MANUFACTURING TECHNOLOGY MAJOR, PROCESS OPTION, BACHELOR OF SCIENCE (BS)

The manufacturing process option focuses on select areas of technology, science and methods of materials processing. This option prepares the student to enter and progress in industry in a variety of areas including, quality assurance, inventory control, production line supervision or process management.

Note: Including university requirements, the above program requires a minimum of 180 credits, an average of 15 credits per quarter for a 12 quarter, four-year program. The 180 credits are based upon the following assumptions:

- students have had one year of high school drafting. If this assumption is not true, then the student will have to take METC 102;
- students will have satisfied university proficiencies. If this assumption is not true, then the student will have to complete up to six more classes. (See Undergraduate Degree Requirements (http://catalog.ewu.edu/undergraduate-degree/).)

Grade Requirements: In order to graduate, students majoring in the department must earn an average GPA ≥2.5 in all courses required for this major (all courses in the list below).

Required Supporting Outside Department Courses

CHEM 121	CHEMISTRY AND ITS ROLE IN SOCIETY	5
or CHEM 171 & 171L	GENERAL CHEMISTRY I and GENERAL CHEMISTRY LABORATORY I	
MATH 142	PRECALCULUS MATH II	5
or MATH 161	CALCULUS I	
or HONS 161	CALCULUS I	
PHYS 100	PHYSICAL SCIENCE I	5
or PHYS 110	ENERGY, SOCIETY AND THE ENVIRONMENT	
or PHYS 121	DESCRIPTIVE ASTRONOMY	
or PHYS 131	INTRODUCTORY PHYSICS I	
or PHYS 151	GENERAL PHYSICS I	

Required Departmental Courses

MENG 217	3D PARAMETRIC COMPUTER AIDED DESIGN	4
METC 110	ENGINEERING GRAPHICS	5
TECH 330	TECHNOLOGY PROBLEM ANALYSIS AND DESIGN I	4
TECH 331	TECHNOLOGY PROBLEM ANALYSIS AND DESIGN II	4
TECH/HONS 393	TECHNOLOGY WORLD CIVILIZATION	4
TECH 403	COMPUTER-AIDED DESIGN AND PROJECT MANAGEMENT	4
TECH 452	ENGINEERING ECONOMICS	4
TECH 454	ENVIRONMENTAL ENGINEERING	4
TECH 456	ENGINEERING ETHICS, CONTRACTS AND PATENTS	4
TECH 458	QUALITY ASSURANCE	4
TECH 462	INDUSTRIAL SAFETY ENGINEERING	4

Required Manufacturing Technology Courses

MENG 353	INDUSTRIAL MATERIALS	5
MNTC 208	SURVEY OF ELECTRICITY	4
MNTC 301	METALLIC PROCESSES	5
MNTC 320	NON-METALLIC PROCESSES	5
MNTC 402	MACHINE TOOL I	5
MNTC 404	COMPUTER NUMERICAL CONTROL	5
MNTC 406	WELDING TECHNOLOGY	4
MNTC 430	MACHINE TOOL II	5

Required Senior Capstone Series

MNTC/APTC/ CMTC/DNTC/ TECH 490	SENIOR CAPSTONE: PRODUCTION LAB	4
MNTC/APTC/ CMTC/DNTC/ TECH 491	SENIOR PROJECT (variable credit)	4-6
MNTC/DNTC/ TECH 495	INTERNSHIP	1-15
or MNTC 439	TOPICS IN MANUFACTURING	
Total Credits		**107-123**

Plan of Study

The following plan of study is for a student with zero credits. Individual students may have different factors such as: credit through transfer work, Advanced Placement, Running Start, or any other type of college-level coursework that requires an individual plan.

Courses could be offered in different terms, checking the academic schedule is paramount in keeping an individual plan current. **Students should connect with an advisor to ensure they are on track to graduate.**

All Undergraduate students are required to meet the Undergraduate Degree Requirements (http://catalog.ewu.edu/undergraduate-degree/).

First Year

Fall Quarter	Credits	Winter Quarter	Credits	Spring Quarter	Credits
ENGL 101	5	ENGL 201	5	MENG 217	4
MATH 142	5	METC 110	5	Humanities & Arts BACR 2[1]	5
Humanities & Arts BACR 1[1]	5	Elective - certificate, minor, or general elective	5	Elective - certificate, minor, or general elective	5
				Elective - certificate, minor, or general elective	3
	15		**15**		**17**

Second Year

Fall Quarter	Credits	Winter Quarter	Credits	Spring Quarter	Credits
MNTC 301	5	CHEM 121 or 171 *and* 171L (Natural Science BACR 2)	5	Social Science BACR 2[1]	5
PHYS 100 or 110 (Natural Science BACR 1)	5	Diversity - graduation requirement[1]	5	Elective - certificate, minor, or general elective	5
Elective - certificate, minor, or general elective	5	Social Science BACR 1[1]	5	Elective - certificate, minor, or general elective	5
	15		**15**		**15**

Third Year

Fall Quarter	Credits	Winter Quarter	Credits	Spring Quarter	Credits
MNTC 208	4	MNTC 402	5	MENG 353	5
TECH 330	4	MNTC 406	4	MNTC 404	5
TECH 403	4	TECH 331	4	TECH 458	4
		TECH 454	4		
	12		**17**		**14**

Fourth Year

Fall Quarter	Credits	Winter Quarter	Credits	Spring Quarter	Credits
MNTC 320	5	MNTC 495	6	MNTC 490 (Senior Capstone - graduation requirement)	4
MNTC 430	5	TECH 393 (Global Studies - graduation requirement)	4	MNTC 491	4
TECH 452	4	TECH 462	4	TECH 456	4
				Elective - certificate, minor, or general elective	5
	14		**14**		**17**

Total Credits 180

[1] University Graduation Requirements (UGR) and Breadth Area Course Requirements (BACR) courses may be less than 5 credits and additional credits may be required to reach the required 180 total credits needed to graduate. Students should connect with an advisor to ensure they are on track to graduate.

University Competencies and Proficiencies

English (http://catalog.ewu.edu/undergraduate-degree/#newitemtext)

Quantitative and Symbolic Reasoning (http://catalog.ewu.edu/undergraduate-degree/#mathcompproficienciestext)

Placement and Clearance (http://catalog.ewu.edu/placement/)

Prior Learning/Sources of Credit AP, CLEP, IB (http://catalog.ewu.edu/prior-learning/)

General Education Requirements (http://catalog.ewu.edu/undergraduate-degree/#generaleducationrequirementstext) (GER)

- Minimum Credits—180 cumulative credit hours
  - 60 upper-division credits (300 level or above)
  - 45 credits in residence (attendance) at Eastern, with at least 15 upper-division credits in major in residence at Eastern
- Minimum Cumulative GPA ≥2.0

Breadth Area Core Requirements (BACR)

Humanities and Arts (http://catalog.ewu.edu/undergraduate-degree/#humanitiesandfineartsgecrtext)

Natural Sciences (http://catalog.ewu.edu/undergraduate-degree/#naturalsciencesgecrtext)

Social Sciences (http://catalog.ewu.edu/undergraduate-degree/#socialsciencesgecrtext)

University Graduation Requirements (http://catalog.ewu.edu/undergraduate-degree/#universitygraduationrequirementstext) (UGR)

Diversity Course List (http://catalog.ewu.edu/undergraduate-degree/#cultureandgenderdiversityintheuslisttext)

World Language (http://catalog.ewu.edu/undergraduate-degree/#worldlanguagetext) (for Bachelor of Arts)

Global Studies Course List (http://catalog.ewu.edu/undergraduate-degree/#internationalstudiesrequirementtext)

Minor or Certificate (http://catalog.ewu.edu/undergraduate-degree/#majorminororcertificateugrtext)

Senior Capstone Course List (http://catalog.ewu.edu/undergraduate-degree/#capstonecourselisttext)

Application for Graduation (use EagleNET (https://inside.ewu.edu/eaglenet/)) must be made at least two terms in advance of the term you expect to graduate (undergraduate and post-baccalaureate).

Use the Catalog Archives (http://catalog.ewu.edu/archives/) to determine *two important catalog years*.

Requirements in Degree Works (https://inside.ewu.edu/records-and-registration/degree-works/) are based on these two catalog years:

a. The catalog *in effect at the student's first term* of current matriculation is used to determine **BACR** (Breadth Area Credit Requirements) **and UGR** (Undergraduate Graduation Requirements).

b. The catalog *in effect at the time the student declares a major or minor* is used to determine the program requirements.

Students who earn a BS in Manufacturing Technology, Process Option from EWU should be able to:

- communicate effectively;
- develop a commitment to quality, timeliness, and continuous improvement;
- develop a recognition of the need for, and the ability to engage in, lifelong learning;
- develop an ability to understand professional, ethical, or social responsibilities;
- develop an appropriate mastery of the knowledge, techniques, skills, and modern tools of their disciplines;
- identify, analyze, and solve technical and creative problems.