

CURRICULUM STRUCTURE FOR MECHATRONICS ENGINEERING PROGRAMME

SEMESTER I (17.5 c.h./16.5 c.h.)

Course Code	Course Title	Credit hours	Pre-requisites	Co-requisites
EECE 1311	Electric Circuits	3		
MECH 1301	Statics	3		
MANU 1201	Engineering Drawing	2		
MATH1310	Engineering Mathematics I	3		
LM 2026	Bahasa Melayu Kerjaya (Sains dan Teknologi)	(2)**		
LM 1030	Bahasa Melayu I for Foreign Students	(1)*		
LE 4000	English for Academic Writing	3		
TQ 1011	Tilawah Al-Quran I	1		
CCXX YYYY	Study Circle	0.5		

* For international students

** For local students

SEMESTER II (16.5 c.h./17.5 c.h.)

Course Code	Course Title	Credit hours	Pre-requisites	Co-requisites
EECE 1101	Electrical Engineering Lab	1		EECE 1311
EECE 1312	Electronics	3	EECE 1311	
EECE 1313	Programming for Engineers	3		
MECH 1302	Dynamics	3	MECH 1301	
MANU 1202	Workshop Technology	2	MANU 1201	
MATH 1320	Engineering Mathematics II	3	MATH 1310	
LM 1031	Bahasa Melayu II for Foreign Students	(1)*	LM 1030	
TQ 2011	Tilawah II	1		
CCXX YYYY	Study Circle	0.5		

* For international students

SEMESTER III (17.5 c.h.)

Course Code	Course Title	Credit hours	Pre-requisites	Co-requisites
MCTE 2311	Signal and System Analysis	3	MATH 1320 EECE 1312	
MECH 2444	Thermofluid Engineering	4	MATH 1320 MECH 1302	
MATR 2381	Materials Science and Engineering	3	MANU 1202	
MATH 2310	Differential Equations	3	MATH 1320	
MCTE 2101	Mechatronics Workshop	1	MANU 1202	
UNGS 2030	The Islamic Worldview	3	EECE 1101	

CCXX YYYY	Co-Curriculum	0.5		
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SEMESTER IV (17.5 c.h.)

Course Codes	Course Title	Credit Hours	Pre-Requisites	Co-Requisites
MATH 2340	Complex Analysis and Numerical Methods	3	MATH 2310	
MCTE 2102	Mechatronics Lab I	1	MCTE 2101	MECH 2344 MCTE 2351 MCTE 2331
MCTE 2351	Theory of Machines and Mechanisms	3	MATH 2310 MECH 1302	
MCTE 2331	Electrical Machines	3	EECE 1311	
MCTE 2332	Digital Systems and Microprocessor	3	EECE 1312	
MCTE 2333	Instrumentation and Measurement	3	EECE 1312 MCTE 2101	
MCTE 3100	Seminar	1		
CCXX YYYY	Co-Curriculum	0.5		

SEMESTER V (15.5 c.h.)

Course Codes	Course Title	Credit Hours	Pre-Requisites	Co-Requisites
MCTE 3312	Control Systems I	3		
MCTE 3352	Design of Machine Elements	3		
MCTE 3271	Engineering Design	2		
MCTE 3372	Engineering System Reliability	3		
UNGS 2040	Islam, Knowledge and Civilization	3		
MCTE 3103	Mechatronics Interfacing Lab	1		
CCXX YYYY	Co-curriculum	0.5		

SEMESTER VI (16.5 c.h.)

Course Codes	Course Title	Credit Hours	Pre-Requisites	Co-Requisites
MANU 3314	Projects and Operations Management	3	MCTE 3372	
MCTE 3313	Control Systems II	3	MCTE 3312	
MCTE 3300	Integrated Design Project	3	MCTE 3312 MCTE 3271 MCTE 3103	
MCTE 3373	Industrial Automation	3	MCTE 2332 MECH 2344	
MCTE 3104	Mechatronics Lab II	1	MCTE 2333 MCTE 3312	MCTE 3373
UNGS 2050	Ethics and Fiqh for Everyday Life	3	UNGS 2040	
CCXX YYYY	Co-Curriculum	0.5		

INDUSTRIAL TRAINING (5 c.h.)

Course Codes	Course Title	Credit Hours	Pre-Requisites
EITR 3561	Engineering Industrial Training	5	MCTE 3373

SEMESTER VII (16 c.h.)

Course Codes	Course Title	Credit Hours	Pre-Requisites	Co-Requisites
MCTE 4105	Mechatronics Lab III	1	MCTE 2332	MCTE 4352
MCTE 4352	Robotics	3	MCTE 2351 MCTE 3313	
MCTE 4398	Final Year Project I	3	MCTE 3300	
MANU 3318	Engineering Economics and Management	3	MANU 3314	
MCTE 4334	Power Electronics & Drives	3	EECE 1312 MCTE 2331	
MCTE 43XX	Elective	3		

SEMESTER VIII (17 c.h.)

Course Codes	Course Title	Credit Hours	Pre-Requisites	Co-Requisites
MCTE 4399	Final Year Project II	3	MCTE 4391	
MCTE 43XX	Elective	3		
MCTE 43XX	Elective	3		
MCTE 4314	Digital Signal Processing	3	MCTE 2211	
GENE 4300	Engineering Ethics from Islamic Perspective	3		
MANU 4211	Technology Entrepreneurship	2		

LIST OF ELECTIVE COURSES FOR MECHATRONICS ENGINEERING

Elective courses are to be selected based on three streams, namely Computer and Control, Electrical and Electronics, and Mechanical and Automation.

COMPUTER AND CONTROL

Course Code	Course Title	Credit Hours	Pre-requisites	Co-requisites
MCTE 4321	Modern Control Design	3	MCTE 3312	
MCTE 4322	Intelligent Control	3	MCT 3423	
MCTE 4323	Machine Vision	3		
MCTE 4324	Real Time Systems	3	MCTE 3235	
MCTE 4325	System Modelling and Identification	3	MCTE 3312	
MCTE 4326	Vibration Analysis and Control	3	MEC 1392 MCT 3423	
MCTE 4327	Software Engineering	3	ECE 1322	

ELECTRICAL AND ELECTRONIC

Course Code	Course Title	Credit Hours	Pre-requisites	Co-requisites
MCTE 4341	Electronic Instrumentation and Design	3	MCT 3332 MCT 3234	
MCTE 4342	Embedded System Design	3		
MCTE 4343	Biomedical Instrumentation	3	MCTE 2333	
MCTE 4344	Remote Sensing and Telemetry	3	MCT 3332 MCT 4338	
MCTE 4345	Microelectromechanical Systems	3		
MCTE 4346	Electrical Power System	3	MCTE 2331 EECE 1311	
MCTE 4347	Microelectronics Circuits	3		

MECHANICAL AND AUTOMATION

Course Code	Course Title	Credit Hours	Pre-requisites	Co-requisites
MCTE 4361	Autonomous Robotic Systems	3		
MCTE 4362	Robotic Hardware Systems	3	MCTE 4352	
MCTE 4363	Fluid Power Systems	3	MCTE 3423	
MCTE 4364	Industrial Robotics	3		
MCTE 4365	Thermal and Fluid Machines	3		
MCTE 4366	Manufacturing Mechatronics	3		
MCTE 4367	Random and Nonlinear Vibrations	3	MEC 1392 MCT 3423	