

**Bachelor of Mechanical Engineering (Hons.): Programme Structure for Malaysian Students
(for Special Semester Intake Starting from Special Semester, 2012/2013)**

Semester	Code	Courses	Credit Hours	Pre-requisite	Co-requisite
Special	MEMB123	Mechanics I: Statics	3	NONE	NONE
Semester I	ISLB112/MORB112	Islamic / Moral Studies I	2	NONE	NONE
	MASB113	Malaysian Studies	3	NONE	NONE
		Total Credit Hours	8		
Semester I	MATB113	Advanced Calculus & Analytical Geometry	3	NONE	NONE
	MEMB113	Engineering Graphics & CAE	3	NONE	NONE
	CSEB113	Principles of Programming	3	NONE	NONE
	MATB253	Linear Algebra	3	NONE	NONE
	METB113	Engineering Materials	3	NONE	NONE
		Total Credit Hours	15		
Semester II	MATB143	Differential Equations	3	NONE	NONE
	MEHB213	Thermodynamics I	3	NONE	NONE
	MEFB121	Manufacturing Processes Lab.	1	METB113	NONE
	MEMB233	Mechanics II: Dynamics	3	MEMB123	NONE
	ISLB212/MORB212	Islamic / Moral Studies II	2	ISLB112/MORB112	NONE
	TECB213	Technical Communications	3	MEMB113, METB113	NONE
		Total Credit Hours	15		
Semester III	MEFB213	Manufacturing Processes	3	MEFB121	NONE
	ISLB312/MORB312	Islamic / Moral Studies III	2	ISLB212/MORB212	NONE
	MEMB263	Theory of Machines	3	MEMB233	NONE
	MEMB243	Mechanics of Materials	3	MEMB123	METB113
	MEMB221	Mechanics and Materials Lab.	1	NONE	METB113, MEMB243
	EEEB113	Circuits Analysis I	3	NONE	MATB113
	EEEB111	Electrical Measurement Lab.	1	NONE	EEEB113
		Total Credit Hours	16		
Semester IV	MEHB223	Mechanics of Fluids I	3	MEMB123	NONE
	MEHB221	Fluids Mechanics Lab	1	NONE	MEHB223, MEHB213
	COEB223	Numerical Methods For Engineers	3	MATB143, MATB253	CSEB113
	MEMB333	Machine Design	3	MEMB243, MEFB213, MEMB263	NONE
	MEMB331	Machine Design & CAD Lab	1	MEMB113	MEMB333
	COEB442	Engineering Economics	2	MEFB213	NONE
	MEHB312	Thermodynamics II	2	MEHB213	NONE
		Total Credit Hours	15		
Special Semester II	**	Literature and Sociology	3	NONE	NONE
	COEB432	Principles of Management	2	MEMB243	NONE
	MALB113	Bahasa Melayu	3	NONE	NONE
		Total Credit Hours	8		
Semester V	COEB422	Engineers in Society	2	MEMB333	NONE
	MEHB332	Mechanics of Fluids II	2	MEHB223	NONE
	MESB323	Modeling & Control of Dynamic Systems	3	MATB143	NONE
	MEMB322	Mechanical Design Process	2	MEMB333	MEHB323
	MESB333	Engineering Measurements & Lab	3	MATB143, EEEB113	MEHB223
	MEHB323	Heat Transfer	3	MEHB223, MEHB213	NONE

		Total Credit Hours		15		
Semester	Code	Courses	Credit Hours	Pre-requisite	Co-requisite	
Semester VI	MEMB343	Mechanical Vibration	3	MEMB223, MEMB263	NONE	
	MEHB321	Heat Transfer & Applied Thermo. Lab.	1	NONE	MEHB323	
	MESB443	Electro-Mechanical Systems	3	MATB113, EEEB113, MEMB333	NONE	
	MPRB412	Project 1	2	MEMB322	NONE	
	**	Technical Elective I	3	**	**	
	**	Technical Elective II	3	**	**	
		Total Credit Hours	15			
Special Semester III	COEB314	Industrial Training	4	60 credit hours MEMB263	NONE	
		Total Credit Hours	4			
Semester VII	MPRB424	Project 2	4	COEB314, MPRB412	NONE	
	MEMB483	Capstone Design	3	MEMB322	MESB443	
	**	Technical Elective III	3	**	**	
	**	Technical Elective IV	3	**	**	
	**	Technical Elective V	3	**	**	
		Total Credit Hours	16			
		OVERALL CREDIT HOURS	127			

Technical Elective Courses	Thermal Engineering					
	MEHB403	Power Generation	3	MEHB312, MEHB332	NONE	
	MEHB413	Heating, Ventilation & Air Conditioning (only offered in Semester 1)	3	MEHB312, MEHB223, MEHB323	NONE	
	MEHB423	Turbomachinery	3	MEHB312, MEHB332	NONE	
	MEHB433	Combustion Engineering	3	MEHB312, MEHB332	NONE	
	MEHB443	Environmental Engineering	3	MEHB312, MEHB332	NONE	
	MEHB453	Industrial Energy Management	3	MEHB323	NONE	
	MEHB463	Computational Fluid Dynamics	3	MEHB332, COEB223	NONE	
	MEHB483	Thermal Systems Design and Optimization	3	MEHB323	NONE	
	MEHB493	Internal Combustion Engines	3	MEHB312, MEHB332	NONE	
	MEHB503	Renewable Energy	3	MEHB213, COEB442	NONE	
	MEHB513	Introduction to Nuclear Technology (only offered in Semester 2)	3	COEB442	NONE	
	MEHB523	Introduction to Sustainability Engineering	3	COEB442	NONE	
	Nuclear Engineering					
	MENB403	Introduction to Nuclear Engineering (only offered in Semester 1)	3	COEB422	NONE	
MENB413	Radiation Detection and Nuclear Instrumentation (only offered in Semester 1)	3	COEB422	NONE		
MENB423	Introduction to Reactor Physics (only offered in Semester 1)	3	COEB422	NONE		
MENB433	Radiation Safety and Nuclear Waste Management (only offered in Semester 2)	3	COEB422	NONE		
MENB443	Reactor Thermal-hydraulic	3	COEB422	NONE		
MENB453	Nuclear Policy, Security and Safeguards (only offered in Semester 2)	3	COEB422	NONE		

		Applied Mechanics			
	MEMB403	Condition Monitoring and Maintenance Eng	3	MEMB333, MESB323	NONE
	MEMB413	Engineering Mechanics - Simulation	3	MEMB333, MESB323	NONE
	MEMB423	Finite Element Method <i>(only offered in Semester 1)</i>	3	MEMB333, COEB223	NONE
	MEMB453	Non Destructive Testing	3	MEMB333	NONE
	MEMB463	Failure Analysis and Design <i>(only offered in Semester 1)</i>	3	MEMB333	NONE
	MEMB473	Advanced Mechanics of Materials	3	MEMB243	NONE
	METB413	Advanced Materials	3	MEMB333, METB113	NONE
		Mechatronics			
	MESB403	Automation & Robotics <i>(only offered in Semester 1)</i>	3	MESB323, MEFB213	NONE
	MESB413	Elements of Mechatronics <i>(only offered in Semester 1)</i>	3	MESB323	NONE
	MESB423	Robot Design	3	MEMB333, MESB323	NONE
	ECEB463	Artificial Intelligence and Neural Fuzzy System	3	MESB323	NONE
		Manufacturing Systems			
	MEFB413	Advanced Manufacturing Processes	3	MEMB333, MEFB213	NONE
	MEFB433	Production, Planning and Control	3	MEMB333, MEFB213	NONE
	MEFB443	Industrial Engineering	3	MEMB333, MEFB213	NONE
	MEFB453	Total Quality Management	3	MEMB333, MEFB213	NONE
	MEFB473	Computer Aided Manufacturing <i>(only offered in Semester 2)</i>	3	MEMB331, MEFB213	NONE
	EEIB413	Process Control & Instrumentation	3	MESB323	NONE
		MQA and University (Compulsory)			
	MALB113	Bahasa Melayu 1	3	NONE	NONE
	ISLB112/MORB112	Islamic / Moral Studies I	2	NONE	NONE
	ISLB212/MORB212	Islamic / Moral Studies II	2	ISLB112/MORB112	NONE
	ISLB312/MORB312	Islamic / Moral Studies III	2	ISLB212/MORB212	NONE
	MASB113	Malaysian Studies	3	NONE	NONE
		Literature and Sociology (Take any 1 subject)			
	LITB113	World Literature	3	NONE	NONE
	CIVB113	World Civilization	3	NONE	NONE
	PHIB113	World Philosophy	3	NONE	NONE
	RELB113	Comparative Religion	3	NONE	NONE