

Mechanical Engineering 2014

Major: Mechanical Engineering

Degree Type: B.S.M.E.

Required Degree Credits to Graduate: 130

General Education Requirements

First Year Experience (F):

UNIV/ME 189	Skills For Academic Success	1
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Communication (C):

ENGL 110	College Composition I	3
ENGL 120	College Composition II	3
ENGL 321	Writing in the Technical Professions	3
COMM 110	Fundamentals of Public Speaking	3

Quantitative Reasoning (R):

MATH 165	Calculus I	4
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Science & Technology (S):

CHEM 121	General Chemistry I	3
CHEM 122	General Chemistry II	3
PHYS 252	University Physics II	4
PHYS 252L	University Physics II Laboratory	1

Humanities & Fine Arts (A): Select from the current general education list 6

Social & Behavioral Sciences (B): Select from current general education list 6

Wellness (W): Select from the current general education list 2

Cultural Diversity (D): Select from the current general education list

Global Perspectives (G): Select from the current general education list

Total Credits 42

General Education Requirements 40

Mechanical Engineering Requirements:

ME 212	Fundamentals of Visual Communication for Engineers	3
ME 213	Modeling of Engineering Systems	3
ME 221	Engineering Mechanics I	3
ME 222	Engineering Mechanics II	3
ME 223	Mechanics of Materials	3
ME 331	Materials Science and Engineering	4
ME 351	Thermodynamics I	3
ME 352	Fluid Dynamics	3
ME 361	Introduction to Mechanical Engineering Profession	1
ME 412	Engineering Measurements	3
ME 421	Theory of Vibrations	3
ME 442	Machine Design I	3
ME 443	Machine Design II	3
ME 454	Heat and Mass Transfer	3
ME 457	Thermal Systems Laboratory	3
ME 461	Design Project I	3
ME 462	Design Project II	3

MATH Courses Required:

MATH 129	Basic Linear Algebra	2
MATH 166	Calculus II	4
MATH 259	Multivariate Calculus	3
MATH 266	Introduction to Differential Equations	3

Other Required Courses:

ECE 301	Electrical Engineering I	3
ECE 303	Electrical Engineering II	3
ECE 306	Electrical Engineering Lab I	1
ENGR 402	Engineering Ethics and Social Responsibility	1
IME 330	Manufacturing Processes	3

Technical Electives: Select 15 credits from the following: 15

ME 332	Engineering Materials II
ME 341	Mechanics of Machinery
ME 353	Thermodynamics II
ME 415	Emerging Technologies in Mechanical Engineering
ME 423	Intermediate Mechanics of Materials
ME 433	Composite Materials Science and Engineering
ME 435	Plastics and Injection Molding Manufacturing
ME 437	Engineering Ceramics
ME 468	Introduction to Biomechanics
ME 470	Renewable Energy Technology
ME 471	Experimental Stress Analysis
ME 472	Fatigue and Fracture of Metals
ME 473	Engineering with Polymeric Materials
ME 474	Mechanics of Composite Materials
ME 475	Automatic Controls
ME 476	Mechatronics
ME 477	ME Finite Element Analysis
ME 480	Biofluid Mechanics
ME 481	Fundamentals of Energy Conversion
ME 482	Fuel Cell Science and Engineering
ME 483	Introduction to Computational Fluid Dynamics
ME 484	Gas Turbines
ME 485	Heating, Ventilation and Air Conditioning
ME 486	Nanotechnology and Nanomaterials
ME 487	Internal Combustion Engines
ME 488	Introduction to Aerodynamics
ME 489	Vehicle Dynamics

Approved technical electives from other departments - no more than two courses from the following:

ABEN 456	Biobased Energy
CPM 473	Polymer Synthesis
CPM 474	Coatings I
CPM 475	Coatings II
CPM 486	Corrosion and Materials
ECE 487	Cardiovascular Engineering
IME 430	Process Engineering
IME 431	Production Engineering
IME 432	Composite Materials Manufacturing
IME 440	Engineering Economy
IME 460	Evaluation of Engineering Data
PHYS 350	Modern Physics
PHYS 361	Electromagnetic Theory
PHYS 485	Quantum Mechanics I

Courses cross-listed with other departments:

ME 435/IME 635 Plastics and Injection Molding Manufacturing

ME/ABEN 479 Fluid Power Systems Design

ME 486/CE 686 Nanotechnology and Nanomaterials

Total Credits

130

Degree Requirements and Notes

- A student must complete at least 60 semester credits of professional level course work in his/her program while in residence and enrolled in the college. Students transferring into the college from programs with professional accreditation are exempt from this residency requirement but are subject to the residency requirement of NDSU.
- No grades less than 'C' will be accepted to fulfill a course requirement.
- No more than six credits of approved technical electives may be taken outside the ME department.
- Admission to the Mechanical Engineering Professional program requires a 2.80 Engineering GPA.
- A 2.50 cumulative GPA is required for graduation requirements.