Degree and Study Plan

College: Engineering
Program: Mechatronics Engineering
Cohort: **2024**
Degree: Bachelor of Engineering
Major: Mechatronics Engineering

Summary of Credits		
1	University Requirements (UR)	**6**
	General Foundation Program	*(0)*
	Arabic language	*(2)*
	Contemporary Omani State and People	*(2)*
	Oman & Islamic Civilization or Islamic Culture	*(2)*
2	University Elective (UE)	**6**
3	College Requirements (CR) (see List B)	**32**
4	College Elective (CE) (see List C)	**3**
7	Major Requirements (AR) (see List F)	**77**
8	Major Elective (AE) (see List G)	**12**
Total credits		**136**

For reference contact: Dr. Nasr Al-Hinai Ext. 1316 Date: 9-1-2025

Dean's Office Date: 15/Jan/2025

Admission and Registration Date:

Important Information

- Students MUST 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 semesters (Fall & 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.
- Students are advised to regularly check the most updated degree plan on the College's website: https://www.squ.edu.om/engineering/Academic/Undergraduate-Programs/Mechatronics-Engineering
- Course description and exact prerequisite(s) can be found on SQU's Portal: https://portal.squ.edu.om/course-description

Mechatronics Engineering Program

Study Plan for 2024 Cohort (SCHEME I – With One Semester General Foundation Program)

	Course Code	Course Title	Cr.	Pre-req.	Cat.
Fall-24	-	General Foundation Program	-	-	UR
Semester 2 Spring-25	HIST1010 or ISLM1010	Oman & Islamic Civilization or Islamic Culture	2		UR
	CHEM1071	General Chemistry for Engineering	3		CR
	ENGR1501	Introduction to Engineering	1		CR
	ENGR1600	Workshop I	1		CR
	LANC2160	English for Engineering I	3		CR
	MATH2107	Calculus I	4		CR
	Total		14		
Semester 3 Fall -25	ARAB1060	Arabic	2		UR
		University Elective	2		UE
	SOCY1005	Oman: State and People	2		UR
	LANC2161	English for Engineering II	3	LANC2160	CR
	MATH2109	Calculus II for Science and Engineering	3	MATH2107	CR
	PHYS2107	Physics for Engineering I	4	MATH2107*	CR
	Total		16		
Semester 4 Spring-26	MATH4174	Differential Equations for Engr.	3	(MATH2108 or MATH2109) and LANC2161	CR
	PHYS2108	Physics for Eng. II	4	PHYS2107	CR
	COMP2002 or ENGR2217	Intr. to Comp. Program. for Eng. or Programming for Engineers	3		CE
	ECCE2017	Electric Circuit Analysis	4	MATH2107	AR
	MEIE3103	Engineering Tools and Graphics	2		AR
	Total		16		
Semester 5 Fall -26	MATH3171	Lin. Alg. & Mult. Calc. for Eng.	3	MATH2108 or (MATH2109	CR
	MCTE2129	Engineering Mechanics	3	PHYS 2107 and MATH2107	AR
	MEIE3281	Probability & Statistics for Engineers	3	MATH2107	AR
	ECCE3206	Digital Logic Design	3		AR
	MCTE3250	Engineering System Design	3	MEIE3103	AR
	Total		15		
Semester 6 Spring-27	MCTE3230	Properties and Strength of Materials	3	MCTE2129 or MEIE2129	AR
	MCTE4185	Signals & Systems for Mechatronics	3	ECCE2017 or ECCE3016	AR
	MCTE3310	Electronics for Mechatronics	3	ECCE2017 or ECCE2016	AR
		University Elective	2		UE
	MEIE3122	Machine Dynamics	3	MCTE2129 or MEIE2129	AR
	Total		14		

& OR ENGR 2217-Programming for Engineers

Mechatronics Engineering Program

Study Plan for 2024 Cohort (SCHEME I – With One Semester General Foundation Program)

	Course Code	Course Title	Cr.	Pre-req.	Cat.
Semester 7 Fall-27	MCTE4102	Machine Design for Mechatronics	3	MCTE3230	AR
	MCTE4145	Instrumentation & Measurement	3	MCTE3110 or MCTE3310	AR
	MCTE3210	Electromechanical Sys. & Actuators	3	ECCE2017 or ECCE3016	AR
	ECCE4227	Embedded Systems	3	(COMP2002 or ENGR2217) and ECCE3206	AR
	MCTE4150	Modeling and Simulation	3	MATH4174	AR
	Total		**15**		
Semester 8 Spring-28	MCTE4210	Power Electronics & Drives	3	(MCTE3110 or MCTE3310) and MCTE3210	AR
		University Elective	2		UE
	MCTE4241	Thermofluids	3	PHYS2108 and MATH2109	AR
	MCTE4450	Control Systems Engineering	3	MCTE4150	AR
	ECCE5004	Engineering Managements & Economics I	3	STAT2103 or MEIE3281	AR
	MEIE4183	Numerical Methods for Engineers	3	(COMP2002 or ENGR2217) and MATH3171	AR
	Total		**17**		
Summer-28	ENGR4007	Industrial Training	**0**		CR
	Total		**0**		
Semester 9 Fall-28	MCTE5191	Project I	2	MCTE3250 OR MCTE3240 and PR[1]	AR
	MCTE5210	Real-time control and interfacing	3	MCTE4450	AR
	MCTE4255	Mechatronics System Design	3	ECCE4227 and MCTE4145 and (MCTE3250 or MCTE3240)	AR
	MCTE5xxx	Program Elective 1	3		AE
	MCTE5xxx	Program Elective 2	3		AE
	Total		**14**		
Semester 10 Spring- 29	MCTE5291	Project II	3	MCTE5191	AR
	MCTE5xxx	Program Elective 3	3		AE
	MCTE5xxx	Program Elective 4	3		AE
	MCTE5142	Robotics	3	MEIE3122	AR
	MCTE5420	Pneumatic and Hydraulic Systems	3	MCTE3210	AR
	Total		**15**		

PR[1]: Internal regulation [enforced by the MCE Program] **Note: Completed 90 Cr.**
MCTE5191 is offered in Fall semesters ONLY.

Mechatronics Engineering Program

Study Plan for 2024 Cohort (SCHEME I – With One Semester General Foundation Program)
Co-Operative Scheme

	Course Code	Course Title	Cr.	Pre-req.	Cat.
Semester 7 Fall-27	MCTE4102	Machine Design for Mechatronics	3	MCTE3230	AR
	MCTE4145	Instrumentation & Measurement	3	MCTE3110 or MCTE3310	AR
	MCTE3210	Electromechanical Sys. & Actuators	3	ECCE2017 or ECCE3016	AR
	ECCE4227	Embedded Systems	3	(COMP2002 or ENGR2217) and ECCE3206	AR
	MCTE4150	Modeling and Simulation	3	MATH4174	AR
	Total		**15**		
Semester 8 Spring-28	MCTE4210	Power Electronics & Drives	3	(MCTE3110 or MCTE3310) and MCTE3210	AR
	MCTE4241	Thermofluids	3	PHYS2108 and MATH2109	AR
	MCTE4450	Control Systems Engineering	3	MCTE4150	AR
	MEIE4183	Numerical Methods for Engineers	3	(COMP2002 or ENGR2217) and MATH3171	AR
		University Elective	2		UE
	Total		**14**		
Fall 28 Coop-Sem.1	ENGR4007	Industrial Training	0		CR
	MCTE5001	Co-op Training I	0	ENGR4007	AE
Spring 28 Coop-Sem.2	MCTE5002	Co-op Training II	6	MCTE5001	AE
	Total		**6**		
Semester 9 Fall-29	MCTE5191	Project I	2	MCTE3240 or MCTE3250 and PR 1	AR
	MCTE5210	Real-time control and interfacing	3	MCTE4450	AR
	MCTE4255	Mechatronics System Design	3	ECCE4227 and MCTE4145 and (MCTE3250 or MCTE3240)	AR
	MCTE5xxx	Program Elective 1	3		AE
	MCTE5xxx	Program Elective 2	3		AE
	Total		**14**		
Semester 10 Spring- 29	MCTE5291	Project II	3	MCTE5191	AR
	MCTE5142	Robotics	3	MEIE3122	AR
	MCTE5420	Pneumatic and Hydraulic Systems	3	MCTE3210	AR
	ECCE5004	Engineering Managements & Economics	3	STAT2103 or MEIE3281	AR
	Total		**12**		

PR[1]: Internal regulation [enforced by the MCE Program Note: **Note: Completed 90 Cr.**
MCTE5191 will be available only in each fall semester.

Mechatronics Engineering Program

Study Plan for 2024 Cohort (SCHEME II – With Two Semester General Foundation Program)

	Course Code	Course Title	Cr	Pre-req.	Cat.
Fall-25	-	General Foundation Program	-	-	UR
Spring-26	-	General Foundation Program	-	-	UR
Semester 3 Fall-26	HIST1010 or ISLM1010	Oman& Islamic Civilization or Islamic Culture	2		UR
	CHEM1071	General Chemistry for Engineering	3		CR
	ENGR1501	Introduction to Engineering	1		CR
	LANC2160	English for Engineering I	3		CR
	ENGR1600	Workshop I	1		CR
	MATH2107	Calculus I	4		CR
	Total		**14**		
Semester 4 Spring-27	ARAB1060	Arabic	2		UR
	SOCY1005	Oman: State and People	2		UR
	LANC2161	English for Engineering II	3	LANC2160	CR
	MATH2109	Calculus II for Science and Engineering	3	MATH2107	CR
	PHYS2107	Physics for Engineering I	4	MATH2107	CR
		University Elective	2		UE
	Total		**16**		
Semester 5 Fall-27	ECCE2017	Electric Circuit Analysis	4	MATH2107	AR
	MATH4174	Differential Equations for Eng.	3	(MATH2108 or MATH2109) and LANC2161	CR
	PHYS2108	Physics for Eng. II	4	PHYS2107	CR
	MCTE2129	Engineering Mechanics	3	PHYS2107 and MATH2107	AR
	MEIE3103	Engineering Tools and Graphics	2		AR
	Total		**16**		
Semester 6 Spring-28	MCTE3310	Electronics for Mechatronics	3	ECCE2017 or ECCE2016	AR
	MCTE4185	Signals & Systems for Mechatronics	3	ECCE2017 or ECCE3016	AR
	COMP2002 or ENGR2217	Intr. to Comp. Program. for Eng. or Programming for Engineers	3		CE
		University Elective	2		UE
	ECCE3206	Digital Logic Design	3		AR
	MCTE3230	Properties and Strength of Materials	3	MCTE2129 or MEIE2129	AR
	Total		**17**		

Mechatronics Engineering Program

Study Plan for 2024 Cohort (SCHEME II – With Two Semester General Foundation Program)

	Course Code	Course Title	Cr.	Pre-req.	Cat.
Semester 7 Fall-27	MCTE4145	Instrumentation & Measurement	3	MCTE3110 or MCTE3310	AR
	MCTE4102	Machine Design for Mechatronics	3	MCTE3230	AR
	MCTE3210	Electromechanical Sys. & Actuators	3	ECCE2017 or ECCE3016	AR
	MCTE4150	Modeling and Simulation	3	MATH4174	AR
	ECCE4227	Embedded Systems	3	(COMP2002 or ENGR2217) and ECCE3206	AR
	MCTE3250	Engineering System Design	3	MEIE3103	AR
	Total		**18**		
Semester 8 Spring-28	MCTE4210	Power Electronics & Drives	3	MCTE3110 or MCTE3310 and MCTE3210	AR
	MATH3171	Lin. Alg. & Mult. Calc. for Eng.	3	(MATH2108) OR (MATH2109)	CR
	MEIE3122	Machine Dynamics	3	MCTE2129 or MEIE2129	AR
	MCTE4450	Control Systems Engineering	3	MCTE4150	AR
	MCTE4241	Thermofluids	3	PHYS2108 and MATH2109	AR
		University Elective	2		UE
	Total		**17**		
Summer-28	ENGR4007	Industrial Training	**0**		CR
	Total		**0**		
Semester 9 Fall-28	MCTE5191	Project I	2	MCTE3250 OR MCTE3240 and PR[1]	AR
	MEIE4183	Numerical Methods for Engineers	3	(COMP2002 or ENGR2217) and MATH3171	AR
	MEIE3281	Probability & Statistics for Engineers	3	MATH2107	AR
	MCTE4255	Mechatronics System Design	3	ECCE4227 and MCTE4145 and (MCTE3250 or MCTE3240)	AR
	MCTE51xx	Program Elective 1	3		AE
	MCTE5210	Real-time control and interfacing	3	MCTE4450	AR
	Total		**17**		
Semester 10 Spring - 29	MCTE5291	Project II	3	MCTE5191	AR
	ECCE5004	Engineering Managements & Economics	3	STAT2103 or MEIE3281	AR
	MCTE5420	Pneumatic and Hydraulic Systems	3	MCTE3210	AR
	MCTE5142	Robotics	3	MEIE3122	AR
	MCTE51xx	Program Elective 2	3		AE
	Total		**15**		
Summer -29	MCTE51xx	Program Elective 3	3		AE
	MCTE51xx	Program Elective 4	3		AE
	Total		**6**		

PR[1]: Internal regulation [enforced by the MCE program]
Note: MCTE5191 will be available only in each fall semester.

Mechatronics Engineering Program

Study Plan for 2024 Cohort (SCHEME II – With Two Semester General Foundation Program)
Co-Operative Scheme

	Course Code	Course Title	Cr.	Pre-req	Cat.
Semester 7 Fall-27	MCTE4145	Instrumentation & Measurement	3	MCTE3110 or MCTE3310	AR
	MCTE4102	Machine Design for Mechatronics	3	MCTE3230	AR
	MCTE3210	Electromechanical Sys. & Actuators	3	ECCE2017 or ECCE3016	AR
	MCTE4150	Modeling and Simulation	3	MATH4174	AR
	ECCE4227	Embedded Systems	3	(COMP2002 or ENGR2217) and ECCE3206	AR
	MCTE3250	Engineering System Design	3	MEIE3103	AR
	Total		**18**		
Semester 8 Spring-28	MCTE4210	Power Electronics & Drives	3	(MCTE3110 or MCTE3310) and MCTE3210	AR
	MATH3171	Lin. Alg. & Mult. Calc. for Eng.	3	MATH2108 or MATH2109	CR
	MEIE3122	Machine Dynamics	3	MCTE2129 or MEIE2129	AR
	MCTE4450	Control Systems Engineering	3	MCTE4150	AR
	MCTE4241	Thermofluids	3	PHYS2108 and MATH2109	AR
	Total		**15**		
Fall 28 Coop-Sem.1	ENGR4007	Industrial Training	0		CR
	MCTE5001	Co-op Training I	0	ENGR4007	AE
Spring 29 Coop-Sem.2	MCTE5002	Co-op Training II	6	MCTE5001	AE
	Total		**6**		
Semester 9 Fall-29	MCTE5191	Project I	2	MCTE3250 or MCTE3240 and PR[1]	AR
	MCTE4255	Mechatronics System Design	3	ECCE4227 and (MCTE3250 or MCTE3240) and MCTE4145	AR
	MEIE4183	Numerical Methods for Engineers	3	(COMP2002 or ENGR2217) and MATH3171	
		University Elective	2		UE
	MCTE5210	Real-time control and interfacing	3	MCTE4450	AR
	Total		**13**		
Semester 10 Spring 30	MCTE5291	Project II	3	MCTE5191	AR
	ECCE5004	Engineering Managements & Economics	3	STAT2103 or MEIE3281	AR
	MCTE5142	Robotics	3	MEIE3122	AR
	MCTE5420	Pneumatic and Hydraulic Systems	3	MCTE3210	AR
	MEIE3281	Probability & Statistics for Engineers	3	MATH2107	AR
	Total		**15**		
Summer 30	MCTE51xx	Program Elective 1	3		AE
	MCTE51xx	Program Elective 2	3		AE
	Total		**6**		

PR[1]: Internal regulation [enforced by the MCE program]
Note: MCTE5191 will be available only in each fall semester.

Mechatronics Engineering - Study Plan for Cohort 2024
LIST AT - UNIVERSITY ELECTIVES (6 Credits)

List of University Elective Courses Allowed for ENG students can be accessed by scanning the QR code shown below.

Mechatronics Engineering - Study Plan for Cohort 2024

LIST B: COLLEGE REQUIREMENTS (32 Credits)

Course Code	Course Title	Credit	Pre-Requisite
CHEM1071	General Chemistry for Engineering	3	
ENGR1501	Introduction to Engineering	1	
ENGR1600	Workshop I	1	
ENGR4007	Industrial Training	0	
LANC2160	English for Engineering I	3	
LANC2161	English for Engineering II	3	LANC2160
MATH2107	Calculus I	4	
MATH2109	Calculus II for Science and Engineering	3	MATH2107
MATH3171	Linear Algebra & Multivariate Calculus for Engineers	3	MATH2109 or MATH2108
MATH4174	Differential Equations for Engineers	3	(MATH2108 or MATH2109) and LANC2161
PHYS2107	Physics for Engineering I	4	
PHYS2108	Physics for Engineering II	4	PHYS2107 or PHYS2101
Total		**32**	

Mechatronics Engineering - Study Plan for Cohort 2024

LIST C: COLLEGE ELECTIVE (3 Credits)

Course Code	Course Title	Credit	Pre-Requisite
COMP2002 Or ENGR2217	Introduction to Computer Programming for Engineers Or Programming for Engineers	3	
Total		**3**	

@ For the MCE program the course is, COMP2002 OR ENGR 2217.

Mechatronics Engineering Program

Mechatronics Engineering - Study Plan for Cohort 2024
LIST F: Major Requirements (77 Credits)

Course Code	Course Title	Credit	Pre-Requisite / Co-req. *
ECCE2017	Electric Circuit Analysis	4	MATH2107
MCTE3310	Electronics for Mechatronics	3	ECCE2017 or ECCE2016
MCTE2129	Engineering Mechanics	3	PHYS 2107 and MATH2107
MCTE4145	Instrumentation & Measurement	3	MCTE3110 or MCTE3310
MCTE3230	Properties and Strength of Materials	3	MCTE2129 or MEIE2129
MEIE3281	Probability & Statistics for Engineers	3	MATH2107
MEIE3103	Engineering Tools and Graphics	2	
MCTE4102	Machine Design for Mechatronics	3	MCTE3230
MCTE4185	Signals & Systems for Mechatronics	3	ECCE2017 or ECCE3016
MCTE3210	Electromechanical Systems & Actuators	3	ECCE2017 or ECCE3016
ECCE3206	Digital Logic Design	3	
MCTE4210	Power Electronics & Drives	3	MCTE3110 or MCTE3310 and MCTE3210
MCTE4241	Thermofluids	3	PHYS2108 and MATH2109
ECCE4227	Embedded Systems	3	(COMP2002 or ENGR2217) and ECCE3206
ECCE5004	Engineering Managements & Economics I	3	STAT2103 or MEIE3281
MCTE4150	Modeling & Simulation	3	MATH4174
MEIE4183	Numerical Methods for Engineers	3	(COMP2002 or ENG2217) and MATH3171
MEIE3122	Machine Dynamics	3	MCTE2129 or MEIE2129
MCTE5191	Project I	2	MCTE3250 or MCTE3240, PR[1]
MCTE3250	Engineering System Design	3	MEIE3103
MCTE5210	Real-time control and interfacing	3	MCTE4450
MCTE4450	Control Systems Engineering	3	MCTE4150
MCTE4255	Mechatronics System Design	3	ECCE4227 and (MCTE3250 or MCTE3240) and MCTE4145
MCTE5420	Pneumatic and Hydraulic Systems	3	MCTE3210
MCTE5291	Project II	3	MCTE5191
MCTE5142	Robotics	3	MEIE3122
Total		**77**	

PR[1]: Internal regulation [enforced by the MCE program]
Note: MCTE5290 will be available only in each fall semester.

Mechatronics Engineering – Study Plan for Cohort 2024
List G: MAJOR ELECTIVES (12 CREDITS)

Course Code	Course Title	Credit	Pre-requisite
MCTE5001	Coop-Training I	0	ENGR4007
MCTE5002	Coop-Training II	6	MCTE5001
ECCE5433	Modern Control Systems	3	MCTE4450 or MCTE4250
ECCE5453	Mobile Robot Control	3	MCTE4450
ECCE4436	Industrial Control Systems	3	MCTE4450 or MCTE4250
ECCE5008	Project Management	3	ECCE5004
ECCE5223	Advanced Embedded Systems	3	ECCE4227
ECCE5445	Control System Design	3	MCTE4450 or MCTE4250
ECCE5432	Programmable Logic Controllers	3	ECCE4416 or MCTE4250 or MCTE4450
ECCE4253	Object Oriented Programming	3	COMP2002
ECCE4255	Applied Programming & Algorithms for Eng.	3	COMP2002
ECCE5443	Optimization Techniques in Eng.	3	MATH3171
MEIE5101	Engineering Vibration	3	MEIE3121 or MCTE2129 or MEIE2129
MEIE5131	Legged locomotion of robots and animals	3	MEIE3122
MEIE5127	Analysis and design of control system	3	MCTE4450
MEIE5122	Applied Multi-body Dynamics	3	MIEI3122
MEIE5146	Renewable Energy	3	MEIE3142 or MEIE3159 or MCTE4230
MEIE5182	Fundamentals of Biomechanics	3	MEIE3102 and MEIE3121
MEIE5288	Innovation and Entrepreneurship	3	MEIE4285 or ECCE5004
MEIE5106	Pressure Vessel & Piping System Design	3	MEIE4102 or MCTE4102
MEIE5110	Applied Finite Element Methods	3	MEIE3102 or CIVL3086 or MCTE3230
MEIE5162	Corrosion Engineering	3	MCTE3230
ECCE5229	Embedded Real Time Systems	3	ECCE4227
ECCE5293	Embedded Vision Systems	3	ECCE4227
ECCE4216	Machine Learning for Engineers	3	(ENGR2217 and COMP2002) or (ECCE3352 and MCTE3210)
ECCE5219	Intelligent Applications in Robotics and Drones	3	ECCE4227
ECCE5231	Industrial Networks and Operating Systems	3	ECCE4227
MCTE5103	Selected topics in robotics and control	3	MCTE4450