



# Mechanical and Industrial Engineering

## *Curriculum*



جامعة المجمعة  
Majmaah University



كلية الهندسة  
College of Engineering

# Mechanical Engineering Curriculum. Semester: First Academic Year: 2018\2019.

## Preparatory Year:

### Fall Semester

Course Code	Course Title	Pre-Req.	Co-Req.	CH	Hours
PENG 111	English Language 1			8	
PMTH 112	Introduction to Mathematics 1			2	
PCOM 113	Computer Skills			2	
PSSC 114	Communication and Education Skills			2	
				14	

### Spring Semester

Course code	Course Title	Pre-Req.	Co-Req.	CH	Hours
PENG 121	English Language			6	
PMTH 127	Introduction to Mathematics 2			4	
PENG 123	Scientific and Engineering English Language			2	
PPHS 128	Physics			3	
				15	

## Mechanical Engineering Courses

### Fall Semester

First Year

Course Code	Course Title	Pre-Req.	Co-Req.	CH	Hours
MURE	University Requirement	---	---	2	(2,0,0)
MATH 105	Differential Calculus	---	---	3	(3,1,0)
PHYS103	General Physics	---	---	4	(3,1,2)
GE 101	Fundamentals of Engineering Technology	---	---	2	(1,0,2)
GE 102	Fundamentals of Engineering Drawing	---	---	3	(1,0,4)
GE 103	Engineering Mechanics (Statics)	---	---	3	(3,1,0)
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### Spring Semester

Course code	Course Title	Pre-Req.	Co-Req.	CH	Hours
MATH 106	Integral Calculus	MATH 105	---	3	(3,1,0)
MATH 107	Algebra and Analytical Geometry	---	---	3	(3,1,0)
PHY 108	Physics 2	PHYS 103	---	3	(3,1,0)
GE 108	Engineering Mechanics (Dynamics)	GE 103	---	3	(3,1,0)
GE 105	Engineering Chemistry	---	---	3	(3,1,0)
ME 111	Mechanical Measurements	GE 101	---	2	(1-1-2)
				17	

### Fall Semester

Second Year

Course Code	Course Title	Pre-Req.	Co-Req.	CH	Hours
MURE	University Requirement			2	(2,0,0)
MATH 204	Differential Equations	MATH 106	---	3	(3,1,0)
ME 223	Mechanical Engineering Drawing	GE102	--	3	(1-0-4)
ME 251	Material Engineering	GE103	--	3	(2-1-2)
ME 243	Machine Dynamics	GE108	--	3	(3-1-0)
ME 231	Thermodynamics I	--	--	3	(3-1-0)
				17	

### Spring Semester

Course code	Course Title	Pre-Req.	Co-Req.	CH	Hours
STAT 201	Statistics and Probability	---	---	3	(3,1,0)
EE 210	Electrical and Electronic Circuits.	---	---	3	(3,1,0)
ME 222	Machine Elements Design	--	ME 232	3	(2-1-3)
ME 232	Mechanics of Materials	ME 251	--	3	(3-1-0)
ME 242	Mechanical Vibrations	ME 243	---	3	(3-1-0)
ME 212	Manufacturing Processes	GE 101	---	3	(2,1,2)
				18	

### Fall Semester

Third Year

Course Code	Course Title	Pre-Req.	Co-Req.	CH	Hours
MURE	University Requirement	---	---	2	(2,0,0)
GE 306	Engineering Report Writing	STAT 201	---	2	(2,0,0)
CEN 307	Computer Programming for Mechanical Engineering.	--	---	3	(2,0,2)
ME 323	Mechanical Design	ME 222	--	3	(2,1,3)
ME 343	System Dynamics	ME 242	---	2	(2,1,0)
ME 353	Fluid Mechanics	ME 252		4	(3,1,2)
EE 398	Electrical Machines	EE 210		2	(2,1,0)
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ME 399	Engineering Practice	0 Credit Hours
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**Track: Mechanical Power Engineering**

Third Year

Spring Semester					
Course code	Course Title	Pre-Req.	Co-Req.	CH	Hours
MURE	University Requirement			2	(2,0,0)
MATH 254	Numerical Methods	MATH 204	---	3	(3,1,0)
ME 344	Automatic Control	ME 343- ME 353	---	2	(2,1,0)
ME 354	Heat Transfer	ME 353	---	3	(3,1,0)
ME 352	Thermodynamics II	ME 231	---	2	(2,1,0)
ME 355	Refrigeration & Air conditioning	---	ME 354	3	(2,1,2)
ME 356	Turbulent flow	ME 353	---	3	(3,1,0)
				18	

Fourth Year

Fall Semester					
Course Code	Course Title	Pre-Req.	Co-Req.	CH	Hours
MURE	University Requirement			2	(2,0,0)
GE 407	Engineering Economy	---	---	2	(2,1,0)
ME 457	Membrane Desalination processes	ME 354	--	2	(2,1,0)
ME 458	Turbo Machines	ME 356	--	3	(3,1,0)
ME 459	Internal Combustion Engines	ME 352	--	3	(3,1,0)
ME 46x	Elective Course 1	XXX	--	3	(3,1,0)
ME 493	Mechanical Power Lab.(I)	ME 111	--	1	(0,0,2)
ME 498	Senior Design (1)	---	---	2	(1,0,2)
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Spring Semester					
Course code	Course Title	Pre-Req.	Co-Req.	CH	Hours
MURE	University Requirement			2	(2,0,0)
GE 408	Engineering Project Management		---	2	(2,1,0)
ME 460	Power plant	ME 354	---	3	(3,1,0)
ME 494	Mechanical Power Lab. (II)	ME 493	---	1	(0,0,2)
ME 46x	Elective (2)	XXX	---	3	(3,1,0)
ME 46x	Elective (3)	XXX	---	3	(3,1,0)
ME 499	Senior Design (2)	ME 498	---	2	(1,0,2)
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**Track: Industrial Engineering**

Third Year

Spring Semester					
Course code	Course Title	Pre-Req.	Co-Req.	CH	Hours
MURE	University Requirement			2	(2,0,0)
MATH 254	Numerical Methods	MATH 204	---	3	(3,1,0)
ME 344	Automatic Control	ME 343 ME 353	---	2	(2,1,0)
ME 354	Heat Transfer	ME 353	---	3	(3,1,0)
ME 352	Thermodynamics II	ME 231	---	2	(2,1,0)
ME 371	Operations Research I	MATH 107	--	3	(3,1,0)
ME 372	Quality Management	STAT 101	---	3	(3,1,0)
				18	

Fourth Year

Fall Semester					
Course Code	Course Title	Pre-Req.	Co-Req.	CH	Hours
MURE	University Requirement			2	(2,0,0)
GE 407	Engineering Economy	---	---	2	(2,1,0)
ME 473	Reliability and Maintenance	STAT 101	--	2	(2,1,0)
ME 474	Operations Research II	ME 371	--	3	(3,1,0)
ME 475	Computer Aided Design & Manufacturing	ME 212 ME 323	--	3	(2,1,2)
ME 4XX	Elective Course 1	XXX	--	3	(3,1,0)
ME 495	Work Study Lab	ME 111	--	1	(0,0,2)
ME 498	Senior Design (1)	---	---	2	(1,0,2)
				18	

Spring Semester					
Course code	Course Title	Pre-Req.	Co-Req.	CH	Hours
MURE	University Requirement			2	(2,0,0)
GE 408	Engineering Project Management		---	2	(2,1,0)
ME 476	Industrial Operations Management	MATH 107	---	3	(3,1,0)
ME 496	Human Factors Engineering Lab	ME 495	---	1	(0,0,2)
ME 4xx	Elective (2)	XXX	---	3	(3,1,0)
ME 4xx	Elective (3)	XXX	---	3	(3,1,0)
ME 499	Senior Design (2)	ME 498	---	2	(1,0,2)
				16	

**Track: Design and Production Engineering**

Third Year

Spring Semester					
Course code	Course Title	Pre-Req.	Co-Req.	CH	Hours
MURE	University Requirement			2	(2,0,0)
MATH 254	Numerical Methods	MATH 204	---	3	(3,1,0)
ME 344	Automatic Control	ME 343 ME 353	---	2	(2,1,0)
ME 354	Heat Transfer	ME 353	---	3	(3,1,0)
ME 352	Thermodynamics II	ME 231	---	2	(2,1,0)
ME 313	Material Removal Processes	ME 212 ME 232		3	(2,1,2)
ME 333	Materials Selection in Design and Manufacturing	ME 212 ME 232	---	3	(2,1,2)
				18	

Fourth Year

Fall Semester					
Course Code	Course Title	Pre-Req.	Co-Req.	CH	Hours
MURE	University Requirement			2	(2,0,0)
GE 407	Engineering Economy	--	--	2	(2,1,0)
ME 424	Computer Aided Design	ME 323	--	3	(2-0-3)
ME 414	Metal Forming Processes	ME 212 ME 232	--	3	(2,1,2)
ME 445	Fault Diagnosis of Mechanical Systems	ME 343 ME 232	--	2	(1,1,2)
ME 46X	Elective Course 1	XXX	--	3	(2-1-2)
ME 491	Design and Production Lab (1)	--	--	1	(0,0,2)
ME 498	Senior Design (1)	---	---	2	(1,0,2)
				18	

Spring Semester					
Course code	Course Title	Pre-Req.	Co-Req.	CH	Hours
MURE	University Requirement			2	(2,0,0)
GE 408	Engineering Project Management		---	2	(2,1,0)
ME 415	Computer Aided Manufacturing	ME 212 ME 424	---	3	(2,1,2)
ME 492	Design and Production Lab (2)	ME 491	---	1	(0,0,2)
ME 46X	Elective (2)	ME 212 ME 323	---	3	(2-1-2)
ME 46X	Elective (3)	XXX	---	3	(2-1-2)
ME 499	Senior Design (2)	ME 498	---	2	(1,0,2)
				16	