Manufacturing Engineering, BS

WESTERN WASHINGTON UNIVERSITY
Engineering and Design

516 High St., MS-9086
Bellingham, WA 98225
cse.wwu.edu/engd

Pre-major Advisor
Lisa Ochs
lisa.ochs@wwu.edu
360.650.4132
ET 204

Plan of Study 2020-2021 Academic Year

149-153 Total Credits for Major

*ABET accredited
*All students must initially declare as a pre-major in Manufacturing; students cannot apply for the Major unless all pre-major prerequisites have been satisfied with a grade of C- or better.
*Course offerings/schedule are subject to change
*Shaded areas below are pre-major courses.

	Fall Quarter	Winter Quarter	Spring Quarter
Year 1 Pre-major	**Math 124 Calc I** (5) FWS	**MATH 125 Calc II** (5) FWS	PHYS 163 Physics w/ Calc III (5) FS
	CHEM 161 Gen. Chemistry (5) FWS	**ENGR 197D Engineering, Innovation, & Design (4)** WS	**MATH 224 Multivariable Calc** (5) FWS
	PHYS 161 Physics w/ Calc I (5) FW	**PHYS 162 Physics w/ Calc II** (5) WS	GUR
	ENGR 197C Eng, Design & Society (2)FW	GUR	

MFGE Pre-majors apply to the major during Winter Quarter Year 2. Courses in BOLD are the minimum requirements to apply.

Year 2 Pre-Major	**ENGR 214 Statics** (4) FWS	ENGR 225 Mech of Materials (5) FWS	MFGE 231 Intro to Mach Process (4) FS
	MATH 204 Linear Algebra (4) FWS	MATH 331 Diff Equations (4) FWS	MFGE 261 Intro to CAD (4) FS
	ENGR 170 Intro Mat Sci & Eng (4) FW	MATH 345 Engineering Stats (4) FWS	MFGE 350 Intro to Automation (4) S
	GUR	GUR	GUR

Year 3 Major	MFGE 332 Intro to CAM & CNC (4) FW	MFGE 341 Quality Assurance (4) FW	MFGE 342 Design of Experiment (4) WS
	EE 351 Electronics for Engineers (4) FS	MFGE 333 Design for Manufact (4) W	MFGE 381 Manuf. Process Plan (4) S
	PCE 371 Intro Plastics Mat & Proc (5) F	MFGE 362 CAD Using Surfaces (4) WS	EE 352 Intro to Automation (4) S
	GUR	MFGE 340 Numerical Methods (4) W	PCE 372 Intro to Comp Mat & Proc (5) S

Year 4 Major	MFGE 491 Project Research (WP) (3) F	MFGE 492 Project Proposal (WP) (3) W	MFGE 493 Project Implementation (4) S
	MFGE 463 Design of Tooling (4) F	*MFGE 434 Advanced CAM/CNC* (4) W (See #4 below)	OPS 460 Design & Improve Ops (4) S
	MFGE 465 Machine Design (4) F	*MFGE 453 Industrial Robotics (4)* W (See #4 below)	Tech Elective
	GUR	Tech Elective or GUR	GUR

Notes:
1. All courses in bold are required courses to apply to the major. ENGR 197C is optional. ENGR 197D is required.
2. Students may not be able to complete the degree in four years if MATH 124 and MATH 125 are not completed in the first year.
3. SUBSTITUTIONS: ENGR 104 may be substituted for ENGR 197 D. MATH 134 & 135 (Honors Calculus) may be substituted for MATH 124 & 125. MATH 341 may be substituted for MATH 345.
4. Majors are required to take either MFGE 434 or 453, not both. If both are taken, one will count as a technical elective.

05.04.20

WESTERN WASHINGTON UNIVERSITY
Engineering and Design

Manufacturing Engineering, BS

Admissions

Admission to the Manufacturing Engineering major is a two-phase process. When students initially declare, they are designated as pre-majors. Students must complete the courses listed below in order to apply to the major. While admission decisions are based primarily on cumulative GPA in the prerequisite courses, successful completion of other required Major courses and overall GPA are also considerations.

The minimum academic performance required for acceptance into the MFGE major is:

1) A grade of C- or better in each of the following major pre-requisite courses:
   MATH 124, MATH 125, MATH 224, MATH 204, PHYS 161, PHYS 162, CHEM 121, ENGR 197D or 104, ENGR 170, and ENGR 214
   Students may be currently enrolled in no more than three of the above courses when they apply for major admission.
2) Have no more than two of the following courses outstanding at the beginning of Fall quarter year 3: PHYS 163, MATH 331, ENGR 225

A final decision on your application may be delayed until receipt of final grades for in-progress courses. Students must obtain at least a C- in the above courses and an overall GPA in them of 2.0 or higher to be considered. AP scores are converted to GPA as follows: 5 = A; 4 = B; 3 = C. Decisions are based primarily on cumulative GPA in the prerequisite courses, but successful completion of other required Major courses, GPA in the major, and overall GPA are also considerations.

Major Application: In addition to academic performance as described above, acceptance will also be based on an essay (500 words or less) explaining why you want to pursue a degree in Manufacturing Engineering. Applications are due by Noon on the first Friday in February. Applications are available on the department website. Only complete and on-time applications will be considered. Applicants will be notified by the end of the following week. Students who are accepted must register for MFGE 231, MFGE 261 and MFGE 350 Spring quarter before the end of Phase II registration. Students who do not register by the end of Phase II registration may lose their major status.

Other times: If additional spaces become available, all pre-majors will be notified by email that applications are being accepted, including the application deadline.

Transfer Students: A student that will be transferring to Western Washington University will be designated as a pre-major and will need to apply to the major. Transfer students who believe they are ready to apply to the MFGE major should contact the Pre-major Advisor for advising before applying to Western.

Approved Technical Electives *(6-10 credits total required)*: Other courses may be accepted; see program advisor.

ID 320 INDUSTRIAL DESIGN CAD SKILLS (4)
MFGE 434 ADVANCED CAM & CNC (4)
MFGE 453 INDUSTRIAL ROBOTICS (4)
MFGE 464 DESIGN & ANALYSIS OF MECHANISMS (4)
MFGE 466 CAD AUTOMATION (4)
MFGE 495 Directed Research (1-4)
MGMT 311 INTRO TO MGMT & ORG BEHAVIOR (4)
MGMT 313 TEAMWORK BASICS (4)
OPS 463 ENTERPRISE RESOURCE PLANNING SYSTEMS (4)
OPS 466 SUPPLY CHAIN MANAGEMENT (4)
PCE 331 INJECTION MOLDING (4)
PCE 461 TOOLING FOR PLASTIC PROCESSES (4)
PCE 472 ADVANCED COMPOSITES (3)

Contact Information for *Manufacturing Engineering* professors:

Derek Yip-Hoi, Professor & MFGE Program Director: Derek.Yip-Hoi@wwu.edu; ET 309
Tarek Al-Geddawy, Assistant Professor: Tarek.Al-Geddawy@wwu.edu; ET 313
Sura Al-Qudah, Associate Professor: Surah.Al-Qudah@wwu.edu; ET311
David Gill, Associate Professor: David.Gill@wwu.edu; ET 143
Jeff Newcomer, Professor & Dept. Chair: Jeff.Newcomer@wwu.edu; ET 204