technology, Management, and Applied Engineering (ATMAE), as well as the Computer Club. The clubs meet on a regular basis and organize activities such as industrial plant tours, robotics competitions, homecoming float construction, and educational conferences.

For more information visit our web site at:
<http://www.swosu.edu/academics/engineering-technology/>

BACHELOR OF SCIENCE COMPUTER SCIENCE (Code No. 110/113)

GENERAL EDUCATION

Courses that are **required** are in bold type.
Courses that are *recommended* are in italics.

TOTAL GENERAL EDUCATION HOURS **Min. 40**
REQUIRED CORE COURSES..... **31-35**

Written Communication..... **6**

ENGL 1113 English Composition I
ENGL 1213 English Composition II

Mathematics..... **3**

MATH 1513 College Algebra
or a higher numbered math course

U. S. History **3**

Select one course.

HIST 1043 U.S. History to 1877
HIST 1053 U.S. History since 1877

American Government..... **3**

POLSC 1103 American Government & Politics

Science..... **7-8**

Select one course from Life Science and one course from Physical Science. One Science course must be a lab science.

Life Science..... **3-4**

BIOL 1004 Biological Concepts w/Lab
BIOL 1054 Principles of Biology I w/Lab
BIOL 1013 Current Issues in Biology

Physical Science..... **3-4**

ASTRO 1904 Astronomy
CHEM 1004 General Chemistry w/Lab
GEOL 1934 Physical Geology w/Lab
SCI 1513 Conc of Phy Science (may also take w/lab)
SCI 1501 Concepts of Phy Science Lab
PHY 1044 Basic Physics I w/Lab
PHY 1063 General Physics
or a higher numbered chemistry or physics course

Humanities..... **6**

HUM 1103 Introduction to Humanities

OR

HIST 1033 World History

AND one of the following:

ART 1223 Art Survey
COMM 1263 Introduction to Theatre
LIT 2333 Introduction to Film
LIT 2413 Introduction to Literature
MUSIC 1013 Introduction to Music I
MUSIC 1103 Music and Culture
PHILO 1453 Introduction to Philosophy

Human, Cultural, & Social Diversity **3**

COMM 1313 Introduction to Public Speaking

Computer Proficiency..... **3**

COMSC 1023 Computer & Info Access

GE electives (from at least two different categories) to total 40

TECH 1223 Technology & Society

For the minor program, refer to the Computer Science minor in the Minor Programs of Study.

COMPUTER SCIENCE MAJOR/MINOR

Required Courses..... **21**

COMSC 1033 Computer Science I
COMSC 1053 Computer Science II
COMSC 1103 Introduction to Information Security
COMSC 2043 Discrete Structures
COMSC 3053 Operating Systems
COMSC 3153 Data Comm. & Networks
COMSC 4953 CS/IS Capstone I

Approved Computer Science Electives..... **15**

1000/2000 Level Computer Science Electives (0-6)
3000/4000 Level Computer Science Electives (9-15)

Choose an option below **18-24**

Computer Science Option (Code No. 110)

Computer Science Core 9

COMSC 2413 Data Structures
COMSC 3013 Computer Architecture
COMSC 3133 Software Engineering

Auxiliary Requirements† 9-13

MATH 1834 Calculus I

OR MATH 2823 Applied Calculus

MATH 3433 Statistics I

OR MATH 3413 Statistical Methods

Any 3 or 4 hour Physics course **OR**

6 Hours from:

TECH 2813 Digital Devices
TECH 3143 Technical Presentations
TECH 3833 Communication Electronics
TECH 3843 Telecommunication
TECH 4813 Networks and Distributed Controls
TECH 4833 Microprocessors and Embedded Controls

† Auxiliary Requirements may have prerequisite course requirements. Please check the SWOSU Course Descriptions prior to enrollment.

Information Systems Option (Code No. 113)

Information Science Core 12

COMSC 2603 Network Security
COMSC 3403 Database Systems
COMSC 3913 Web Development
COMSC 4513 Business Intelligence

Auxiliary Requirements† 12

ENTRP 3113 Intro to MIS

ECONO 2463 Business Statistics

OR MATH 3433 Statistics I

OR MATH 3413 Statistical Methods

ENTRP 3823 Quantitative Methods in Business

TECH 3143 Technical Presentations

† Auxiliary Requirements may have prerequisite course requirements. Please check the SWOSU Course Descriptions prior to enrollment.

Electives to bring total to **120**

TOTAL HOURS..... **120**

REGULATIONS PERTAINING TO GRADUATION

Minimum credit hours for graduation 120
Minimum credit hours in the liberal arts & sciences 55
Minimum credit hours in upper-division
(3000/4000 courses)..... 40
Minimum credit hours (3000/4000 courses)
in major completed at SWOSU 12
Minimum credit hours at SWOSU (15 of the last 30) 30
Minimum Grade Point Average in all coursework 2.00
Minimum Grade Point Average in major 2.00

COMPUTER SCIENCE MAJOR
Computer Science Option (Code 110)
Suggested Course Sequence

FIRST YEAR

FIRST SEMESTER	SECOND SEMESTER
1001 Freshman Orientation* (1) 1023 Computers & Info Access (3) 1033 Computer Science I.(3) 1113 English Composition I (3) 1223 Technology & Society (3) 1513 College Algebra (3)	1053 Computer Science II (3) 1103 Intro to Info Security (3) 1103 American Government & Politics (3) 1213 English Composition II (3) SCIENCE Course #1 (4)
Total (16)	Total (16)

SECOND YEAR

FIRST SEMESTER	SECOND SEMESTER
1043 or 1053 U.S. History (3) 1313 Intro to Public Speaking (3) 1834 Calculus I OR 2823 Applied Calculus (3-4) 2043 Discrete Structures (3) 2413 Data Structures (3)	3013 Computer Architecture (3) Computer Science (COMSC) Elective*** (3) Free Electives (6) General Education Course (3)
Total (15-16)	Total (15)

THIRD YEAR

FIRST SEMESTER	SECOND SEMESTER
3053 Operating Systems (3) 3433 Statistics I OR 3413 Statistical Methods (3) Computer Science (COMSC) Elective*** (3) Free Electives (3) General Education Course (3)	3153 Data Communication & Networks (3) Computer Science (COMSC) Electives*** (6) Free Electives (3) SCIENCE Course #2 (3-4)
Total (15)	Total (15-16)

FOURTH YEAR

FIRST SEMESTER	SECOND SEMESTER
Auxiliary COMSC Requirement (3-4) Computer Science (COMSC) Elective*** (3) Free Electives (6) General Education Course (2-3**)	3133 Software Engineering (3) 4953 CS/IS Capstone (3) Auxiliary COMSC Requirement (3) Free Electives (3-7)
Total (14-16)	Total (12-16)

* First time entering freshmen need to take 1001 Freshman Orientation

**2 hours of GE's if 2nd Science was 4 hours; 3 hours of GE's if 2nd Science was 3 hours.

*** At least 9 credit hours 3000-4000 level with Advisor Approval.

COMPUTER SCIENCE MAJOR
Information Systems Option (Code 113)
Suggested Course Sequence

FIRST YEAR

FIRST SEMESTER	SECOND SEMESTER
1001 Freshman Orientation* (1) 1023 Computers & Info Access (3) 1033 Computer Science I (3) 1113 English Composition I (3) 1223 Technology & Society (3) 1513 College Algebra (3)	1053 Computer Science II (3) 1103 American Government & Politics (3) 1103 Intro to Info Security (3) 1213 English Composition II (3) SCIENCE Course #1 (4)
Total (16)	Total (16)

SECOND YEAR

FIRST SEMESTER	SECOND SEMESTER
1043 or 1053 U.S. History (3) 1313 Intro to Public Speaking (3) 2043 Discrete Structures (3) Computer Science (COMSC) Electives*** (6)	2603 Network Security (3) 3113 Intro to MIS (3) Computer Science (COMSC) Elective*** (3) Free Electives (6)
Total (15)	Total (15)

THIRD YEAR

FIRST SEMESTER	SECOND SEMESTER
3053 Operating Systems (3) 3913 Web Development (3) ECONO or MATH Statistics (3) Free Electives (3) General Education Course (3)	3153 Data Communication & Networks (3) 3403 Database Systems (3) 4513 Business Intelligence (3) SCIENCE Course #2 (3-4)
Total (15)	Total (12-13)

FOURTH YEAR

FIRST SEMESTER	SECOND SEMESTER
3823 Quantitative Methods in Business (3) Computer Science (COMSC) Electives*** (6) Free Electives (3) General Education Course (2-3**)	3143 Technical Presentations (3) 4953 CS/IS Capstone (3) Free Electives (7) General Education Course (3)
Total (14-15)	Total (16)

* First time entering freshmen need to take 1001 Freshman Orientation

**2 hours of GEs if 2nd Science was 4 hours; 3 hours of GEs if 2nd Science was 3 hours.

*** At least 9 credit hours 3000-4000 level with Advisor Approval.

BACHELOR OF SCIENCE IN ENGINEERING TECHNOLOGY (Code No. 131)

GENERAL EDUCATION

Courses that are **required** are in bold type.
Courses that are *recommended* are in italics.

TOTAL GENERAL EDUCATION HOURS	Min. 40
REQUIRED CORE COURSES	35
Written Communication	6
ENGL 1113 English Composition I	
ENGL 1213 English Composition II	
Mathematics	3
MATH 1513 College Algebra	
or a higher numbered math course	
U. S. History	3
<i>Select one course.</i>	
HIST 1043 U.S. History to 1877	
HIST 1053 U.S. History since 1877	
American Government	3
POLSC 1103 American Government & Politics	
Science	8
<i>Select one course from Life Science and one course from Physical Science. One Science course must be a lab science.</i>	
Life Science	4
BIOL 1004 Biological Concepts w/Lab	
Physical Science	4
CHEM 1004 General Chemistry w/Lab	
Humanities	6
HUM 1103 Introduction to Humanities	
OR	
HIST 1033 World History	
AND one of the following:	
ART 1223 Art Survey	
COMM 1263 Introduction to Theatre	
LIT 2333 Introduction to Film	
LIT 2413 Introduction to Literature	
MUSIC 1013 Introduction to Music I	
MUSIC 1103 Music and Culture	
PHILO 1453 Introduction to Philosophy	
Human, Cultural, & Social Diversity	3
TECH 1223 Technology and Society	
Computer Proficiency	3
COMSC 1433 Visual Basic Programming	
GE elective from Category 1	3
MATH 2328 Applied Calculus	
GE electives from Categories 2, 3, or 4	to total 40

ENGINEERING TECHNOLOGY MAJOR/MINOR

The Engineering Technology major/minor includes 48 hours of core requirements, a selected technical specialty, and electives approved by the department to total a minimum of 120 hours. The Manufacturing Engineering Technology option is accredited by the Engineering Technology Accreditation Commission (ETAC) of the Accreditation Board for Engineering and Technology (ABET), 415 North Charles Street, Baltimore, MD 21201 – Telephone: (410) 347-7700.

Core Requirements	48
MATH 1613 College Trigonometry	
MATH 3413 Statistical Methods	
OR ECONO 2463 Business Statistics	
MFET 4020 Prof Certification Requirements	
PHY 1044 Basic Physics I w/Lab	
TECH 1101 Introduction to Technology	
TECH 1713 Basic Electrical Science	
TECH 2213 2D CAD	
TECH 2413 Non-Metallic Materials & Processes	
TECH 2513 Fabrication Processes I	
TECH 3113 Industrial Safety	
TECH 3143 Technical Presentations	
TECH 3463 Manufacturing Operations I	
TECH 3613 Power Systems	
TECH 4264 3D CAD	
TECH 4373 Economic Decision Analysis	
TECH 4433 Quality Control	
TECH 4493 Manufacturing Operations II	
Majors must select one specialization from the following technical areas:	
Computer Electronics Engineering Technology Option	33
Electronics Requirements	24
MFET 3433 Automation and Control Systems	
TECH 2713 Fundamental Electronics	
TECH 2813 Digital Devices	
TECH 3123 Excel for Engineers & Technologists	
TECH 3833 Communications Electronics	
TECH 3843 Telecommunications	
TECH 4223 Electronics Capstone	
TECH 4853 Programmable Logic Controls	
Electronics Electives	3
<i>Select one course.</i>	
TECH 3823 Industrial Electronics	
TECH 4833 Microprocessors and Embedded Controls	
Computer Science	6
COMSC 1033 Computer Science I	
COMSC 1053 Computer Science II	
Environmental Engineering Technology Option	32
Environmental Requirements	
BIOL 4355 Microbiology	
CHEM 1203 General Chemistry I	
CHEM 1252 General Chemistry I Lab	
CHEM 1303 General Chemistry II	
CHEM 1352 General Chemistry II Lab	
CHEM 3013 Organic Chemistry I	
CHEM 4254 Industrial Chem & Environ Reg	
OR CHEM 3244 Environmental Chemistry	
GEOL 1934 Physical Geology	
TECH 3173 Environmental Regulations	
TECH 3413 Production Processes	

Manufacturing Engineering Technology Option

Manufacturing Requirements..... 32		
MFET	3183	Statics & Strengths
MFET	3433	Automation and Control Systems
MFET	4443	Material Handling/Facility Planning
MFET	4753	Senior Capstone
TECH	2713	Fundamental Electronics
TECH	3413	Production Processes
TECH	3513	Materials Testing & Analysis
TECH	3523	Fabrication Processes II
TECH	4454	Computer Aided Manuf (CAM)
TECH	4514	Machine Tool Processes

TOTAL HOURS..... 120-121

Engineering Technology is the specialty of applied engineering that emphasizes the production methods of industry. Specific curricular areas include:

1. Engineering Science
2. Computer Applications/Automation
3. Operations Management
4. Manufacturing Processes
5. Product Design
6. Environmental Health and Safety

Program Educational Objectives

Several years after graduation, Engineering Technology, Manufacturing Engineering Technology Option graduates will:

1. Be employed in a field related to their discipline where they are able to utilize their technical knowledge and skills.
2. Be able to communicate effectively in multiple ways and formats, such as oral, written and graphical.
3. Possess the ability to solve basic problems and formulate strategies using critical thinking to improve technical and management processes.
4. Be a contributing member of the team with the skills necessary to move into leadership roles.
5. Continue to grow as an employee by remaining current in their field and aware of new technologies through job experience, continuous learning, and/or professional organizations.

REGULATIONS PERTAINING TO GRADUATION

Minimum credit hours for graduation.....	120
Minimum credit hours in the liberal arts & sciences.....	55
Minimum credit hours in upper-division (3000/4000 courses).....	40
Minimum credit hours (3000/4000 courses) in major completed at SWOSU	8
Minimum credit hours at SWOSU (15 of the last 30).....	30
Minimum Grade Point Average in all coursework.....	2.00
Minimum Grade Point Average in major	2.00

Engineering Technology (Code 131)
Computer Electronics Engineering Technology Option
Suggested Course Sequence#

FIRST YEAR

FIRST SEMESTER	SECOND SEMESTER
1001 Freshman Orientation* (1) 1101 Intro to Technology (1) 1113 English Comp I (3) 1223 Technology & Society (3) 1513 College Algebra (3) 1103 Intro to Humanities OR 1033 World History (3)	1213 English Comp II (3) 1433 Visual Basic Programming (3) 1613 College Trig (3) 1713 Basic Elec Science (3) GE Humanities Elective (3)
Total (14)	Total (15)

SECOND YEAR

FIRST SEMESTER	SECOND SEMESTER
1004 Biological Concepts (4) 1033 Computer Science I (3) 2713 Fundamental Electronics (3) 2823 Applied Calculus (3) 3833 Communication Elec (3) English Proficiency Exam **	1004 General Chemistry (4) 1053 Computer Science II (3) 2413 Non-Metal Materials & Proc (3) 2513 Fabrication Proc I (3) 3843 Telecommunications (3)
Total (16)	Total (16)

THIRD YEAR

FIRST SEMESTER	SECOND SEMESTER
1044 Basic Physics I (4) 2813 Digital Devices (3) 3433 Automation & Control Systems (3) 3463 Manufacturing Ops I (3) Electronics Elective (3)	1043 <i>OR</i> 1053 US History (3) 3143 Technical Presentations (3) 3613 Power Systems (3) 4493 Manufacturing Ops II (3) GE Elective from Category 2, 3, or 4 (3)
Total (16)	Total (15)

FOURTH YEAR

FIRST SEMESTER	SECOND SEMESTER
1103 American Gov't (3) 2213 2D CAD (3) 2463 Business Stats <i>OR</i> 3413 Stat Methods (3) 3123 Excel for Engineers & Technologists (3) 4433 Quality Control (3)	3113 Industrial Safety (3) 4020 Prof. Cert. Req. (0) 4223 Electronics Capstone (3) 4264 3D CAD (4) 4373 Econ Decision Analysis (3) 4853 Programmable Logic Controls (3)
Total (15)	Total (16)

Overall Total = 122-123 (due to flux in GE electives)

* First time entering Freshmen need to take 1001 Freshman Orientation

** If applicable. See English Proficiency Program under the General Academic Information Section

**Engineering Technology (Code 131)
Environmental Engineering Technology Option
Suggested Course Sequence#**

FIRST YEAR

FIRST SEMESTER	SECOND SEMESTER
1001 Freshman Orientation* (1) 1101 Intro to Technology (1) 1113 English Comp I (3) 1223 Technology & Society (3) 1433 Visual Basic Programming (3) 1513 College Algebra (3)	1004 Biological Concepts (4) 1004 General Chemistry (4) 1103 American Gov't (3) 1213 English Comp II (3) 1613 College Trig (3)
Total (14)	Total (17)

SECOND YEAR

FIRST SEMESTER	SECOND SEMESTER
1043 OR 1053 US History (3) 1044 Basic Physics I (4) 2213 2D CAD (3) 2413 Non-Metal Materials & Proc (3) 2823 Applied Calculus (3) English Proficiency Exam **	1203 General Chem I (3) 1252 General Chem I Lab (2) 1713 Basic Elec Science (3) 2513 Fabrication Proc I (3) 4264 3D CAD (4)
Total (16)	Total (15)

THIRD YEAR

FIRST SEMESTER	SECOND SEMESTER
1303 General Chem II (3) 1352 General Chem II Lab (2) 2463 Business Stats OR 3413 Stat Methods (3) 3463 Manufacturing Ops I (3) GE Elective from Category 2, 3, or 4 (3)	1934 Physical Geology (4) 3013 Organic Chemistry I (3) 3173 Environmental Regs (3) 3413 Production Processes (3) 4493 Manufacturing Ops II (3)
Total (14)	Total (16)

FOURTH YEAR

FIRST SEMESTER	SECOND SEMESTER
1103 Intro to Humanities OR 1033 World History (3) 3113 Industrial Safety (3) 3143 Technical Presentations (3) 3613 Power Systems (3) 4433 Quality Control (3)	4020 Pro Cert Req (0) 4254 Ind Chem & Env Regs OR 3244 Envir Chem(4) 4355 Microbiology (5) 4373 Econ Decision Analy (3) GE Humanities Elective (3)
Total (15)	Total (15)

Overall Total = 120-121 (due to flux in GE electives)

* First time entering Freshmen need to take 1001 Freshman Orientation

** If applicable. See English Proficiency Program under the General Academic Information Section

**Engineering Technology (131)
Manufacturing Engineering Technology Option
Suggested Course Sequence#**

FIRST YEAR

FIRST SEMESTER	SECOND SEMESTER
1001 Freshman Orientation* (1) 1101 Intro to Technology (1) 1113 English Comp I (3) 1223 Technology & Society (3) 1513 College Algebra (3) GE Elective from Category 2, 3, or 4 (3)	1004 Biological Concepts (4) 1103 American Gov't (3) 1103 Intro to Humanities OR 1033 World History (3) 1213 English Comp II (3) 1613 College Trig (3)
Total (14)	Total (16)

SECOND YEAR

FIRST SEMESTER	SECOND SEMESTER
1004 General Chemistry (4) 1713 Basic Elec Science (3) 2513 Fabrication Proc I (3) 2823 Applied Calculus (3) GE Humanities (3)	1043 <i>OR</i> 1053 US History (3) 1433 Visual Basic Prog (3) 2413 Non-Metal Materials & Proc (3) 2713 Fundamental Elec (3) 3523 Fabrication Proc II (3)
Total (16)	Total (15)

THIRD YEAR

FIRST SEMESTER	SECOND SEMESTER
1044 Basic Physics I (4) 2213 2D CAD (3) 2463 Business Stats <i>OR</i> 3413 Stat Methods (3) 3463 Manufacturing Ops I (3) 3513 Materials Test/Analysis (3)	3113 Industrial Safety (3) 3143 Technical Presentations (3) 3413 Production Processes (3) 4264 3D CAD(4) 4493 Manufacturing Ops II (3)
Total (16)	Total (16)

FOURTH YEAR

FIRST SEMESTER	SECOND SEMESTER
3183 Statics & Strengths (3) 3433 Automation and Control Systems (3) 4433 Quality Control (3) 4514 Machine Tool Proc (4) 4753 Senior Capstone (3)	3613 Power Systems (3) 4020 Prof Cert Req (0) 4373 Econ Decision Analy (3) 4443 Material Hand/Facility Plan (3) 4454 Comp Aided Manuf (CAM) (4)
Total (16)	Total (13)

Overall Total = 120-121 (due to flux in GE electives)

* First time entering Freshmen need to take 1001 Freshman Orientation

BACHELOR OF SCIENCE APPLIED ENGINEERING MANAGEMENT (Code No. 135)

GENERAL EDUCATION

Courses that are **required** are in bold type.
Courses that are *recommended* are in italics.

TOTAL GENERAL EDUCATION HOURS **Min. 40**
REQUIRED CORE COURSES..... **31-35**

Written Communication..... **6**

ENGL 1113 English Composition I
ENGL 1213 English Composition II

Mathematics..... **3**

MATH 1513 College Algebra
or a higher numbered math course

U. S. History **3**

Select one course.

HIST 1043 U.S. History to 1877
HIST 1053 U.S. History since 1877

American Government..... **3**

POLSC 1103 American Government & Politics

Science..... **8**

Select one course from Life Science and one course from Physical Science. One Science course must be a lab science.

Life Science..... **4**

BIOL 1004 Biological Concepts w/Lab

Physical Science..... **4**

SCI 1513 Conc of Phy Science
SCI 1501 Concepts of Phy Science Lab

Humanities..... **6**

HUM 1103 Introduction to Humanities

OR

HIST 1033 World History

AND one of the following:

ART 1223 Art Survey
COMM 1263 Introduction to Theatre
LIT 2333 Introduction to Film
LIT 2413 Introduction to Literature
MUSIC 1013 Introduction to Music I
MUSIC 1103 Music and Culture
PHILO 1453 Introduction to Philosophy

Human, Cultural, & Social Diversity **3**

TECH 1223 Technology and Society

Computer Proficiency..... **0-3**

Students must demonstrate computer proficiency (high school Computer Science course, SWOSU computer proficiency exam, or COMSC 1023 Computer & Info Access).

GE electives (from at least two different categories) to total 40

APPLIED ENGINEERING MANAGEMENT MAJOR/MINOR

The Applied Engineering Management major/minor includes a 45-hour core requirement, 12 hours of management, either 24 hours from Electronics Option or 23 hours from Manufacturing Options, and a balance of 3000/4000 electives approved by the department to total 120-121 hours. Applied Engineering Management is currently accredited by the Association of Technology, Management, and Applied Engineering (ATMAE), 275 N. York Street, Suite 401, Elmhurst, IL 60126 - Telephone: (630) 433-4514.

Core Requirements..... **45**

CHEM 1004 General Chemistry
MATH 3413 Statistical Methods
OR ECONO 2463 Business Statistics
ECONO 2363 Introduction to Microeconomics
MFET 4020 Professional Certification Requirements
TECH 1101 Introduction to Technology
TECH 1713 Basic Electrical Science
TECH 2213 2D CAD
TECH 2413 Non-Metallic Materials & Processes
TECH 2513 Fabrication Processes I
TECH 3113 Industrial Safety
TECH 3143 Technical Presentations
TECH 3463 Manufacturing Operations I
TECH 3613 Power Systems
TECH 4123 Industrial Supervision
TECH 4264 3D CAD
TECH 4433 Quality Control

Management electives (by advisement)..... **12**

ACCTG 2213 Principles of Financial Accounting
ACCTG 2313 Principles of Managerial Accounting
COMSC 1433 Visual Basic Programming
ECONO 2263 Introduction to Macroeconomics
ENTRP 3123 Legal Environment of Business
MATH 3433 Statistics I
MNGMT 3233 Management
MNGMT 3333 Human Resource Management
MRKTG 3143 Principles of Marketing
TECH 4443 Material Handling and Facility Planning
TECH 4493 Manufacturing Operations II
TECH 4900 Orientation to Industrial Internship
TECH 4916 Industrial Internship

Majors must select either the Electronics Technology Option or the Manufacturing Technology Option:

Electronics Technology Option..... **24**

Required Courses..... **21**

TECH 2713 Fundamental Electronics
TECH 2813 Digital Devices
TECH 3123 Excel for Engineers & Technologists
TECH 3833 Communications Electronics
TECH 3843 Telecommunication
TECH 4223 Electronics Capstone
TECH 4853 Programmable Logic Controls

Approved Electives **3**

(CONTINUED ON NEXT PAGE)

Manufacturing Technology Option 23

Required Courses.....23

TECH	3123	Excel for Engineers & Technologists
TECH	3173	Environmental Regulations
TECH	3413	Production Processes
TECH	3513	Materials Testing & Analysis
TECH	3523	Fabrication Processes II
TECH	4454	Computer Aided Manuf (CAM)
TECH	4514	Machine Tool Processes

Electives (by advisement) to total 120-121

2000-12 Extra institutional Learning Credit may be awarded for current professional licenses and certificates that have been evaluated and approved for credit by the Technology Department. Educational credit recommended by the American Council on Education (ACE), ACE/PONSI, and/or completion of a special skills examination may also be evaluated for credit. (1-12 credits lower division maximum 12)

4000-12 Extra institutional Learning credit may be awarded for current professional licenses and certificates that have been evaluated and approved for credit by the Technology Department. Educational credit recommended by the American Council on Education (ACE), ACE/PONSI, and/or completion of a special skills examination may also be evaluated for credit. (1-12 credits upper division maximum 12)

Industrial Technology articulates industrial management with a specialization in electronics technology; and manufacturing technology. Technical concepts and experiences are supported with courses in applied mathematics, science, and management. A supervised industrial internship completes the program. Specific curricular emphases include:

1. The analysis of industrial materials.
2. The identification of production processes.
3. An examination of the concepts of industrial management and human relations.
4. The solving of technical problems found in industry.
5. The development of skills relating to a specific area of specialization.

The mission of the Industrial Technology Program is to provide students the education and experience necessary to successfully perform the functions of an industrial manager.

REGULATIONS PERTAINING TO GRADUATION

Minimum credit hours for graduation.....	120
Minimum credit hours in the liberal arts & sciences.....	55
Minimum credit hours in upper-division (3000/4000 courses).....	40
Minimum credit hours (3000/4000 courses) in major completed at SWOSU	8
Minimum credit hours at SWOSU (15 of the last 30).....	30
Minimum Grade Point Average in all coursework.....	2.00
Minimum Grade Point Average in major	2.00

**Applied Engineering Management (Code 135)
Electronics Technology Option
Suggested Course Sequence#**

FIRST YEAR

FIRST SEMESTER	SECOND SEMESTER
1001 Freshman Orientation* (1) 1043 <i>OR</i> 1053 US History (3) 1101 Intro to Technology (1) 1113 English Comp I (3) 1223 Technology & Society (3) 1513 College Algebra (3) GE Elective (3)	1023 Comp/Info Access (3) 1103 American Gov't (3) 1213 English Comp II (3) 1713 Basic Elec Science (3) 2463 Business Stats <i>OR</i> 3413 Stat Methods (3)
Total (17)	Total (15)

SECOND YEAR

FIRST SEMESTER	SECOND SEMESTER
1514 Concepts of Phy Science (4) 2413 Non-Metal Materials & Proc (3) 2713 Fund Electronics (3) 3833 Communication Electronics (3) Gen Ed Humanities Elective (3)	1004 Biological Concepts (4) 2213 2D CAD (3) 2363 Intro to Microeconomics (3) 2513 Fabrication Proc I (3) 3843 Telecommunications (3)
Total (16)	Total (16)

THIRD YEAR

FIRST SEMESTER	SECOND SEMESTER
1004 General Chemistry (4) 2813 Digital Devices (3) 3613 Power Systems (3) 4264 3D CAD (4) 4853 Programmable Logic Controls (3)	1103 Intro to Humanities OR 1033 World History (3) 3113 Industrial Safety (3) 3123 Excel for Engineers & Technologists (3) 3143 Technical Presentations (3) Management Elective (3)
Total (17)	Total (15)

FOURTH YEAR

FIRST SEMESTER	SECOND SEMESTER
3463 Manufacturing Ops I (3) 4433 Quality Control (3) Management Elective (3) Electronics Electives (3) GE Elective (3)	4020 Prof Cert Req (0) 4123 Industrial Supervision (3) 4223 Electronics Capstone (3) Management Electives (6)
Total (15)	Total (12)

Overall Total = 120-121 (due to flux in GE electives)

* First time entering Freshmen need to take 1001 Freshman Orientation

**Applied Engineering Management (Code 135)
Manufacturing Technology Option
Suggested Course Sequence#**

FIRST YEAR

FIRST SEMESTER	SECOND SEMESTER
1001 Freshman Orientation* (1) 1043 <i>OR</i> 1053 US History (3) 1101 Intro to Technology (1) 1113 English Comp I (3) 1223 Technology & Society (3) 1513 College Algebra (3)	1004 Biological Concepts (4) 1023 Comp/Info Access (3) 1103 American Gov't (3) 1213 English Comp II (3) 2463 Business Stats <i>OR</i> 3413 Stat Methods (3)
Total (14)	Total (16)

SECOND YEAR

FIRST SEMESTER	SECOND SEMESTER
1514 Concepts of Phy Science (4) 1713 Basic Elec Science (3) 2413 Non-Metal Materials & Proc (3) 2513 Fabrication Proc I (3) Gen Ed Humanities Elective (3)	1004 General Chemistry (4) 2363 Intro to Microeconomics (3) 3123 Excel for Engineers & Technologists (3) 3523 Fabrication Process II (3) GE Elective (3)
Total (16)	Total (16)

THIRD YEAR

FIRST SEMESTER	SECOND SEMESTER
2213 2D CAD 3113 Industrial Safety (3) 3463 Manufacturing Ops I (3) 3513 Material Test/Analy (3) Management Elective (3)	1103 Intro to Humanities OR 1033 World History (3) 3143 Technical Presentations (3) 3413 Production Processes (3) 3613 Power Systems (3) 4123 Industrial Supervision OR 3173 Environmental Regulations (3) 4264 3D CAD (4)
Total (15)	Total (16)

FOURTH YEAR

FIRST SEMESTER	SECOND SEMESTER
4433 Quality Control (3) 4514 Machine Tool Proc (4) GE Elective (3) Management Elective (6)	3173 Environmental Regulations OR 4123 Industrial Supervision (3) 4020 Prof Cert Req (0) 4123 Industrial Supervision (3) 4454 Comp Aided Manuf (CAM) (4) Management Elective (3)
Total (16)	Total (13)

Overall Total = 120-121 (due to flux in GE electives)

* First time entering Freshmen need to take 1001 Freshman Orientation

** If applicable. See English Proficiency Program under the General Academic Information Section