

BACHELOR OF SCIENCE IN MECHATRONICS ENGINEERING (BSME)
CURRICULUM PLAN EFFECTIVE SY2019-2020

REMEDIAL CLASSES

COURSE CODE	COURSE TITLE	LEC Hrs	LAB Hrs	CREDIT UNITS	PRE-REQUISITES
ENGL301	Speaking and Listening	9	0	0	
ENGL302	Grammar and Vocabulary	9	0	0	
MATH300	Remedial Mathematics	3	0	0	

FIRST YEAR
FIRST TRIMESTER

COURSE CODE	COURSE TITLE	LEC	LAB	CREDIT	PREREQUISITE/S
		Hrs	Hrs	Units	
ARAB400A	Arabic Language	3	0	3	
CHEM400	General Chemistry 1	2	2	3	
CENG411	Introduction to Computing	2	2	3	
ENGL401	English Communication Skills 1	3	0	3	
EUTH400	Euthenics 1	1	0	0	
MATH401	College Algebra	3	0	3	
MATH402	Plane and Spherical Trigonometry	3	0	3	
		TOTAL		18	

SECOND TRIMESTER

COURSE CODE	COURSE TITLE	LEC	LAB	CREDIT	PREREQUISITE/S
		Hrs	Hrs	Units	
CENG511	Computer Programming	2	2	3	CENG411
ENGL402	English Communication Skills 2	3	0	3	ENGL401
EUTH401	Euthenics 2	1	0	0	EUTH400
HIST400	History of Bahrain and GCC Region	3	0	3	
MATH406	Differential Calculus with Analytic Geometry	5	0	5	MATH401, MATH402
SOCI400	Sociology	3	0	3	
		TOTAL		17	

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THIRD TRIMESTER

COURSE CODE	COURSE TITLE	LEC	LAB	CREDIT	PREREQUISITE/S
		Hrs	Hrs	Units	
CENG523	Advanced Programming	2	2	3	CENG511
ENGL403	Speech and Oral Communication	2	2	3	ENGL402
MATH501	Integral Calculus with Differential Equations	5	0	5	MATH406
PHYS501	University Physics 1	2	2	3	MATH406
SCIE400	Biology	2	2	3	
		TOTAL		17	

SECOND YEAR
FIRST TRIMESTER

COURSE CODE	COURSE TITLE	LEC	LAB	CREDIT	PREREQUISITE/S
		Hrs	Hrs	Units	
ENVS400	Environmental Science	3	0	3	SCIE400
ENGL502	Technical Writing	3	0	3	ENGL402
ENGG410A	Engineering Drawing	2	2	3	
ENGG520	Engineering Materials	3	0	3	CHEM400
MATH503	Discrete Mathematics	3	0	3	MATH401
PHYS502	University Physics 2	2	2	3	PHYS501, MATH501
		TOTAL		18	

SECOND TRIMESTER

COURSE CODE	COURSE TITLE	LEC	LAB	CREDIT	PREREQUISITE/S
		Hrs	Hrs	Units	
ENGG531	Electric Circuit Theory 1	2	2	3	MATH501, PHYS502
ENGG532	Thermodynamics	3	0	3	PHYS501
HUMR400	Human Rights	3	0	3	SOCI400
MATH409	Probability and Statistics	3	0	3	MATH503
MATH502	Advanced Mathematics	3	0	3	MATH501
PHYS503	University Physics 3	2	2	3	PHYS502
		TOTAL		18	

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THIRD TRIMESTER

COURSE CODE	COURSE TITLE	LEC	LAB	CREDIT	PREREQUISITE/S
		Hrs	Hrs	Units	
ENGG521	Engineering Mechanics	3	0	3	PHYS501
ENGG522	Engineering Economy	3	0	3	MATH406
ENGG534	Electronics 1	2	2	3	ENGG531
ENGG611	Electric Circuit Theory 2	2	2	3	ENGG531
MATH504	Multivariate Calculus	2	2	3	MATH501
MATH505	Numerical Methods and Analysis	2	2	3	MATH502
		TOTAL		18	

THIRD YEAR
FIRST TRIMESTER

COURSE CODE	COURSE TITLE	LEC	LAB	CREDIT	PREREQUISITE/S
		Hrs	Hrs	Units	
CENG611	Data Communication and Networking 1	2	2	3	CENG411
ENGG535	Fluid Mechanics	3	0	3	MATH406
ENGG613	Electronics 2	2	2	3	ENGG534
ENGG615	Electromagnetics and Electrical Machines	3	0	3	ENGG611
ENGG627	Logic Circuit, Switching Theory and Programmable Logic Devices	3	2	4	ENGG534
MATH506	Linear Algebra	2	2	3	MATH504
		TOTAL		19	

SECOND TRIMESTER

COURSE CODE	COURSE TITLE	LEC	LAB	CREDIT	PREREQUISITE/S
		Hrs	Hrs	Units	
ENGG501	Safety Engineering	2	0	2	ENGG611
ENGG533	Strength of Materials	3	0	3	ENGG521
MECH610	Pneumatics and Electro-Pneumatics	2	2	3	ENGG535, ENGG627
ENGG614	Control Systems	2	2	3	ENGG611
MECH631A	Power Electronics	3	2	4	ENGG613
MECH633	Introduction to Fuzzy/Neural System	3	2	4	ENGG627

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				MATH503
		TOTAL	19	

THIRD TRIMESTER

COURSE CODE	COURSE TITLE	LEC	LAB	CREDIT	PREREQUISITE/S
		Hrs	Hrs	Units	
MATH507	Optimization Methods	3	0	3	MATH505
MECH621	Linear Systems	2	2	3	ENGG614
MECH623	Hydraulics and Electrohydraulics	3	2	4	ENGG535, ENGG627
MECH624	Programmable Logic Controllers	3	2	4	MECH610
MECH641	Process Instrumentation and Control	3	2	4	ENGG532, ENGG614
		TOTAL		18	

FOURTH YEAR
FIRST TRIMESTER

COURSE CODE	COURSE TITLE	LEC	LAB	CREDIT	PREREQUISITE/S
		Hrs	Hrs	Units	
ENGG639	Professional Ethics and Engineering Laws	3	0	3	ENGG501
MECH639	Microcontrollers	2	2	3	ENGG627
MECH642	Machine Vision	3	2	4	MECH621
MECH643	Robot Kinematics, Dynamics and Control	3	2	4	MECH631, MECH621
MECH644	Modular Production System	3	2	4	MECH624
		TOTAL		18	

SECOND TRIMESTER

COURSE CODE	COURSE TITLE	LEC	LAB	CREDIT	PREREQUISITE/S
		Hrs	Hrs	Units	
ENGG638	Engineering and Project Management	3	0	3	ENGG522
MECH651	Industrial Attachment	0	6	6	MECH644
MECH652	Mechatronics Engineering Design	0	6	3	MECH641,

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	Project A				MECH643
		TOTAL		12	

THIRD TRIMESTER

COURSE CODE	COURSE TITLE	LEC	LAB	CREDIT	PREREQUISITE/S
		Hrs	Hrs	Units	
MECH645	Technopreneurship	3	0	3	ENGG638
MECH653	Major Elective 1	2	2	3	SEE LIST BELOW
MECH661	Mechatronics Engineering Design Project B	0	6	3	MECH652 ENGG638
MECH662	Major Elective 2	2	2	3	SEE LIST BELOW
		TOTAL		12	
		Grand Total		204	

ELECTIVE COURSES
MAJOR ELECTIVE 1

COURSE CODE	COURSE TITLE	LEC	LAB	CREDIT	PREREQUISITE/S
		Hrs	Hrs	Units	
MECH653A	Data Communication and Networking 2	2	2	3	CENG611
MECH653C	System Modeling and Simulation	2	2	3	ENGG614
MECH653D	Digital Control Systems	2	2	3	ENGG614

MAJOR ELECTIVE 2

COURSE CODE	COURSE TITLE	LEC	LAB	CREDIT	PREREQUISITE/S
		Hrs	Hrs	Units	
MECH662A	Wireless Communications	2	2	3	CENG611
MECH662C	Digital Signal Processing	2	2	3	MECH639
MECH662D	Power Plant	2	2	3	ENGG532

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