Bachelor of Science in Mechanical Engineering/Industrial Mechatronics Concentration

Study Plan (Fall Start) 2022-2023

			First Yea	r (Freshman)			
	Semester				Semester 2	-	-
Code	Title	Cr.	Prerequisite	Code	Title	Cr.	Prerequisite
ARL 101(A)	Communication Skills in Arabic	3	nil	COE 101	Introductory Artificial Intelligence	3	STT 100
ENG 200	English II	3	IELTS average score of 6 or EMSAT average score of 1400 or passing grade in ENG 102. USS001 (Co) if placed in ENG200	FWS 205	UAE and GCC Society	3	ENG102 (P) USS001 as pre-requisite USS001 as co-requisite if students enter to ENG200 directly
STT 100	General Statistics	3	nil	MEC 330	Computer Aided Drawing	2	MEC 130
ISL 100	Islamic Culture	3	nil	PHY 102	Physics and Engineering Applications I	3	MTT 102
MTT 102	Calculus I	3	C grade in MTT 101 or MPT	PHY 102 L	Physics and Engineering Applications I Lab	1	MTT 102+PHY 102 (co-req)
MEC 130	Introduction to Mechanical & Industrial Engineering	2	nil	MTT 200	Calculus II	3	MTT 102
				COE 102	Introductory Big Data Analytics	3	STT100
Total Credit Hours 17 Total Cr							
	Semester	2	Second Yea	r (Sophomore)	Semester 4		
Code	Title	Cr.	Prerequisite	Code	Title	Cr.	Prerequisite
COE 202	Engineering Ethics, Economy and Law	3	ENG 200 + MTT 102	CIV 201	Statics	3	PHY102
MTT 201	Calculus III	3	MTT 200	MEC 300	Materials Science	3	CHE 205
CSC 201	Structured Programming	3	MTT 101 or Higher	MEC 320	Thermodynamics I	3	PHY 102
PHY 201	Physics and Engineering Applications II	3	PHY 102	MEC 390	Electromechanical Devices	3	PHY 201
PHY 201 L	Physics and Engineering Applications II Lab	1	PHY102+PHY201(co-req)	MTT 204	Introduction to Linear Algebra	3	MTT 200
CHE 205	General Chemistry I	3	(Co-req) ENG102 / ENG 200	MTT 205	Differential Equations	3	MTT 200 + MTT 204 (co-requisite)
CHE 201 L	Chemistry Lab	1	(Co-req) CHE205	1111 203	Total Credit Hours		THE LOW MILE LOW (CO requisite)
CILL ZOT E	Total Credit Hours	17			Total Create Hours	10	
	Summer Semester						
Code	Title	Cr.	Prerequisite				
MEC 398	Internship 1	1.5	60 Credit Hours				
MEC 398	· ·			ear (Junior)	S		
	Semester	5	Third Y		Semester 6	Cr	Prerequisite
Code	· ·		Third Y Prerequisite	Code	Title	Cr.	Prerequisite MEC 302, MEC 340
Code MEC 302	Semester Title Mechanics of Materials	5 Cr.	Third Y Prerequisite CIV 201, MEC 300	Code MEC 430	Title Machine Design II	_	MEC 302, MEC 340
Code MEC 302 MEC 350	Semester Title Mechanics of Materials Fluid Mechanics	5 Cr. 3	Third Y Prerequisite CIV 201, MEC 300 CIV 201, MTT205	Code MEC 430 MEC 432	Title Machine Design II Design and Manufacturing Lab	3	MEC 302, MEC 340 MEC 301 (co-req)
Code MEC 302 MEC 350 MEC 351	Semester Title Mechanics of Materials Fluid Mechanics Fluid Mechanics Lab	5 Cr. 3 3 1	Third Y Prerequisite CIV 201, MEC 300 CIV 201, MTT205 MEC 350 (co-req)	Code MEC 430 MEC 432 MEC 411	Title Machine Design II Design and Manufacturing Lab Kinematic and Dynamics of Machinery	3 1 3	MEC 302, MEC 340 MEC 301 (co-req) MEC 310
Code MEC 302 MEC 350 MEC 351 MEC 321	Semester Title Mechanics of Materials Fluid Mechanics Fluid Mechanics Lab Thermodynamics II	5 Cr. 3 3 1 1 3	Third Y Prerequisite CIV 201, MEC 300 CIV 201, MTT205 MEC 350 (co-req) MEC 320	Code MEC 430 MEC 432 MEC 411 MEC 410	Title Machine Design II Design and Manufacturing Lab Kinematic and Dynamics of Machinery Control Systems	3 1 3 3	MEC 302, MEC 340 MEC 301 (co-req) MEC 310 MEC 310, MEC 390
Code MEC 302 MEC 350 MEC 351 MEC 321 MEC 310	Semester Title Mechanics of Materials Fluid Mechanics Fluid Mechanics Lab Thermodynamics II Dynamics	5 Cr. 3 3 1 3 3 3	Third Y Prerequisite CIV 201, MEC 300 CIV 201, MTT205 MEC 350 (co-req) MEC 320 CIV 201, MTT204	Code MEC 430 MEC 432 MEC 411 MEC 410 MEC 412	Title Machine Design II Design and Manufacturing Lab Kinematic and Dynamics of Machinery Control Systems Dynamics and Control Systems Lab	3 1 3 3	MEC 302, MEC 340 MEC 301 (co-req) MEC 310 MEC 310, MEC 390 MEC 410 (co-req)
Code MEC 302 MEC 350 MEC 351 MEC 321	Semester Title Mechanics of Materials Fluid Mechanics Fluid Mechanics Lab Thermodynamics II Dynamics Machine Design I	5 Cr. 3 3 1 3 3 3 3	Third Y Prerequisite CIV 201, MEC 300 CIV 201, MTT205 MEC 350 (co-req) MEC 320 CIV 201, MTT204 MEC 330, MEC 300	Code MEC 430 MEC 432 MEC 411 MEC 410 MEC 412 MEC 301	Title Machine Design II Design and Manufacturing Lab Kinematic and Dynamics of Machinery Control Systems Dynamics and Control Systems Lab Manufacturing Processes	3 1 3 3 1 3	MEC 302, MEC 340 MEC 301 (co-req) MEC 310 MEC 310, MEC 390 MEC 410 (co-req) MEC 300
Code MEC 302 MEC 350 MEC 351 MEC 321 MEC 310	Semester Title Mechanics of Materials Fluid Mechanics Fluid Mechanics Lab Thermodynamics II Dynamics Machine Design I Total Credit Hours	5 Cr. 3 3 1 3 3 3 3 16	Third Y Prerequisite CIV 201, MEC 300 CIV 201, MTT205 MEC 350 (co-req) MEC 320 CIV 201, MTT204 MEC 330, MEC 300	Code MEC 430 MEC 432 MEC 411 MEC 410 MEC 412	Title Machine Design II Design and Manufacturing Lab Kinematic and Dynamics of Machinery Control Systems Dynamics and Control Systems Lab Manufacturing Processes Fundamentals of Innovation & Entrepreneurship	3 1 3 3 1 3 3	MEC 302, MEC 340 MEC 301 (co-req) MEC 310 MEC 310, MEC 390 MEC 410 (co-req) MEC 300 ENG200 + Completion of 60chr
Code MEC 302 MEC 350 MEC 351 MEC 321 MEC 310	Semester Title Mechanics of Materials Fluid Mechanics Fluid Mechanics Lab Thermodynamics II Dynamics Machine Design I	5 Cr. 3 3 1 3 3 3 3 16	Third Y Prerequisite CIV 201, MEC 300 CIV 201, MTT205 MEC 350 (co-req) MEC 320 CIV 201, MTT204 MEC 330, MEC 300	Code MEC 430 MEC 432 MEC 411 MEC 410 MEC 412 MEC 301	Title Machine Design II Design and Manufacturing Lab Kinematic and Dynamics of Machinery Control Systems Dynamics and Control Systems Lab Manufacturing Processes	3 1 3 3 1 3 3	MEC 302, MEC 340 MEC 301 (co-req) MEC 310 MEC 310, MEC 390 MEC 410 (co-req) MEC 300 ENG200 + Completion of 60chr
Code MEC 302 MEC 350 MEC 351 MEC 321 MEC 310	Semester Title Mechanics of Materials Fluid Mechanics Fluid Mechanics Lab Thermodynamics II Dynamics Machine Design I Total Credit Hours	5 Cr. 3 3 1 3 3 3 3 16	Third Y Prerequisite CIV 201, MEC 300 CIV 201, MTT205 MEC 350 (co-req) MEC 320 CIV 201, MTT204 MEC 330, MEC 300	Code MEC 430 MEC 432 MEC 411 MEC 410 MEC 412 MEC 301	Title Machine Design II Design and Manufacturing Lab Kinematic and Dynamics of Machinery Control Systems Dynamics and Control Systems Lab Manufacturing Processes Fundamentals of Innovation & Entrepreneurship	3 1 3 3 1 3 3	MEC 302, MEC 340 MEC 301 (co-req) MEC 310 MEC 310, MEC 390 MEC 410 (co-req) MEC 300 ENG200 + Completion of 60chr
Code MEC 302 MEC 350 MEC 351 MEC 321 MEC 310 MEC 340	Semester Title Mechanics of Materials Fluid Mechanics Fluid Mechanics Lab Thermodynamics II Dynamics Machine Design I Total Credit Hours Summer Sem	5 Cr. 3 3 1 3 3 3 3 16 ester	Third Y Prerequisite CIV 201, MEC 300 CIV 201, MTT205 MEC 350 (co-req) MEC 320 CIV 201, MTT204 MEC 330, MEC 300	Code MEC 430 MEC 432 MEC 411 MEC 410 MEC 412 MEC 301	Title Machine Design II Design and Manufacturing Lab Kinematic and Dynamics of Machinery Control Systems Dynamics and Control Systems Lab Manufacturing Processes Fundamentals of Innovation & Entrepreneurship	3 1 3 3 1 3 3	MEC 302, MEC 340 MEC 301 (co-req) MEC 310 MEC 310, MEC 390 MEC 410 (co-req) MEC 300 ENG200 + Completion of 60chr
Code MEC 302 MEC 350 MEC 351 MEC 321 MEC 310 MEC 340	Semester Title Mechanics of Materials Fluid Mechanics Fluid Mechanics Lab Thermodynamics II Dynamics Machine Design I Total Credit Hours Summer Sem Title	5 Cr. 3 3 1 3 3 3 3 Cr. Cr. Cr.	Third Y Prerequisite CIV 201, MEC 300 CIV 201, MTT205 MEC 350 (co-req) MEC 320 CIV 201, MTT204 MEC 330, MEC 300 Prerequisite	Code MEC 430 MEC 432 MEC 411 MEC 410 MEC 412 MEC 301	Title Machine Design II Design and Manufacturing Lab Kinematic and Dynamics of Machinery Control Systems Dynamics and Control Systems Lab Manufacturing Processes Fundamentals of Innovation & Entrepreneurship	3 1 3 3 1 3 3	MEC 302, MEC 340 MEC 301 (co-req) MEC 310 MEC 310, MEC 390 MEC 410 (co-req) MEC 300 ENG200 + Completion of 60chr
Code MEC 302 MEC 350 MEC 351 MEC 321 MEC 310 MEC 340	Semester Title Mechanics of Materials Fluid Mechanics Fluid Mechanics Lab Thermodynamics II Dynamics Machine Design I Total Credit Hours Summer Sem Title Internship 2	5 Cr. 3 3 1 3 3 3 3 Cr. Cr. Cr.	Third Y Prerequisite CIV 201, MEC 300 CIV 201, MTT205 MEC 350 (co-req) MEC 320 CIV 201, MTT204 MEC 330, MEC 300 Prerequisite 90 Credit Hours	Code MEC 430 MEC 432 MEC 411 MEC 410 MEC 412 MEC 301	Title Machine Design II Design and Manufacturing Lab Kinematic and Dynamics of Machinery Control Systems Dynamics and Control Systems Lab Manufacturing Processes Fundamentals of Innovation & Entrepreneurship	3 1 3 3 1 3 3	MEC 302, MEC 340 MEC 301 (co-req) MEC 310 MEC 310, MEC 390 MEC 410 (co-req) MEC 300 ENG200 + Completion of 60chr
Code MEC 302 MEC 350 MEC 351 MEC 321 MEC 310 MEC 340 Code MEC 399	Semester Title Mechanics of Materials Fluid Mechanics Fluid Mechanics Lab Thermodynamics II Dynamics Machine Design I Total Credit Hours Summer Sem Title Internship 2 Seme	5 Cr. 3 3 1 3 3 3 10 Cr. 1.5 Ster 7 Cr.	Third Y Prerequisite CIV 201, MEC 300 CIV 201, MTT205 MEC 350 (co-req) MEC 320 CIV 201, MTT204 MEC 330, MEC 300 Prerequisite 90 Credit Hours Fourth Prerequisite	MEC 430 MEC 432 MEC 411 MEC 410 MEC 412 MEC 301 FWS 310	Title Machine Design II Design and Manufacturing Lab Kinematic and Dynamics of Machinery Control Systems Dynamics and Control Systems Lab Manufacturing Processes Fundamentals of Innovation & Entrepreneurship Total Credit Hours Semester 8 Title	3 1 3 3 1 3 3 1 1 Cr.	MEC 302, MEC 340 MEC 301 (co-req) MEC 310 MEC 310, MEC 390 MEC 410 (co-req) MEC 300 ENG200 + Completion of 60chr 7
Code MEC 302 MEC 350 MEC 351 MEC 321 MEC 310 MEC 340 Code MEC 399	Semester Title Mechanics of Materials Fluid Mechanics Fluid Mechanics Lab Thermodynamics II Dynamics Machine Design I Total Credit Hours Summer Sem Title Internship 2 Seme Title Mechanical Vibration	Cr. 3 3 3 16 Cr. 1.5 Ster 7 Cr. 3	Third Y Prerequisite CIV 201, MEC 300 CIV 201, MTT205 MEC 350 (co-req) MEC 320 CIV 201, MTT204 MEC 330, MEC 300 Prerequisite 90 Credit Hours Fourth Prerequisite MEC 410	Code MEC 430 MEC 432 MEC 411 MEC 410 MEC 301 FWS 310 FWS 310 Code MEC 499 MEC 499 MEC 499 MEC 499	Title Machine Design II Design and Manufacturing Lab Kinematic and Dynamics of Machinery Control Systems Dynamics and Control Systems Lab Manufacturing Processes Fundamentals of Innovation & Entrepreneurship Total Credit Hours Semester 8 Title Capstone Design Project II	3 1 3 3 1 3 1 3 1 3 1 3 1 Cr. 3	MEC 302, MEC 340 MEC 301 (co-req) MEC 310 MEC 310, MEC 390 MEC 410 (co-req) MEC 300 ENG200 + Completion of 60chr 7 Prerequisite MEC 498, Senior level (120 credits)
Code MEC 302 MEC 350 MEC 351 MEC 321 MEC 310 MEC 340 Code MEC 399 Code MEC 480 MEC 420	Semester Title Mechanics of Materials Fluid Mechanics Fluid Mechanics Lab Thermodynamics II Dynamics Machine Design I Total Credit Hours Summer Sem Title Internship 2 Seme Title Mechanical Vibration Heat Transfer	Cr. 3 3 3 10 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	Third Y Prerequisite CIV 201, MEC 300 CIV 201, MTT205 MEC 350 (co-req) MEC 320 CIV 201, MTT204 MEC 330, MEC 300 Prerequisite 90 Credit Hours Fourth Prerequisite MEC 410 MEC 320, MEC 350	Code MEC 430 MEC 432 MEC 411 MEC 410 MEC 301 FWS 310 FWS 310 Code MEC 499 MEC 451 MEC 451	Title Machine Design II Design and Manufacturing Lab Kinematic and Dynamics of Machinery Control Systems Dynamics and Control Systems Lab Manufacturing Processes Fundamentals of Innovation & Entrepreneurship Total Credit Hours Semester 8 Title Capstone Design Project II PLC and Industrial Automation	3 1 3 3 1 3 1 3 1 3 1 3 3 1 1 3 3 3 1 1 3 3 3 1 1 3 3 3 1	MEC 302, MEC 340 MEC 301 (co-req) MEC 310 MEC 310, MEC 390 MEC 410 (co-req) MEC 300 ENG200 + Completion of 60chr 7 Prerequisite MEC 498, Senior level (120 credits) MEC 450
Code MEC 302 MEC 350 MEC 351 MEC 321 MEC 310 MEC 340 Code MEC 399	Semester Title Mechanics of Materials Fluid Mechanics Fluid Mechanics Lab Thermodynamics II Dynamics Machine Design I Total Credit Hours Summer Sem Title Internship 2 Seme Title Mechanical Vibration	5 Cr. 3 3 1 3 3 3 1 1 5 5 5 5 5 5 5 5	Third Y Prerequisite CIV 201, MEC 300 CIV 201, MTT205 MEC 350 (co-req) MEC 320 CIV 201, MTT204 MEC 330, MEC 300 Prerequisite 90 Credit Hours Fourth Prerequisite MEC 410	Code MEC 430 MEC 432 MEC 411 MEC 410 MEC 301 FWS 310 FWS 310 Code MEC 499 MEC 499 MEC 499 MEC 499	Title Machine Design II Design and Manufacturing Lab Kinematic and Dynamics of Machinery Control Systems Dynamics and Control Systems Lab Manufacturing Processes Fundamentals of Innovation & Entrepreneurship Total Credit Hours Semester 8 Title Capstone Design Project II	3 1 3 3 1 3 1 3 1 3 1 3 1 Cr. 3	MEC 302, MEC 340 MEC 301 (co-req) MEC 310 MEC 310, MEC 390 MEC 410 (co-req) MEC 300 ENG200 + Completion of 60chr 7 Prerequisite MEC 498, Senior level (120 credits)
Code MEC 302 MEC 350 MEC 351 MEC 351 MEC 310 MEC 340 Code MEC 399 Code MEC 480 MEC 420 MEC 421 MEC 455	Semester Title Mechanics of Materials Fluid Mechanics Fluid Mechanics Lab Thermodynamics II Dynamics Machine Design I Total Credit Hours Summer Sem Title Internship 2 Seme Title Mechanical Vibration Heat Transfer	5	### Prerequisite CIV 201, MEC 300 CIV 201, MTT205 MEC 350 (co-req) MEC 320 CIV 201, MTT204 MEC 330, MEC 300 Prerequisite 90 Credit Hours Prerequisite Prerequisite MEC 410 MEC 320, MEC 350 MEC 420 (co-req) MEC430, MEC420 Co-Req	Code MEC 430 MEC 432 MEC 411 MEC 410 MEC 412 MEC 301 FWS 310	Title Machine Design II Design and Manufacturing Lab Kinematic and Dynamics of Machinery Control Systems Dynamics and Control Systems Lab Manufacturing Processes Fundamentals of Innovation & Entrepreneurship Total Credit Hours Semester 8 Title Capstone Design Project II PLC and Industrial Automation Mechatronics System Design DCS and SCADA	3 1 3 3 1 3 3 1 1 5 Cr. 3 3 3 3 1	MEC 302, MEC 340 MEC 301 (co-req) MEC 310 MEC 310, MEC 390 MEC 410 (co-req) MEC 300 ENG200 + Completion of 60chr 7 Prerequisite MEC 498, Senior level (120 credits) MEC 450 MEC 482 MEC 451(co-req), MEC 482
Code MEC 302 MEC 350 MEC 351 MEC 321 MEC 310 MEC 340 Code MEC 399 Code MEC 480 MEC 420 MEC 421 MEC 482	Semester Title Mechanics of Materials Fluid Mechanics Fluid Mechanics Lab Thermodynamics II Dynamics Machine Design I Total Credit Hours Summer Sem Title Internship 2 Seme Title Mechanical Vibration Heat Transfer Thermal Engineering Lab	5	### Prerequisite CIV 201, MEC 300 CIV 201, MTT205 MEC 350 (co-req) MEC 320 CIV 201, MTT204 MEC 330, MEC 300 Prerequisite 90 Credit Hours Prerequisite MEC 410 MEC 320, MEC 350 MEC 420 (co-req)	Code MEC 430 MEC 432 MEC 411 MEC 410 MEC 301 FWS 310	Title Machine Design II Design and Manufacturing Lab Kinematic and Dynamics of Machinery Control Systems Dynamics and Control Systems Lab Manufacturing Processes Fundamentals of Innovation & Entrepreneurship Total Credit Hours Semester 8 Title Capstone Design Project II PLC and Industrial Automation Mechatronics System Design	3 1 3 3 1 1 3 3 1 1 3 7 1 Cr. 3 3 3 3 3 3 3 3	MEC 302, MEC 340 MEC 301 (co-req) MEC 310 MEC 310 MEC 310, MEC 390 MEC 410 (co-req) MEC 300 ENG200 + Completion of 60chr 7 Prerequisite MEC 498, Senior level (120 credits) MEC 450 MEC 482 MEC 482, CSC 201, COE 101
Code MEC 302 MEC 350 MEC 351 MEC 321 MEC 310 MEC 340 Code MEC 399 Code MEC 480 MEC 420 MEC 421 MEC 421	Semester Title Mechanics of Materials Fluid Mechanics Fluid Mechanics Lab Thermodynamics II Dynamics Machine Design I Total Credit Hours Summer Sem Title Internship 2 Seme Title Mechanical Vibration Heat Transfer Thermal Engineering Lab Numerical & FE Simulation Eng Problems	5	### Prerequisite CIV 201, MEC 300 CIV 201, MTT205 MEC 350 (co-req) MEC 320 CIV 201, MTT204 MEC 330, MEC 300 Prerequisite 90 Credit Hours Prerequisite Prerequisite MEC 410 MEC 320, MEC 350 MEC 420 (co-req) MEC430, MEC420 Co-Req	Code MEC 430 MEC 432 MEC 411 MEC 410 MEC 412 MEC 301 FWS 310	Title Machine Design II Design and Manufacturing Lab Kinematic and Dynamics of Machinery Control Systems Dynamics and Control Systems Lab Manufacturing Processes Fundamentals of Innovation & Entrepreneurship Total Credit Hours Semester 8 Title Capstone Design Project II PLC and Industrial Automation Mechatronics System Design DCS and SCADA	3 1 3 3 1 3 3 1 1 5 Cr. 3 3 3 3 1	MEC 302, MEC 340 MEC 301 (co-req) MEC 310 MEC 310 MEC 310, MEC 390 MEC 410 (co-req) MEC 300 ENG200 + Completion of 60chr 7 Prerequisite MEC 498, Senior level (120 credits) MEC 450 MEC 482 MEC 451(co-req), MEC482

Total Credits Hours

Total Credit Hours

MEC 465 (co-req)

1

17

MEC 498

Capstone Design Project I

Total Credit Hours: 141

18