

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

The design for manufacturability option prepares the graduate for placement in the world of manufacturing. A student graduating with this option should have mastered the basic skills appropriate for the design, development, manufacturing and sale of consumer products. Students should enter the labor force at the middle-management level. The breadth of preparation in the design option provides a broad foundation from which to build and progress.

Notes: 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 competencies. If this assumption is not true, then the student will have to complete up to six more credits of classes. (See university competencies.)

Grade Requirements: in order to graduate, students majoring in the department must earn a GPA ≥ 2.5 in departmental coursework.

Required Supporting Outside Department Courses

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| 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 131 | INTRODUCTORY PHYSICS I | 4 |
| or PHYS 151 | GENERAL PHYSICS I | |
| PHYS 132 | INTRODUCTORY PHYSICS II | 4 |
| or PHYS 152 | GENERAL PHYSICS II | |
| PHYS 161 | MECHANICS LABORATORY | 1 |
| PHYS 162 | HEAT AND OPTICS LABORATORY | 1 |
| Required Departmental Courses | | |
| METC 110 | ENGINEERING GRAPHICS | 5 |
| MENG 217 | 3D PARAMETRIC COMPUTER AIDED DESIGN | 4 |
| 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 |

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| TECH 462 | INDUSTRIAL SAFETY ENGINEERING | 4 |
| Required Design Technology Courses | | |
| MENG 353 | INDUSTRIAL MATERIALS | 5 |
| METC 340 | STATICS | 5 |
| METC 341 | STRENGTH OF MATERIALS | 4 |
| MNTC 208 | SURVEY OF ELECTRICITY | 4 |
| MNTC 301 | METALLIC PROCESSES | 5 |
| MNTC 320 | NON-METALLIC PROCESSES | 5 |
| MNTC 402 | MACHINE TOOL I | 5 |
| Required Senior Capstone Series | | |
| DNTC/APTC/ CMTC/TECH/ MNTC 490 | SENIOR CAPSTONE: PRODUCTION LAB | 4 |
| DNTC/APTC/ CMTC/TECH/ MNTC 491 | SENIOR PROJECT | 4-6 |
| DNTC/MNTC/ TECH 495 | INTERNSHIP | 1-15 |
| or MNTC 439 | TOPICS IN MANUFACTURING | |
| Total Credits | | 107-123 |

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

General Education Requirements (<http://catalog.ewu.edu/undergraduate-degree/#generaleducationrequirementsger>) (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 (<http://catalog.ewu.edu/undergraduate-degree/#generaleducationcorerequirementsgecrtext>) (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/#universitygraduationrequirementsugr>) (UGR)

- Diversity Course List (<http://catalog.ewu.edu/undergraduate-degree/#cultureandgenderdiversityintheuslisttext>)
- Foreign Language (<http://catalog.ewu.edu/undergraduate-degree/#foreignlanguageugrtext>) (for Bachelor of Arts)
- Global Studies Course List (<http://catalog.ewu.edu/undergraduate-degree/#internationalstudiesrequirementsugrtext>)

Minor or Certificate (<http://catalog.ewu.edu/undergraduate-degree/#majorminororcertificateugrtext>)
Senior Capstone Course List (<http://catalog.ewu.edu/undergraduate-degree/#capstonecourselisttext>)

All admitted students must officially Declare a Major (<https://inside.ewu.edu/center-for-academic-advising-and-retention/academic-planning-tools/declare-your-major/>) by the time they reach 90 credits (junior standing).

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 (<https://catalog.ewu.edu/archives/>) to determine two important catalog years (<http://catalog.ewu.edu/undergraduate-degree/#activecatalogruletext>).

SOAR (<https://soar.ewu.edu/selfservice/general/home.html>) calculates based on these two catalog years.

1. 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).
2. The catalog *in effect at the time the student declares a major or minor* is used to determine the program requirements.

Students who successfully earn a BS in Manufacturing Technology, DFM from EWU should be able to do the following:

- 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.