Engineering Manufacturing

Master of Engineering in Manufacturing Engineering

Program Components

Two major curricular/program components distinguish the Master of Engineering degree from the Master of Science degree:

1. No professional paper or thesis is required for the M. Eng.

M. Eng. students are likely to either be practicing engineers or continuing students who wish to acquire credits required for professional licensure. In the first case, the students have experience in practical engineering and the concepts involved in a capstone experience. In the latter case, all senior engineering students at Montana State University have completed a senior design project that is of the same depth as most professional papers, and this is also true of practically all accredited undergraduate engineering programs. Eliminating the thesis or professional paper requirement provides students the opportunity for more coursework in an area of interest.

2. The M. Eng. has no comprehensive examination.

Because this is a courses-only degree that requires students to maintain a 3.0 GPA, there will be no further proof of proficiency. The intent is to provide education for practicing professionals. Students will be supervised by an option coordinator, not by a three-member committee typical for M.S. degrees.

General Requirements

- 30 credits total
- At least 21 of the total credits required for degree must be at 5xx level
- 3xx level courses are not allowed
- 4xx level courses may be used (maximum allowed is 9 credits)
- Courses with grades below C cannot be used to satisfy graduation requirements
- Three credits (min.) registration required during term of graduation
- A maximum of three credits of individual problems courses (592/575/598) are allowed

Course Requirements

Required Courses		**(12 credits)**
The following courses are required for every MEng-Manufacturing Engineering student:		
EMAN 501	Principles of Manufacturing (Theory of Manufacturing Engineering)	3
EMAN 515	(Product and Process Design for Manufacturing)	3
EMAN 540	(Manufacturing Systems Design and Simulation)	3
EMAN 560	(Advanced Manufacturing Applications)	3
Approved Elective Courses:		**(18 credits)**
Manuacturing Engineering (only one of these options is allowed):		
EMAN 575	(Research or Project/Paper)	
EMAN 592	(Independent Study)	
EMAN 598	(Internship)	
Mechanical Engineering Technology:		
ETME 410	Computerized Numerical Control and Computer-aided Manufacturing Technology	
ETME 415	Design for Manufacturing and Tooling	
ETME 462	Industrial Processing Automation and Controls	
Industrial Engineering:		
EIND 425	Technology Entrepreneurship	
EIND 434	Project Management for Engineers	
EIND 442	Facility and Material Handling Systems Design	
EIND 458	Production & Engineering Mgmt	
EIND 477	Applied Statistical Quality Control	
EIND 500	Engineering Organizational Change and Innovation	
EIND 509	Systems Simulation	
EIND 511	Advanced Human Factors	
EIND 513	Human Factors in Complex Systems	
EIND 525	Multi-Criteria Decision Making and Optimization	
EIND 554	DOE for Engineers	
EIND 557	Regression & Multivar Analysis	
EIND 558	Manage Forecast & Dec Analysis	
EIND 574	Management Engineering Systems	
Mechanical Engineering:		
EMEC 444	Mech Behavior of Materials	
EMEC 462	System Dynamics and Control	
EMEC 467	Micro-Electromechanical Systems	
Electrical Engineering:		
EELE 407	Intro To Microfabrication	
EELE 408	Photovoltaic Systems	
EELE 409	EE Material Science	
EELE 422	Intro to Modern Control	
EELE 505	MEMS Sensors and Actuators	
Materials Engineering:		
EMAT 462	Manufacturing of Composites	
EMAT 463	Composite Materials	
EMAT 464	Biomedical Materials Engineering	
EMAT 550	Failure of Materials	
EMAT 552	Advanced Ceramics	
EMAT 553	Advanced Composite Materials	
EMAT 560	Polymeric Materials	
General Engineering:		
EGEN 505	Advanced Engineering Analysis	
Engineering Mechanics:		
EM 560	Finite Elem Analys in Engr	
Chemical Engineering:		
ECHM 451	Chemical Engineering Process Dynamics and Control	
ECHM 510	Reaction Engineering/Modeling	
Computer Science:		
CSCI 441	Computer Graphics	
CSCI 446	Artificial Intelligence	
CSCI 447	Machine Learning	
CSCI 455	Embedded Systems: Robotics	
CSCI 546	Advanced Artificial Intelligence	

CSCI 547	Advanced Machine Learning	
Total Credits		**30**