

MANUFACTURING TECHNOLOGY MAJOR, BACHELOR OF SCIENCE (BS)

The Manufacturing Technology focuses on select areas of technology, science, and methods of materials processing. This prepares students to enter and progress in various industries, 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 will have satisfied university proficiencies. If this assumption is not true, then the student will have to complete up to six more courses. (review 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 & 121L or CHEM 171 & 171L	CHEMISTRY AND ITS ROLE IN SOCIETY and CHEMISTRY AND ITS ROLE IN SOCIETY LAB GENERAL CHEMISTRY I and GENERAL CHEMISTRY LABORATORY I	5
MATH 142 or MATH 161 or HONS 161	PRECALCULUS MATH II CALCULUS I CALCULUS I	5
PHYS 100 or PHYS 110 or PHYS 121 or PHYS 131 or PHYS 151	PHYSICAL SCIENCE I ENERGY, SOCIETY AND THE ENVIRONMENT DESCRIPTIVE ASTRONOMY INTRODUCTORY PHYSICS I GENERAL PHYSICS I	5

Required Departmental Courses

MENG 217	3D PARAMETRIC COMPUTER AIDED DESIGN	4
MENG 384 & 384L	INDUSTRIAL ROBOT OPERATION and INDUSTRIAL ROBOT OPERATION LAB	3
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 & 353L	INDUSTRIAL MATERIALS and INDUSTRIAL MATERIALS LAB	5
MNTC 208 & 208L	SURVEY OF ELECTRICITY and SURVEY OF ELECTRICITY LAB	4
MNTC 301 & 301L	METALLIC PROCESSES and METALLIC PROCESSES LAB	5
MNTC 320 & 320L	NON-METALLIC PROCESSES and NON-METALLIC PROCESSES LAB	5
MNTC 402 & 402L	MACHINE TOOL I and MACHINE TOOL I LAB	5
MNTC 404 & 404L	COMPUTER NUMERICAL CONTROL and COMPUTER NUMERICAL CONTROL LAB	5

MNTC 406 & 406L	WELDING TECHNOLOGY and WELDING TECHNOLOGY LAB	4
MNTC 430 & 430L	MACHINE TOOL II and MACHINE TOOL II LAB	5
Required Senior Capstone Series		
MNTC 490 & 490L	SENIOR CAPSTONE: PRODUCTION LAB and SENIOR CAPSTONE: PRODUCTION LAB LAB	4
MNTC/APTC/CMTC/DNTC/TECH 491	SENIOR PROJECT (variable credit)	4-6
MNTC/DNTC/TECH 495 or MNTC 439	INTERNSHIP TOPICS IN MANUFACTURING	1-15
Total Credits		110-126

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 - minor or general elective	5 Elective - minor or general elective	5
		Elective - minor or general elective	3
	15	15	17
Second Year			
Fall Quarter	Credits Winter Quarter	Credits Spring Quarter	Credits
MNTC 301 & 301L	5 CHEM 121 & 121L (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 - minor or general elective	5
Elective - minor or general elective	5 Social Science BACR 1 ¹	5 Elective - minor or general elective	5
	15	15	15
Third Year			
Fall Quarter	Credits Winter Quarter	Credits Spring Quarter	Credits
MNTC 208 & 208L	4 MNTC 402 & 402L	5 MENG 353 & 353L	5
TECH 330	4 MNTC 406 & 406L	4 MNTC 404 & 404L	5
TECH 403	4 TECH 331	4 TECH 458	4
Elective - minor or general elective	3 TECH 454	4	
	15	17	14
Fourth Year			
Fall Quarter	Credits Winter Quarter	Credits Spring Quarter	Credits
MNTC 320 & 320L	5 MNTC 495	5 MENG 384 & 384L	3
MNTC 430 & 430L	5 TECH 393 (Global Studies - graduation requirement)	4 MNTC 490 & 490L (Senior Capstone - graduation requirement)	4
TECH 452	4 TECH 462	4 MNTC 491	4
		TECH 456	4
	14	13	15
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/#socialsciensesgecrtext>)

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 expected to graduate (undergraduate and post-baccalaureate).

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

1. The catalog *in effect at the student's first term* of current matriculation is used to determine **BACR** (Breadth Area Core Requirements) and **UGR** (Undergraduate Graduation Requirements).
2. 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 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.