

SCHOOL OF BUSINESS AND TECHNOLOGY DEPARTMENT OF ENGINEERING TECHNOLOGY

FACULTY

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<http://www.swosu.edu/academics/engineering-technology/>

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DEPARTMENTAL GOALS

Goals/Objectives of the B.S. programs in Engineering Technology:

1. Relate the fundamentals of problem solving, communication, and team work to the fields of Engineering Technology.
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 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. 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 Technology
Electronics
General Technology

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 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). 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 IN ENGINEERING TECHNOLOGY (ENGTE.BS) (Old Code No. 131)

GENERAL EDUCATION (Min. 40 hours)

Courses that are required. *Courses that are recommended.*

Communication 9

ENGL 1113 English Composition I
ENGL 1213 English Composition II
COMM 1313 Introduction to Public Speaking OR
TECH 3143 Technical Presentations

Quantitative Reasoning 3

Select one course.

MATH 1143 Mathematical Concepts
MATH 1153 Mathematical Applications
MATH 1193 Elementary Statistics
MATH 1313 Functions and Modeling
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 3-4

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

Physical Science 3-4

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

Humanities and Social Science 12

Select one course from each sub-category and one additional course from any subcategory below.

Humanities 3

GEOG 1103 World Cultural Geography
HIST 1033 World History
HUM 1103 Introduction to Humanities

Fine Arts 3

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 (Music majors only)
MUSIC 1123 History of Rock-n-Roll
PHILO 1453 Introduction to Philosophy

Social and Human Sciences 3

ASL 2163 American Sign Language I
ECONO 2263 Intro to Macroeconomics
ECONO 2363 Intro to Microeconomics
ENTRP 1123 Intro to Business
FINAN 2113 Personal Financial Planning
ITAL 1004 Elementary Italian I
KINES 1133 Wellness Conc & Exercise Applications
LATIN 1054 Elementary Latin I (or higher number)
PSYCH 1003 General Psychology
SOCIO 1003 Introduction to Sociology
SPAN 1054 Elementary Spanish I (or higher number)
TECH 1223 Technology and Society

Computer Proficiency 3

COMSC 1433 Visual Basic Programming

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 2823 Applied Calculus
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 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 27

MFET 3433 Automation and Control Systems
TECH 2713 Fundamental Electronics
TECH 2813 Digital Devices
TECH 3123 Excel for Engineers & Technologists
TECH 3823 Industrial Electronics
TECH 3883 Principles of Electronic Communication
TECH 4223 Electronics Capstone
TECH 4833 Microprocessors & Embedded Controls
TECH 4853 Programmable Logic Controls

Computer Science 6

COMSC 1033 Computer Science I
COMSC 1053 Computer Science II

Environmental Engineering Technology Option

Environmental Requirements 32

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

(Continued on next page)

TECH	3523	Fabrication Processes II
TECH	4454	Computer Aided Manuf (CAM)
TECH	4514	Machine Tool Processes

TOTAL HOURS.....122-123

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 (ENGTE.BS) (Old Code 131)
Computer Electronics Engineering Technology Option
Suggested Course Sequence#**

FIRST YEAR

FIRST SEMESTER	SECOND SEMESTER
1051 SWOSUConnect * (1) 1101 Intro to Technology (1) 1113 English Comp I (3) 1223 Technology & Society (3) 1513 College Algebra (3) Humanities & Social Sciences Course (3)	1213 English Comp II (3) 1433 Visual Basic Programming (3) 1613 College Trig (3) 1713 Basic Elec Science (3) Humanities & Social Sciences Course (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) 4833 Microprocessors & Embedded Controls OR 3823 Industrial Electronics (3)	1004 General Chemistry (4) 1053 Computer Science II (3) 2413 Non-Metal Materials & Proc (3) 2513 Fabrication Proc I (3) 3883 Principles of Electronic Communications (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) 3823 Industrial Electronics OR 4833 Microprocessors & Embedded Controls (3)	1043 <i>OR</i> 1053 US History (3) 3143 Technical Presentations (3) 3613 Power Systems (3) 4493 Manufacturing Ops II (3) Humanities & Social Sciences Course (3)
Total (16)	Total (15)

FOURTH YEAR

FIRST SEMESTER	SECOND SEMESTER
1103 American Gov't (3) 2213 2D CAD (3) 2463 Business Stats OR 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

* First time entering SWOSU students need to take 1051 SWOSUConnect.

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

**Engineering Technology (ENGTE.BS) (Old Code 131)
Environmental Engineering Technology Option
Suggested Course Sequence#**

FIRST YEAR

FIRST SEMESTER	SECOND SEMESTER
1051 SWOSUConnect* (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 <i>OR</i> 1053 US History (3) 1044 Basic Physics I (4) 2213 2D CAD (3) 2413 Non-Metal Materials & Proc (3) 2823 Applied Calculus (3)	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) Humanities & Social Sciences Course (3) Total (14)	1934 Physical Geology (4) 3013 Organic Chemistry I (3) 3173 Environmental Regs (3) 3413 Production Processes (3) 4493 Manufacturing Ops II (3) Total (16)

FOURTH YEAR

FIRST SEMESTER	SECOND SEMESTER
3113 Industrial Safety (3) 3143 Technical Presentations (3) 3613 Power Systems (3) 4433 Quality Control (3) Humanities & Social Sciences Course (3) Total (15)	4020 Pro Cert Req (0) 4254 Ind Chem & Env Regs OR 3244 Envir Chem(4) 4355 Microbiology (5) 4373 Economic Decision Analysis (3) Humanities & Social Sciences Course (3) Total (15)

Overall Total = 122-123

* First time entering SWOSU students need to take 1051 SWOSUConnect.

**Engineering Technology (ENGTE.BS) (Old Code 131)
Manufacturing Engineering Technology Option
Suggested Course Sequence#**

FIRST YEAR

FIRST SEMESTER	SECOND SEMESTER
1051 SWOSUConnect* (1) 1101 Intro to Technology (1) 1113 English Comp I (3) 1223 Technology & Society (3) 1513 College Algebra (3) Humanities & Social Sciences Course (3)	1004 Biological Concepts (4) 1103 American Gov't (3) 1213 English Comp II (3) 1613 College Trig (3) Humanities & Social Sciences Course (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) Humanities & Social Sciences Course (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 OR 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) 4454 Computer Aided Manufacturing (CAM) (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) 4264 3D CAD (4) 4433 Quality Control (3) 4514 Machine Tool Processes (4)	3613 Power Systems (3) 4020 Prof Cert Req (0) 4373 Econ Decision Analy (3) 4443 Material Hand/Facility Plan (3) 4753 Senior Capstone (3)
Total (17)	Total (12)

Overall Total = 122-123

* First time entering SWOSU students need to take 1051 SWOSUConnect.

BACHELOR OF SCIENCE APPLIED ENGINEERING MANAGEMENT (AEM.BS) (Old Code No. 136)

GENERAL EDUCATION (Min. 40 hours)

Courses that are required. *Courses that are recommended.*

Communication	9
ENGL 1113 English Composition I	
ENGL 1213 English Composition II	
COMM 1313 Introduction to Public Speaking OR	
TECH 3143 Technical Presentations	
Quantitative Reasoning	3
<i>Select one course.</i>	
MATH 1143 Mathematical Concepts	
MATH 1153 Mathematical Applications	
MATH 1193 Elementary Statistics	
MATH 1313 Functions and Modeling	
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	3-4
BIOL 1004 Biological Concepts w/Lab	
BIOL 1013 Current Issues in Biology	
BIOL 1054 Principles of Biology I w/Lab	
Physical Science	3-4
ASTRO 1904 Astronomy	
CHEM 1004 General Chemistry w/Lab	
GEOL 1934 Physical Geology w/Lab	
PHY 1044 Basic Physics I w/Lab	
PHY 1063 General Physics (or a higher numbered chemistry or physics course)	
SCI 1501 Concepts of Physical Science Lab	
SCI 1513 Conc of Phy Science	
Humanities and Social Science	12
<i>Select one course from each sub-category and one additional course from any subcategory below.</i>	
Humanities	3
GEOG 1103 World Cultural Geography	
HIST 1033 World History	
HUM 1103 Introduction to Humanities	
Fine Arts	3
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 (Music majors only)	
MUSIC 1123 History of Rock-n-Roll	
PHILO 1453 Introduction to Philosophy	
Social and Human Sciences	3
ASL 2163 American Sign Language I	
ECONO 2263 Intro to Macroeconomics	
ECONO 2363 Intro to Microeconomics	
ENTRP 1123 Intro to Business	
FINAN 2113 Personal Financial Planning	
ITAL 1004 Elementary Italian I	
KINES 1133 Wellness Conc & Exercise Applications	
LATIN 1054 Elementary Latin I (or higher number)	
PSYCH 1003 General Psychology	
SOCIO 1003 Introduction to Sociology	
SPAN 1054 Elementary Spanish I (or higher number)	
TECH 1223 Technology and Society	

Computer Proficiency.....**0-3**
COMSC 1023 Computers and Info Access, or a department-assigned course which satisfies the Computer Proficiency in the major, or the SWOSU Proficiency Exam, or HS course clearly defined to meet our goals.

GE Elective.....**0-3**
Students who meet the computer proficiency by exam or HS course must choose an additional GE course from any category.

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 3463 Manufacturing Operations I	
TECH 3613 Power Systems	
TECH 4123 Industrial Supervision	
TECH 4264 3D CAD	
TECH 4433 Quality Control	
TECH 4493 Manufacturing Operations II	

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 1123 Introduction to Business	
ENTRP 3123 Legal Environment of Business	
MATH 1613 College Trigonometry	
MATH 2823 Applied Calculus	
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 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.....18

TECH 2713 Fundamental Electronics	
TECH 2813 Digital Devices	
TECH 3123 Excel for Engineers & Technologists	
TECH 3883 Prin of Electronic Communication	
TECH 4223 Electronics Capstone	
TECH 4853 Programmable Logic Controls	

Electronics Electives..... 6

Select two courses:

MFET 3433 Automation & Control Systems	
TECH 3823 Industrial Electronics	
TECH 4833 Microprocessors & Embedded Controls	

(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

TOTAL HOURS..... 122-123

Applied Engineering Management 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 Applied Engineering Management 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 (AEM.BS) (Old Code 136)
Electronics Technology Option
Suggested Course Sequence#**

FIRST YEAR

FIRST SEMESTER	SECOND SEMESTER
1051 SWOSUConnect* (1) 1043 OR 1053 US History (3) 1101 Intro to Technology (1) 1113 English Comp I (3) 1223 Technology & Society (3) 1513 College Algebra (3)	1103 American Gov't (3) 1213 English Comp II (3) 1713 Basic Elec Science (3) 2463 Business Stats OR 3413 Stat Methods (3) GE Elective** (3)
Total (14)	Total (15)

SECOND YEAR

FIRST SEMESTER	SECOND SEMESTER
1514 Concepts of Phy Science (4) 2413 Non-Metal Materials & Proc (3) 2713 Fund Electronics (3) Electronics Electives (3) Humanities & Social Sciences Course (3)	1004 Biological Concepts (4) 2213 2D CAD (3) 2363 Intro to Microeconomics (3) 2513 Fabrication Proc I (3) 3883 Prin of Electronic Communications (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)	3113 Industrial Safety (3) 3123 Excel for Engineers & Technologists OR 4123 Industrial Supervision (3) 3143 Technical Presentations (3) Humanities & Social Sciences Course (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) Humanities & Social Sciences Course (3)	4020 Prof Cert Req (0) 4123 Industrial Supervision OR 3123 Excel for Engineers & Technologists (3) 4223 Electronics Capstone (3) 4493 Manufacturing Operations II (3) Management Electives (6)
Total (15)	Total (15)

Overall Total = 122-123

* First time entering SWOSU students need to take 1051 SWOSUConnect.

** GE Elective is needed if the computer proficiency is met by exam or HS course.

**Applied Engineering Management (AEM.BS) (Old Code 136)
Manufacturing Technology Option
Suggested Course Sequence#**

FIRST YEAR

FIRST SEMESTER	SECOND SEMESTER
1051 SWOSUConnect* (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) 1103 American Gov't (3) 1213 English Comp II (3) 2463 Business Stats OR 3413 Stat Methods (3) GE Elective** (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) Humanities & Social Sciences Course (3)	1004 General Chemistry (4) 2363 Intro to Microeconomics (3) 3123 Excel for Engineers & Technologists (3) 3523 Fabrication Process II (3) Humanities & Social Sciences Course (3)
Total (16)	Total (16)

THIRD YEAR

FIRST SEMESTER	SECOND SEMESTER
2213 2D CAD (3) 3113 Industrial Safety (3) 3463 Manufacturing Ops I (3) 3513 Material Test/Analy (3) Management Elective (3)	3143 Technical Presentations (3) 3413 Production Processes (3) 3613 Power Systems (3) 4123 Industrial Supervision OR 3173 Environmental Regulations (3) 4454 Computer Aided Manufacturing (CAM) (4)
Total (15)	Total (16)

FOURTH YEAR

FIRST SEMESTER	SECOND SEMESTER
4433 Quality Control (3) 4514 Machine Tool Proc (4) Humanities & Social Sciences Course (3) Management Elective (6)	3173 Environmental Regulations OR 4123 Industrial Supervision (3) 4020 Prof Cert Req (0) 4264 3D CAD (4) 4493 Manufacturing Operations II (3) Management Elective (3)
Total (16)	Total (13)

Overall Total = 122-123

* First time entering SWOSU students need to take 1051 SWOSUConnect.

** GE Elective is needed if the computer proficiency is met by exam or HS course.