



College: **ENGINEERING**
Departments: **ELECTRICAL & COMPUTER ENGINEERING**
MECHANICAL & INDUSTRIAL ENGINEERING
Cohort: **2006**
Degree: **B. ENG.**
Major: **MECHATRONICS ENGINEERING**

<u>Summary of Credits:</u>	
University Requirements (UR)	18
Arabic	3
English	6
Contemporary Omani Society	1
Oman & Islamic Civilization or Islamic Culture	2
Free Elective	6
College Requirements (CR)	35
Math	17
Physics	8
Computer Programming	3
Chemistry	3
Introduction to Engineering	2
Workshop	1
Elective	1
Industrial Training	0
Program Requirements (PR)	87
Program Core	78
Program Electives	9
TOTAL	140

For reference contact: Dr. **Hadj Bourdoucen** Ext. **1325**

HoD

Date

Dean's Office

Date

Registrar's Office

Date

College of Engineering
Degree Plan: 2006 Cohort Mechatronics Engineering (Scheme I)

Semester 1 Fall 2006	Course Code	Course Title	Cr.	Lec.	Lab.	Tut.	Pre-req./Co-req.*	Cat.	
			Intensive English	0					UR
	Total			0					

Semester 2 Spring 2007	HIST1010 ISLM1010	Oman & Islamic Civilization or Islamic Culture	2	2	-	-		UR
	LANC2160	English for Engineering I	3	3	-	-		UR
	CHEM1071	General Chemistry for Engineers	3	3	-	-		CR
	ENGR1500	Introduction to Engineering	2					CR
	ENGR1600	Workshop I	1	-	2	-		CR
	MATH1106	Pre-Calculus Mathematics	4	3	-	2		CR
Total			15					

Semester 3 Fall 2007	ARAB1001	Arabic	3	3	-	-		UR
	SOCI3320	Contemporary Omani Society	1	1	-	-		UR
	LANC2161	English for Engineering II	3	3	-	-	LANC 2160	UR
	MATH2107	Calculus I	4	3	-	2	MATH1106	CR
	PHYS2107	General Physics I	4	3	2	-	MATH2107*	CR
Total			15					

Semester 4 Spring 2008	MATH2108	Calculus II	3	2	-	2	MATH2107	CR
	PHYS 2108	General Physics II	4	3	2	-	PHYS2107	CR
	COMP2002	Intr. to Comp. Program. for Engineers	3	2	-	2		CR
		College Elective**	1		2		ENGR1600	CR
	ECCE2016	Circuit Analysis I	3	2	2		PHYS2107, PHYS2101	PR
	MEIE3104	Eng. Drawing & Comp. Graphics	3	1	4			PR
Total			17					

Semester 5 Fall 2008	MATH4174	Differential Equations for Engrs.	3	2		2	MATH2108	CR
	MATH3171	Lin. Alg. & Mult. Calc. for Engineers	3	2	2		MATH2108	CR
	MEIE2129	Basic Mechanics	3	2		2	PHYS 2107*	PR
	MCTE3110	Electronics	4	3	2		ECCE2016	PR
	ECCE3206	Digital Logic Design	3	2	2			PR
Total			16					

Semester 6 Spring 2009	ECCE3016	Circuit Analysis II	3	2	2		ECCE2016 + MATH2107	PR
	MEIE4281	Probability & Statistics for Engineers	3	2		2		PR
	MCTE3230	Properties and Strength of Materials	3	2		2	MEIE 2129 or PNGE2102	PR
	MCTE4145	Instrumentation & Measurement	3	2	2		MCTE3110*	PR
	ECCE4227	Embedded Systems	3	2	2		ECCE3206, COMP2002	PR
	MEIE3122	Machine Dynamics	3	2		2	MEIE2129	PR
Total			18					

** ENGR1601 Workshop II

MECHATRONICS ENGINEERING PROGRAM

Degree Plan: 2006 Cohorts (Scheme I)

	Course Code	Course Title	Cr.	Lec.	Lab.	Tut.	Pre-req./Co-req.*	Cat.
Semester 7 Fall 2009	MEIE4101	Computer Aided Machine Design	3	2		2	MCTE3230, MEIE3104	PR
	MCTE4185	Signals & Systems for Mechatronics	3	2		1	MATH4174	PR
	MCTE3261	Object Oriented Programming	3	2	2		COMP2002	PR
	MCTE3210	Electromechanical Systems &	3	2	2		ECCE3016	PR
	MCTE4150	Modeling and Simulation	3	2	2		MATH4174	PR
	MCTE4298	Mechatronics Engineering Seminar I	0	1				PR
Total			15					

January 2010	ENGR3006	Industrial Training I	0				MCTE3110	CR
	Total		0					

Semester 8 Spring 2010	MCTE4210	Power Electronics & Drives	3	2	2	-	MCTE3110, MCTE3210	PR
	MEIE4141	Fluids Mechanics	3	2		2	PHYS2108	PR
	MCTE4230	Thermal Sciences	3	2		2	PHYS2108, MATH2108	PR
	MCTE4250	Linear Control Systems	3	2	2		MATH4174	PR
	MEIE4183	Numerical Methods for Engineers	3	2	2		COMP2002	PR
Total			15					

Summer 2010	ENGR4006	Industrial Training II	0				ENGR3006	CR
	Total		0					

Semester 9 Fall 2010	MCTE5191	Project I	2	1	3		MCTE4250, MCTE4255*	PR
		University Elective	3					
	ECCE 5004	Engineering Managements &	3	3		-		
	xxxxyyyy	Basic Sciences Elective	3	2		2		PR
	MCTE4255	Mechatronics System Design	3	2		2	ECCE4227, MCTE4145,	PR
	MCTE5198	Mechatronics Engineering Seminar II	0	1			MCTE4298	PR
Total			14					

Semester 10 Spring 2011	MCTE5291	Project II	3	1	4		MCTE5191	PR
	MCTE5142	Robotics	3	2		2	MCTE4250, MEIE3122	PR
	MCTE51xx	Program Elective 2	3	2		2		PR
	MCTE51xx	Program Elective 3	3	2		2		PR
		University Elective	3	2		2		UR
Total			15					

List of Elective Courses for Mechatronics Engineering Program

List of Basic Science or Math Elective Courses

Code	Title	Credits	Pre-Requisite
BIOL3051	Man and The Environment	3	
GEOP3041	General Geophysics	3	PHY2101 & PHY2107
PHYS2901	Introductory Astronomy	3	
PHYS5010	Solar Energy	3	PHYS2102 or PHYS2001
MATH3340	Discrete Math for CS	3	MATH2107 and (COMP2101 or COMP2002)
MATH4452	Introduction to Complex Variables	3	MATH3109 or MATH3171
MATH4481	Introduction to Optimization	3	MATH2108, MATH2202
MEIE4182	Applied Mathematics for Engineers	3	MATH4174
MATH3350	Foundations of Math	3	
MATH3360	Discrete Math	3	MATH 2350
MATH3110	Calculus III	3	
MATH3109	Calculus III	3	

List of Program Elective Courses

Code	Title	Credits	Pre-Requisite
MCTE5145	Selected Topics in Control Systems	3	MCTE4250
MCTE5146	Intelligent Control Systems	3	MCTE4250
MCTE5141	Computer Controlled System Design	3	MCTE4250
MCTE5121	Computer Aided Design	3	MEIE4101, MEIE3104
MCTE5122	Applied Finite Element Methods	3	MEIE4101
MCTE5144	Micro-Electro-Mechanical Systems	3	MCTE3210
MCTE5123	Engineering Vibration	3	MEIE3122
MCTE5140	Microprocessors in Mechanical Systems	3	ECCE4227, MEIE4101
MCTE5143	Mobile Robotics and Vision	3	MCTE5142
MCTE5151	Mechatronics System Diagnostic & Pattern Recognition	3	MCTE4185
MCTE5152	Advanced Microcontrollers	3	ECCE4227
MCTE5105	Advance Power Electronics and Drives	3	MCTE4210
MCTE5128	Computer Integrated Manufacturing	3	MCTE4250
MCTE5148	Industrial Control System	3	MCTE4250
MCTE5195	Special Topics in Mechatronics Engineering	3	MCTE3210

MECHATRONICS ENGINEERING PROGRAM

Degree Plan: 2006 Cohorts (Scheme II)

Semester	Course Code	Course Title	Cr.	Lec.	Lab.	Tut.	Pre-req./Co-req.*	Cat.
Semester 1 Fall 2006		Intensive English	0					UR
	Total		0					
	Semester 2 Spring 07		Intensive English	0				
Total		0						
Semester 3 Fall 2007			University Elective	3				
	ARAB1001	Arabic	3	3	-	-		UR
	LANC2160	English for Engineering I	3	3	-	-		UR
	ENGR1500	Introduction to Engineering	2					CR
	ENGR1600	Workshop I	1	-	2	-		CR
	MATH1106	Pre-Calculus Mathematics	4	3	-	2		CR
	Total		16					
Semester 4 Spring 2008	HIST1010 ISLM1010	Oman & Islamic Civilization or Islamic Culture	2	2	-	-		UR
	SOCI3320	Contemporary Omani Society	1	1	-	-		UR
	LANC2161	English for Engineering II	3	3	-	-	LANC 2160	UR
	CHEM1071	General Chemistry for Engineers	3	3	-	-		CR
	MATH2107	Calculus I	4	3	-	2	MATH1106	CR
	PHYS2107	General Physics I	4	3	2	-	MATH2107*	CR
	Total		17					
Summer 2008	MATH2108	Calculus II	3	2	-	2	MATH2107	CR
	ECCE2016	Circuit Analysis I	3	2	2		PHYS2107, PHYS2101	PR
	Total		6					
Semester 5 Fall 2008	MCTE3110	Electronics	4	3	2		ECCE2016	PR
	PHYS 2108	General Physics II	4	3	2	-	PHYS2107	CR
	COMP2002	Intr. to Comp. Program. for Engineers	3	2	-	2		CR
		College Elective**	1		2		ENGR1600	CR
	MATH4174	Differential Equations for Engrs.	3	2		2	MATH2108	CR
	MEIE2129	Basic Mechanics	3	2		2	PHYS 2107*	PR
Total		18						
Semester 6 Spring 2009	MATH3171	Lin. Alg. & Mult. Calc. for Eng.	3	2	2		MATH2108	CR
	ECCE3016	Circuit Analysis II	3	2	2		ECCE2016 + MATH2107	PR
	MCTE4145	Instrumentation & Measurement	3	2	2		MCTE3110*	PR
	MCTE3230	Properties and Strength of Materials	3	2		2	MEIE 2129 or PNGE2102	PR
	MEIE3104	Eng. Drawing & Comp. Graphics	3	1	4			PR
	Total		15					

** ENGR1601 Workshop II

MECHATRONICS ENGINEERING PROGRAM

Degree Plan: 2006 Cohorts (Scheme II)

	Course Code	Course Title	Cr.	Lec.	Lab.	Tut.	Pre-req./Co-req.*	Cat.
Semester 7 Fall 2009	MEIE4281	Probability & Statistics for Engineers	3	2		2		PR
	MEIE4101	Computer Aided Machine Design	3	2		2	MCTE3230	PR
	MCTE4185	Signals & Systems for Mechatronics	3	2		1	MATH4174	PR
	MCTE3210	Electromechanical Systems &	3	2	2		ECCE3016	PR
	MCTE3261	Object Oriented Programming	3	2		2	COMP2002	PR
	ECCE3206	Digital Logic Design	3	2	2	-		PR
	MCTE4298	Mechatronics Engineering Seminar I	0	1				PR
Total			18					

January 2010	ENGR3006	Industrial Training I	0				MCTE3110	CR
	Total		0					

Semester 8 Spring 2010	MCTE4210	Power Electronics & Drives	3	2	2		MCTE3110	PR
	MEIE4141	Fluids Mechanics	3	2		2	PHYS2108	PR
	ECCE4227	Embedded Systems	3	2	2		ECCE3206, COMP2002	PR
	MCTE4150	Modeling and Simulation	3	2	2		MATH4174	PR
	MEIE4183	Numerical Methods for Engineers	3	2	2		COMP2002	PR
	MEIE3122	Machine Dynamics	3	2		2	MEIE2129	PR
Total			18					

Summer 2010	ENGR4006	Industrial Training II	0				ENGR3006	CR
	Total		0					

Semester 9 Fall 2010	MCTE5191	Project I	2	1	3		MCTE4250, MCTE4255*	PR
	MCTE4230	Thermal Sciences	3	2		2	PHYS2108, MATH2108	PR
	MCTE4250	Linear Control Systems	3	2	2		MATH4174	PR
	xxxxyyy	Basic Sciences Elective	3	2		2		PR
	MCTE4255	Mechatronics System Design	3	2		2	ECCE4226, MCTE4145,	PR
	ECCE 5004	Engineering Managements &	3	3		-		
	MCTE5198	Mechatronics Engineering Seminar II	0	1			MCTE4298	PR
Total			17					

Semester 10 Spring 2011	MCTE5291	Project II	3	1	4		MCTE5191	PR
	MCTE51xx	Program Elective 2	3	2		2		PR
	MCTE5142	Robotics	3	2		2	MCTE4250, MEIE3122	PR
	MCTE51xx	Program Elective 3	3	2		2		PR
		University Elective	3	2		2		UR
Total			15					

List of Basic Science or Math Elective Courses

Code	Title	Credits	Pre-Requisite
BIOL3051	Man and The Environment	3	
GEOP3041	General Geophysics	3	PHY2101 & PHY2107
PHYS2901	Introductory Astronomy	3	
PHYS5010	Solar Energy	3	PHYS2102 or PHYS2001
MATH3340	Discrete Math for CS	3	MATH2107 and (COMP2101 or COMP2002)
MATH4452	Introduction to Complex Variables	3	MATH3109 or MATH3171
MATH4481	Introduction to Optimization	3	MATH2108, MATH2202
MEIE4182	Applied Mathematics for Engineers	3	MATH4174
MATH3350	Foundations of Math	3	
MATH3360	Discrete Math	3	MATH 2350
MATH3110	Calculus III	3	
MATH3109	Calculus III	3	

List of Program Elective Courses

Code	Title	Credits	Pre-Requisite
MCTE5145	Selected Topics in Control Systems	3	MCTE4250
MCTE5146	Intelligent Control Systems	3	MCTE4250
MCTE5141	Computer Controlled System Design	3	MCTE4250
MCTE5121	Computer Aided Design	3	MEIE4101, MEIE3104
MCTE5122	Applied Finite Element Methods	3	MEIE4101
MCTE5144	Micro-Electro-Mechanical Systems	3	MCTE3210
MCTE5123	Engineering Vibration	3	MEIE3122
MCTE5140	Microprocessors in Mechanical Systems	3	ECCE4227, MEIE4101
MCTE5143	Mobile Robotics and Vision	3	MCTE5142
MCTE5151	Mechatronics System Diagnostic & Pattern Recognition	3	MCTE4185
MCTE5152	Advanced Microcontrollers	3	ECCE4227
MCTE5105	Advanced Power Electronics and Drives	3	MCTE4210
MCTE5128	Computer Integrated Manufacturing	3	MCTE4250
MCTE5148	Industrial Control System	3	MCTE4250
MCTE5195	Special Topics in Mechatronics Engineering	3	MCTE3210

**Table I-1. ABET-Style Basic-Level Curriculum (2005):
B. Eng. in Mechatronics Engineering**

Semester	Course		Category (Credit Hours)			
	Code	Title	Math & Basic Sciences	Engineering Topics <i>Check if Contains Significant Design (✓)</i>	General Education	Other
01	LANCxxxx	Intensive English ^a				0
02	HIST1010 ISLM1010	Oman & Islamic Civilization or Islamic Culture		()	2	
	LANC2160	English for Engineering I		()	3	
	CHEM1071	General Chemistry for Engineers	3			
	ENGR1500	Introduction to Engineering		2 ()		
	ENGR1600	Workshop I		()		1
	MATH1106	Pre-Calculus Mathematics		()		4
	03	ARAB1001	Arabic		()	3
LANC2161		English for Engineering II		()	3	
SOCI3320		Contemporary Omani Society		()	1	
MATH2107		Calculus I	4	()		
PHYS2107		General Physics I	4	()		
04	COMP2002	Intr. to Comp. Program. for Engineers		()		3
	PHYS 2108	General Physics II	4	()		
	MATH2108	Calculus II	3	()		
		College Elective ^b		1 ()		
	ECCE2016	Circuit Analysis I		3 ()		
	MEIE3104	Eng. Drawing & Comp. Graphics		3 ()		
05	MATH4174	Differential Equations & Applications for Engineers	3	()		
	MATH3171	Lin. Alg. & Mult. Calc. for Engineers	3	()		
	MEIE2129	Basic Mechanics		3 ()		
	MCTE3110	Electronics		4 (✓)		
	ECCE3206	Digital Logic Design		3 (✓)		
06	ECCE3016	Circuit Analysis II		3 ()		
	MEIE4281	Probability & Statistics for Eng.	3			
	MCTE3230	Properties and Strength of Materials		3 (✓)		
	MCTE4145	Instrumentation & Measurement		3 ()		
	ECCE4227	Embedded Systems		3 (✓)		
	MEIE3122	Machine Dynamics		3 ()		

^a Depending on student 's performance, the intensive English course may take more than one semester

^b e.g. ENGR2015 Introduction to Engineering Drawing or ENGR1601 Workshop II

Table I-1. (continued): Communications and Signal Processing Track

Semester	Course		Category (Credit Hours)			
	Code	Title	Math & Basic Sciences	Engineering Topics <i>Check if Contains Significant Design (✓)</i>	General Education	Other
07	MEIE4101	Computer Aided Machine Design		3 (✓)		
	MCTE4185	Signals & Systems for Mechatronics		3 ()		
	MCTE3261	Object Oriented Programming		3 ()		
	MCTE3210	Electromechanical Systems & Actuators		3 ()		
	MCTE4150	Modeling and Simulation		3 (✓)		
	MCTE4298	Mechatronics Engineering Seminar I		0 ()		
Between 7-8	ENGR3006	Industrial Training I		0 ()		
08	MCTE4210	Power Electronics & Drives		3 ()		
	MEIE4141	Fluid Mechanics		3 ()		
	MCTE4230	Thermal Sciences		3 ()		
	MCTE4250	Linear Control Systems		3 ()		
	MEIE4183	Numerical Methods for Engineers	3	()		
Between 8-9	ENGR4006	Industrial Training II		0 ()		
09	MCTE5191	Project I		2 (✓)		
		University Elective		()	3	
	ECCE5004	Engineering Managements & Economics		3 ()		
	MCTE4255	Mechatronics System Design		3 (✓)		
	MCTE5198	Mechatronics Engineering Seminar II		0 ()		
	MCTE5xxx	Program Elective 1		3 ()		
10	MCTE5291	Project II		3 (✓)		
	MCTE5142	Robotics		3 ()		
		University Elective		()	3	
	ECCE5xxx	Program Elective 2		3 ()		
	ECCE5xxx	Program Elective 3		3 ()		
TOTALS-ABET BASIC-LEVEL REQUIREMENTS			30	84	18	8
OVERALL TOTAL FOR DEGREE		140				
PERCENT OF TOTAL						
Totals must satisfy one set	Minimum semester credit hours		32 hrs	48 hrs		
	Minimum percentage		25%	37.5 %		