



Degree and Study Plan	
College	Engineering
Department	Mechanical and Industrial Engineering
Cohorts	2017
Degree	Bachelor of Engineering (B. Eng.)
Major	Mechanical Engineering (ME)



Summary of Credits			
Credit Category		Courses	Total credits hours
University Requirements	(UR)	General Foundation Program	
		Arabic	3
		Contemporary Omani Society	1
		Oman & Islamic Civilization or Islamic Culture	2
		See List A	6
University Electives	(UE)	See list A	6
College Requirements	(CR)	See list B	32
College Electives	(CE)	See list C	3
Departmental Requirements	(DR)	See list D	25
Major Requirements	(AR)	See list E	52
Major Electives	(AE)	See list F	12
Total Credits			136

Important Information:

Student is to follow one of the three schemes of the Degree Plan:

- Scheme I** is for students who completed the Foundation Program in one regular semester (Fall).
- Scheme II** is for students who completed the Foundation Program in two regular semester (Fall and Spring).
- Cooperative Training (COOP) Scheme** is optional. It is designed for students who are following Scheme I or II and willing to take a one-year COOP program in semesters 9 and 10.

For reference contact: Dr. Abdullah Al Shabibi Ext. 1352

HoD:

Date: 9/9/2020

Dean's Office: Dr. Hassan AL Lawadi

Date: 10/9/2020

Admission and Registration:

Date:

Department of Mechanical and Industrial Engineering

Mechanical Engineering Study Plan: **2017 Cohort (Scheme I)**

Scheme I FP1 Fall 2017	Course Code	Course Title	Cr.	Pre-req./Co-requisite*	Cat.	0
		General Foundation Program	0		UR	
Total Credits						0

Scheme I Semester 1 Spring 2018	Course Code	Course Title	Cr.	Pre-req./Co-requisite*	Cat.	14
	HIST1010 or ISLM1010	Oman & Islamic Civilization or Islamic Culture	2		UR	
	ENGR1501	Introduction to Engineering	1	FPEL (0560 or 0600 or 0601 or 0602 or 0603 or 0604)	CR	
	ENGR1600	Workshop I	1	FPEL (0560 or 0600 or 0601 or 0602 or 0603 or 0604)	CR	
	CHEM1071	General Chemistry for Engineering	3	FPEL (0560 or 0600 or 0601 or 0602 or 0603 or 0604) and FPMT (0105 or 0109)	CR	
	LANC2160	English for Engineering I	3	FPEL (0560 or 0600 or 0601 or 0602 or 0603 or 0604)	CR	
	MATH2107	Calculus I	4	FPEL (0560 or 0600 or 0601 or 0602 or 0603 or 0604) and FPMT (0105 or 0109)	CR	
Total Credits						14

Scheme I Semester 2 Fall 2018	Course Code	Course Title	Cr.	Pre-req./Co-requisite*	Cat.	16
		University Elective	2		UE	
	ARAB1001	Arabic	3		UR	
	SOCY1001	Omani Contemporary Society	1		UR	
	LANC2161	English for Engineering II	3	LANC2160	CR	
	MATH2108	Calculus II	3	MATH2107	CR	
	PHYS2107	Physics for Engineering I	4	MATH2107*, FPEL (0560 or 0600 or 0601 or 0602 or 0603 or 0604) and FPMT (0105 or 0109)	CR	
Total Credits						16

Scheme I Semester 3 Spring 2019	Course Code	Course Title	Cr.	Pre-req./Co-requisite*	Cat.	17
		College Elective	3	FPEL (0560 or 0600 or 0601 or 0602 or 0603 or 0604) and FPCS (0101 or 0102)	CE	
	MEIE3281	Probability & Statistics for	3	MATH2107	DR	
	MEIE2181	Workshop II	1	ENGR1600	DR	
	PHYS2108	Physics for Engineering II	4	PHYS2107	CR	
	MEIE3107	Engineering Drawing and Graphics	3	FPEL (0560 or 0600 or 0601 or 0602 or 0603 or 0604)	DR	
	MEIE2102	Statics	3	PHYS2107	AR	
Total Credits						17

Scheme I Semester 4 Fall 2019	Course Code	Course Title	Cr.	Pre-req./Co-requisite*	Cat.	15
	MEIE3181	Electromechanical Systems	3	MATH2107, PHYS2108	DR	
	MEIE3102	Solid Mechanics	3	MEIE2102	DR	
	MEIE3109	Product Design	3	MEIE3107	AR	
	MEIE3121	Dynamics	3	MEIE2102	AR	
	MEIE3141	Thermodynamics I	3	PHYS2108*	AR	
Total Credits						15

January	Course Code	Course Title	Cr.	Pre-req./Co-requisite*	Cat.
	ENGR3006	Industrial Training I	0	ENGR1600, MEIE3107	CR
	Total Credits				0

Scheme I Semester 5 Spring 2020	Course Code	Course Title	Cr.	Pre-req./Co-requisite*	Cat.
	MATH3171	Linear Algebra & Multivariate Calculus for Engineers	3	MATH2108, LANC2161	CR
	MEIE3161	Materials Science	3	CHEM1071	DR
	MEIE3122	Machine Dynamics	3	MEIE3121	AR
	MEIE3142	Thermodynamics II	3	MEIE3141	AR
	MEIE4125	Instrumentation &	4	MEIE3181, MEIE3281	AR
	Total Credits				16

Scheme I Semester 6 Fall 2020	Course Code	Course Title	Cr.	Pre-req./Co-requisite*	Cat.
	MEIE4183	Numerical Methods for Engineers	3	(COMP2002 or ENGR2217), MATH3171	AR
	MEIE4102	Machine Design I	3	MEIE3102, MEIE3107	AR
	MEIE4141	Fluid Mechanics	3	PHY2108	AR
	MEIE4161	Engineering Materials	3	MEIE3161	AR
		University Elective	2		UE
	Total Credits				14

Scheme I Semester 7 Spring 2021	Course Code	Course Title	Cr.	Pre-req./Co-requisite*	Cat.
	MEIE4285	Engineering Economics	3	MATH2107	DR
	MATH4174	Differential Equations for Engineers	3	MATH2108, LANC2161	CR
	MEIE4144	Heat Transfer	3	MEIE4141, MEIE3141	AR
	MEIE5149	Capstone Design	3	MEIE3109, MEIE4102	AR
	MEIE4191	Seminar	1		AR
	Total Credits				13

Scheme I Summer 2021	Course Code	Course Title	Cr.	Pre-req./Co-requisite*	Cat.
	ENGR4006	Industrial Training II	0	ENGR3006	CR
	Total Credits				0

Scheme I Semester 8 Fall 2021	Course Code	Course Title	Cr.	Pre-req./Co-requisite*	Cat.
	MEIE4122	Engineering Systems & Control	3	MEIE3121, MATH4174	AR
	MEIE4262	Manufacturing Processes	3	MEIE3161	DR
	MEIE5288	Innovation and	3	MEIE4285	DR
	MEIE5193	Project I	2	MEIE4102, MEIE4144	AR
	MEIE5xxx	Major Elective 1	3		AE
	MEIE5xxx	Major Elective 2	3		AE
	Total Credits				17

Scheme I Semester 9 Spring 2022	Course Code	Course Title	Cr.	Pre-req./Co-requisite*	Cat.
		University Elective	2		UE
	MEIE5145	Design of Thermal Systems	3	MEIE3142, MEIE4144, MEIE4183	AR
	MEIE5194	Project II	3	MEIE5193	AR
	MEIE5xxx	Major Elective 3	3		AE
	MEIE5xxx	Major Elective 4	3		AE
	Total Credits				14

Department of Mechanical and Industrial Engineering

Mechanical Engineering Study Plan: **2017 Cohort (Scheme II)**

Scheme II FP1 Fall 2017	Course Code	Course Title	Cr.	Pre-req./Co-requisite*	Cat.
		General Foundation Program	0		UR
	Total Credits				0

Scheme II FP2 Spring 2018	Course Code	Course Title	Cr.	Pre-req./Co-requisite*	Cat.
		General Foundation Program	0		UR
	Total Credits				0

Scheme II Semester 1 Fall 2018	Course Code	Course Title	Cr.	Pre-req./Co-requisite*	Cat.
	HIST1010 or ISLM1010	Oman & Islamic Civilization or Islamic Culture	2		UR
	ENGR1501	Introduction to Engineering	1	FPEL (0560 or 0600 or 0601 or 0602 or 0603 or 0604)	CR
	ENGR1600	Workshop I	1	FPEL (0560 or 0600 or 0601 or 0602 or 0603 or 0604)	CR
	CHEM1071	General Chemistry for Engineering	3	FPEL (0560 or 0600 or 0601 or 0602 or 0603 or 0604) and FPMT (0105 or 0109)	CR
	LANC2160	English for Engineering I	3	FPEL (0560 or 0600 or 0601 or 0602 or 0603 or 0604)	CR
	MATH2107	Calculus I	4	FPEL (0560 or 0600 or 0601 or 0602 or 0603 or 0604) and FPMT (0105 or 0109)	CR
	Total Credits				14

Scheme II Semester 2 Spring 2019	Course Code	Course Title	Cr.	Pre-req./Co-requisite*	Cat.
		University Elective	2		UE
	ARAB1001	Arabic	3		UR
	SOCY1001	Omani Contemporary Society	1		UR
	LANC2161	English for Engineering II	3	LANC2160	CR
	MATH2108	Calculus II	3	MATH2107	CR
	PHYS2107	Physics for Engineering I	4	MATH2107*, FPEL (0560 or 0600 or 0601 or 0602 or 0603 or 0604) and FPMT (0105 or 0109)	CR
	Total Credits				16

Scheme II Summer 2019	Course Code	Course Title	Cr.	Pre-req./Co-requisite*	Cat.
		University Elective	2		UE
		College Elective	3		CE
	Total Credits				5

Scheme II Semester 3 Fall 2019	Course Code	Course Title	Cr.	Pre-req./Co-requisite*	Cat.
	PHYS2108	Physics for Engineering II	4	PHYS2107	CR
	MEIE3281	Probability & Statistics for Engineers	3	MATH2107	DR
	MEIE3107	Engineering Drawing and Graphics	3	FPEL (0560 or 0600 or 0601 or 0602 or 0603 or 0604)	DR
	MEIE2181	Workshop II	1	ENGR1600	DR
	MEIE2102	Statics	3	PHYS2107	AR
	MEIE3141	Thermodynamics I	3	PHYS2108*	AR
	Total Credits				17

January	Course Code	Course Title	Cr.	Pre-req./Co-requisite*	Cat.	0
	ENGR3006	Industrial Training I	0	ENGR1600, MEIE3107	CR	
	Total Credits					
Scheme II Semester 4 Spring 2020	Course Code	Course Title	Cr.	Pre-req./Co-requisite*	Cat.	18
	MATH3171	Linear Algebra & Multivariate Calculus for Engineers	3	MATH2108, LANC2161	CR	
	MEIE3102	Solid Mechanics	3	MEIE2102	DR	
	MEIE3109	Product Design	3	MEIE3107	AR	
	MEIE3161	Materials Science	3	CHEM1071	DR	
	MEIE3121	Dynamics	3	MEIE2102	AR	
	MEIE3142	Thermodynamics II	3	MEIE3141	AR	
	Total Credits					
Scheme II Semester 5 Fall 2020	Course Code	Course Title	Cr.	Pre-req./Co-requisite*	Cat.	18
	MEIE3122	Machine Dynamics	3	MEIE3121	AR	
	MEIE3181	Electromechanical Systems	3	MATH2107, PHYS2108	DR	
	MEIE4183	Numerical Methods for Engineers	3	(COMP2002 or ENGR2217), MATH3171	AR	
	MEIE4141	Fluid Mechanics	3	PHYS2108	AR	
	MEIE4161	Engineering Materials	3	MEIE3161	AR	
	MEIE4102	Machine Design I	3	MEIE3102, MEIE3107	AR	
	Total Credits					
Scheme II Semester 6 Spring 2021	Course Code	Course Title	Cr.	Pre-req./Co-requisite*	Cat.	17
	MATH4174	Differential Equations for	3	MATH2108, LANC2161	CR	
	MEIE4144	Heat Transfer	3	MEIE4141, MEIE3141	AR	
	MEIE4285	Engineering Economics	3	MATH2107	DR	
	MEIE4125	Instrumentation & Measurement	4	MEIE3181, MEIE3281	AR	
	MEIE4191	Seminar	1		AR	
	MEIE5149	Capstone Design	3	MEIE3109, MEIE4102	AR	
	Total Credits					
Scheme II Summer 2021	Course Code	Course Title	Cr.	Pre-req./Co-requisite*	Cat.	0
	ENGR4006	Industrial Training II	0	ENGR3006	CR	
	Total Credits					
Scheme II Semester 7 Fall 2021	Course Code	Course Title	Cr.	Pre-req./Co-requisite*	Cat.	17
	MEIE4262	Manufacturing Processes	3	MEIE3161	DR	
	MEIE4122	Engineering Systems & Control	3	MEIE3121, MATH4174	AR	
	MEIE5288	Innovation and	3	MEIE4285	DR	
	MEIE5193	Project I	2	MEIE4102, MEIE4144	AR	
	MEIE5xxx	Major Elective 1	3		AE	
	MEIE5xxx	Major Elective 2	3		AE	
	Total Credits					
Scheme II Semester 8 Spring 2022	Course Code	Course Title	Cr.	Pre-req./Co-requisite*	Cat.	14
		University Elective	2		UE	
	MEIE5145	Design of Thermal Systems	3	MEIE3142, MEIE4144, MEIE4183	AR	
	MEIE5194	Project II	3	MEIE5193	AR	
	MEIE5xxx	Major Elective 3	3		AE	
	MEIE5xxx	Major Elective 4	3		AE	
	Total Credits					

Department of Mechanical and Industrial Engineering

Mechanical Engineering Study Plan: **2017 Cohort (COOP Scheme)**

- The cooperative Training (COOP) Scheme is **optional**.
- **Scheme I** Students can enroll in this scheme starting from Semester **8** (Fall 2021) after the foundation program.
- **Scheme II** students can enroll in this scheme starting from Semester **7** (Fall 2021) after the foundation program.
- For enrollment terms, conditions, and registration procedure, please consult the Head of Department and the Assistant Dean for Training and Community Services Offices.

COOP Scheme COOP Semester 1	Course Code	Course Title	Cr.	Pre-req./Co-requisite*	Cat.
	ENGR4006	Industrial Training II	0	ENGR3006	CR
	MEIE5001	Mechanical Program Cooperative Training I	0	ENGR4006*	AE
	Total Credits				0

COOP Scheme COOP Semester 2	Course Code	Course Title	Cr.	Pre-req./Co-requisite*	Cat.
	MEIE5002	Mechanical Program Cooperative Training II	6	MEIE5001	AE
	Total Credits				6

COOP Scheme COOP Semester 3	Course Code	Course Title	Cr.	Pre-req./Co-requisite*	Cat.
	MEIE4262	Manufacturing Processes	3	MEIE3161	DR
	MEIE4122	Engineering Systems & Control	3	MEIE3121, MATH4174	AR
	MEIE5288	Innovation and Entrepreneurship	3	MEIE4285	DR
	MEIE5193	Project I	2	MEIE4102, MEIE4144	AR
	MEIE5xxx	Major Elective 1	3		AE
	Total Credits				14

COOP Scheme COOP Semester 4	Course Code	Course Title	Cr.	Pre-req./Co-requisite*	Cat.
		University Elective	2		UE
	MEIE5145	Design of Thermal Systems	3	MEIE3142, MEIE4144, MEIE4183	AR
	MEIE5194	Project II	3	MEIE5193	AR
	MEIE5xxx	Major Elective 2	3		AE
	Total Credits				11

Department of Mechanical and Industrial Engineering
Degree Plan: Cohort 2017
LIST A: UNIVERSITY ELECTIVES (UE)

Engineering students must register a humanity or social course (non-scientific & non-linguistic course) from any college as a University Elective. However, students are **NOT** allowed to register the following University Electives listed below:

No.	Course Code	Course Title	College
1	ENGGL1523	English Writing Skills	College of Arts
2	ENGR1524	English Reading Skills	College of Arts
3	ENGL1525	English Speaking and Listing Skills	College of Arts
4	CHEM1100	Everyday Chemistry	College of Science
5	COMP1210	Web Site Development	College of Science
6	CROP2020	Lab and Safety	College of Agriculture and Marine Science
7	MNGT2500	Entrepreneurship Creat. and Invo.	College of Economics and Political Sciences
8	MNGT2501	Entrepreneurship	College of Economics and Political Sciences
9	ECON1050	Introduction to Economics	College of Economics and Political Sciences
10	CHPE1000	Renewable Energy	College of Engineering
11	ECCE1000	Electricity Generation from Solar PV	College of Engineering
12	MEIE1000	Solar Calculations and Energy	College of Engineering
13	MCTE1000	Edutainment Robotic	College of Engineering
14	ECCE2000	Introduction to Artificial Intelligence	College of Engineering

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Degree Plan: Cohort 2017
LIST B: COLLEGE REQUIREMENTS (CR)

Code	Title	Credits	Pre-requisite / Co-requisite *
LANC2160	English for Engineering I	3	FPEL (0560 or 0600 or 0601 or 0602 or 0603 or 0604)
LANC2161	English for Engineering II	3	LANC2160
ENGR1501	Introduction to Engineering	1	FPEL (0560 or 0600 or 0601 or 0602 or 0603 or 0604)
ENGR1600	Workshop I	1	FPEL (0560 or 0600 or 0601 or 0602 or 0603 or 0604)
MATH2107	Calculus I	4	FPEL (0560 or 0600 or 0601 or 0602 or 0603 or 0604) and FPMT (0105 or 0109)
MATH2108	Calculus II	3	MATH 2107
MATH3171	Linear Algebra & Multivariate Calculus	3	MATH2108, LANC2161
MATH4174	Differential Equations for Engineers	3	MATH2108, LANC2161
PHYS2107	Physics for Engineering I	4	MATH2107*, FPEL (0560 or 0600 or 0601 or 0602 or 0603 or 0604) and FPMT (0105 or 0109)
PHYS2108	Physics of Engineering II	4	PHYS 2107
CHEM1071	General Chemistry for Engineering	3	FPEL (0560 or 0600 or 0601 or 0602 or 0603 or 0604) and FPMT (0105 or 0109)
ENGR3006	Industrial Training I	0	ENGR1600, MEIE3107
ENGR4006	Industrial Training II	0	ENGR3006
Total		32	

Department of Mechanical and Industrial Engineering
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LIST C: COLLEGE ELECTIVES (CE)

One course - 3 credit hours:

The elective course will be offered from the following courses subject to availability.

Code	Title	Credits	Pre-requisite / Co-requisite*
COMP2002	Introduction to Computer Programming for Engineers	3	FPEL (0560 or 0600 or 0601 or 0602 or 0603 or 0604) and FPCS (0101 or 0102)
ENGR2217	Programming for Engineers	3	FPEL (0560 or 0600 or 0601 or 0602 or 0603 or 0604) and FPCS (0101 or 0102)

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LIST D: DEPARTMENT REQUIREMENTS (DR)

Code	Title	Credits	Pre-requisite / Co-requisite*
MEIE2181	Workshop II	1	ENGR1600
MEIE3107	Engineering Drawings and Graphics	3	FPEL (0560 or 0600 or 0601 or 0602 or 0603 or 0604)
MEIE3161	Materials Science	3	CHEM1071
MEIE3102	Solid Mechanics	3	MEIE2102
MEIE4262	Manufacturing Processes	3	MEIE3161
MEIE3281	Probability & Statistics for Engineers	3	MATH2107
MEIE4285	Engineering Economics	3	MATH2107
MEIE5288	Innovation and Entrepreneurship	3	MEIE4285
MEIE3181	Electromechanical Systems	3	MATH2107, PHYS2108
Total		25	

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LIST E: MAJOR REQUIREMENTS (AR)

Code	Title	Credits	Pre-requisite / Co-requisite*
MEIE2102	Statics	3	PHYS2107
MEIE3121	Dynamics	3	MEIE2102
MEIE3141	Thermodynamics I	3	PHYS2108*
MEIE3109	Product Design	3	MEIE3107
MEIE3122	Machine Dynamics	3	MEIE3121
MEIE3142	Thermodynamics II	3	MEIE3141
MEIE4102	Machine Design I	3	MEIE3102, MEIE3107
MEIE4191	Seminar	1	
MEIE4141	Fluid Mechanics	3	PHYS2108
MEIE4125	Instrumentation & Measurements	4	MEIE3181, MEIE3281
MEIE4183	Numerical Methods for Engineers	3	(COMP2002 or ENGR2217), MATH3171
MEIE4122	Engineering Systems & Control	3	MEIE3121, MATH4174
MEIE4144	Heat Transfer	3	MEIE4141, MEIE3141
MEIE5149	Capstone Design	3	MEIE3109, MEIE4102
MEIE4161	Engineering Materials	3	MEIE4161
MEIE5145	Design of Thermal Systems	3	MEIE4144, MEIE3142, MEIE4183
MEIE5193	Project I	2	MEIE4102, MEIE4144
MEIE5194	Project II	3	MEIE5193
Total		52	

Department of Mechanical and Industrial Engineering
Degree Plan: Cohort 2017
LIST F: MAJOR ELECTIVES (AE)

12 credit hours§:

- **Scheme I or II: Four courses**
- **COOP Scheme: Cooperative Training courses (MEIE5001 and MEIE5002) and two elective courses**

The elective courses will be offered from the following and additional courses might be offered subject to Availability.

Code	Title	Credits	Pre-requisite / Co-requisite *
MEIE5001	Mechanical Program Cooperative Training I	0	ENGR4006*
MEIE5002	Mechanical Program Cooperative Training II	6	MEIE5001
MEIE5013	Refrigeration & Air Conditioning	3	MEIE4144, MEIE3142
MEIE5128	Theory & Practice of Rotor Dynamics	3	MEIE3122
MEIE5019	Internal Combustion Engines & Control of Exhaust Emissions	3	MEIE3142
MEIE5101	Engineering Vibration	3	MEIE3121
MEIE5106	Pressure Vessel & Piping System Design	3	MEIE4101 or MEIE4102
MEIE5110	Applied Finite Element Methods	3	MEIE3102
MEIE5121	Modeling & Simulation of Engineering Systems	3	MATH4174
MEIE5122	Applied Multibody Dynamics	3	MEIE3122
MEIE5124	Condition Monitoring and Diagnosis	3	MEIE3122
MEIE5127	Analysis and Design of Control Systems	3	MEIE4122 or MCTE4450
MEIE5130	Mechatronics Systems and Applications	3	MEIE4125, (MEIE4101 or MEIE4102)
MEIE5131	Legged Locomotion of Robots and Animals	3	MEIE3122
MEIE5132	Smart Materials and Structures	3	MEIE4125 or MCTE4145
MEIE5141	Solar Energy Systems	3	MEIE4144
MEIE5142	Solar Thermal Processes	3	MEIE4144
MEIE5146	Renewable Energy	3	MEIE3142 or MEIE3159 or MCTE4230
MEIE5147	Energy Conservation and Management	3	MEIE3141 or MEIE3159
MEIE5148	Desalination	3	MEIE4144
MEIE5151	Fundamentals of Turbomachinery	3	MEIE3142, MEIE4141
MEIE5152	Fundamental of Thermal Energy Storage Systems	3	MEIE3142
MEIE5162	Corrosion Engineering	3	MEIE4161
MEIE5165	Introduction to Fracture Mechanics	3	MEIE3161, (MEIE3102 or MCTE3230)
MEIE5166	Introduction to Nanotechnology Engineering	3	MEIE4161
MEIE5167	Mechanics of Composite Materials	3	MEIE3161, (MEIE3102 or MCTE3230)
MEIE5182	Fundamentals of Biomechanics	3	MEIE3102, MEIE3121
MEIE5190	Special Topics	3	
MEIE5264	CAD/CAM	3	MEIE3102, MEIE3107

§ - One 4000 or 5000 level course can be taken from another engineering program with the approval of the academic advisor and the HoD.

- Students can register for elective courses starting from semester eight (8).

Note:

- Students are advised to regularly check the most updated degree plan on the department webpage. This degree plan is last updated on July 20th, 2020.

- Course description and exact prerequisite(s) can be checked on:

<http://sisinfo.squ.edu.om/cgi-bin/crs-en/allsub.cgi>