

Bachelor of Science in Engineering (Manufacturing)

What is the BSE in Engineering?

One of the few manufacturing engineering degrees offered in the nation, the Bachelor of Science in engineering (Manufacturing) is a cooperative program offered by Western Michigan University (WMU) and area community colleges. In an effort to help meet the personnel needs of regional manufacturers, the BSE program was developed in partnership with numerous local industries, to enhance the skills of current employees as well as prepare students for future employment.



Contact Information

Department of
Manufacturing
Engineering
269.276.3253
www.wmich.edu/mfe

WMU-Battle Creek
Kendall Center
50 West Jackson Street
Battle Creek, MI 49017-
3505
269.965.5380
www.bc.wmich.edu

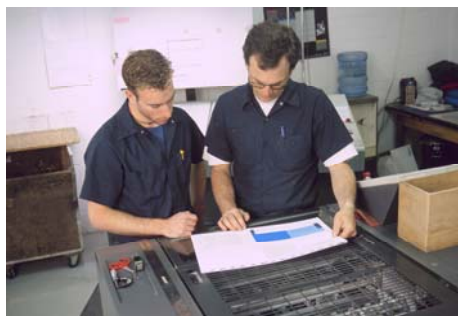
WMU-Lansing
6105 W. St. Joseph
Highway, Suite 205
Lansing, MI 48917
517.327.1480
www.lg.wmich.edu

WMU-Muskegon
221 S. Quarterline Road
Muskegon, MI 49442-1742
231.777.0500
www.mu.wmich.edu

WMU-Southwest
2785 E. Napier Ave.
Benton Harbor, MI 49022
269.934.1500
www.sw.wmich.edu

What can this program do for you?

Engineers who have the ability to take a product or concept and design the manufacturing processes are in great demand as industries compete in the global market. This degree program is one of only a few manufacturing engineering degrees (BSE) offered in Michigan and nationwide, and delivers what you need to get ahead in today's competitive market. The program will help you develop the competencies needed to be a productive leader in an industrial and/or manufacturing setting, successful manufacturing systems.



What does a Manufacturing Engineer do?

- Specify the equipment and processes to manufacture a part
- Work with vendors to design and build accessories for standard and specialized equipment
- Provide conceptual designs and supervise the design and construction of specialized tooling for equipment/processes
- Provide engineering services for machinery, automation, metrology, etc. to support the manufacturing operation
- Work with mechanical and electrical engineers to install equipment
- Work with industrial engineers to lay out the equipment and processes for the most efficient operation productivity, plant floor space, and people utilization
- Perform process and system simulation studies; the latter typically in collaboration with industrial engineers
- Supervise designers and installation of equipment
- Improve, troubleshoot, and debug existing manufacturing systems
- Propose solutions and implement cost effective changes
- Coordinate design, construction, and installation



The Benefits of Western Michigan University...Wherever You Are.

Examples of Course Transfer Equivalencies



Lansing Community College**	Lake Michigan College	Muskegon Community College	Kellogg Community College	Western Michigan University
CHEM 151, 161, Gen Chemistry and Lab	CHEM 111, Gen Chemistry	CHEM 101, 101A Gen Inorganic Chemistry and Lab	CHEM 110, 110, Gen Chemistry I and Lab	CHEM 1100, 1110, Gen Chemistry and Lab
CPSC 230**, Algor & Comput w/C++	CIS 254**, Comp. Programming	CIS 185, Comp. Programming	CP 101, C++ Programming	CS 1040, Comp. Programming
SPCH 130, Fund of Public Speaking	COMM 101, Public Speaking	COM 201, Public Speaking	COMM 207, Public Speaking	COM 1040, Public Speaking
WRIT 124**, Technical Writing	ENGL 103**, Report Writing	ENG 101, English Composition	ENGL 151 and 152, Fresh Comp or ENGL 153, Tech Eng	IME 1020, Tech Communications
METD 110, Mechanical CAD Drafting I	ENGR 103, Beginning Engineering Drawing or DRAF 101, Technical Drawing Fundamentals	CAD 110, Intro to CAD (2D)	DRAF 101, Eng. Graphics	IME 1420, Engineering Graphics
		MATH 215, Prob Stats for Eng		IME 2610, Engineering Statistics
METM 100, Mfg Processes				IME 1500, Intro to Manufacturing
METM 195, Metrology and METD 130, GD&T	DRAF 102**, Machine Drawing or MACH 130, Precision Inspection			MFE 1200, Engineering Design and Verification
METM 220, Mastercam or METM 225, Univgraphics	MACH 241, CNC Programming I	MT 206, CAD/CAM Computer Aided Design/ Machining		MFE 2200, Principles of NC/CNC Machining
METM 190, Metal/Heat Treatment			ENTE 215, Material Science	MFE 3300, Manufacturing Materials
METD 260, Jigs and Fixture Design				MFE 4240, Tool Design
MATH 151, Calculus I	MATH 151, Calculus I	MATH 161, Calculus I	MATH 141, Calculus I	MATH 1220, Calculus I
MATH 152, Calculus II	MATH 201, Calculus II	MATH 162, Calculus II	MATH 142, Calculus II	MATH 1230, Calculus II
MATH 253, Calculus III	MATH 202, Calculus III	MATH 283, Calculus III	MATH 241, Calculus III	MATH 2720, Vector Calc.
MATH 254, Diff Eqns and MATH 260, Lin Alg	MATH 252, Diff Eqns	MATH 295, Diff Eqns w/ Lin Alg	MATH 242, Diff Eqns	MATH 3740, Lin Algebra and Diff Eqns
		ENGR 202, Statics	PHYS 241, Statics*	ME 2560, Eng Statics
CIVL 241, Statics/Str Mats			ENTE 220, Static/Strength Materials*	ME 2560, Eng Statics or ME 2570, Mech of Mtrls
		ENGR 204, Eng Dynamics		ME 2580, Engineering Dynamics
PHIL 151, Intro to Logic	PHIL 102, Intro to Logic	PHIL 102, Principles of Logic		PHIL 2200, Critical Reasoning
PHYS 251, Physic I	PHYS 201, Eng. Phys. I	PHYS 203, Eng Physics and Lab	PHYS 201, 201L, General Physics I	PHYS 2050, 2060 Mechanics and Heat, Lab
PHYS 252, Physic II	PHYS 202, Eng Physics II	PHYS 204, Eng Physics and Lab	PHYS 202, 202L, General Physics II	PHYS 2070, 2080 Electricity and Light, Lab
	PHED 200 & PHED 220, Healthful Living I & II			Area 8 - Health and Well-Being

Program Components and Course Requirements

The program consists of 128 credit hours and is intended to be completed in four years. Students will take approximately half of the credit hours through Kellogg Community College (KCC), Lake Michigan College (LMC), Lansing Community College (LCC), and/or Muskegon Community College (MCC) and the remaining required courses through Western Michigan University in Battle Creek, Lansing, Muskegon, and/or Southwest. Transfer credits from other community colleges may be accepted; consult an advisor for additional transfer information. The program is divided into three components:

- Pre-engineering
- Manufacturing engineering curriculum
- General university requirements.

For further information about the Manufacturing Engineering program, visit our website: www.wmich.edu/mfe.

*For KCC, students should take one or the other of PHYS 241 and ENTE 220, but not both.

**Not all of the following LCC courses have received transfer approval. Please talk to an advisor for details.