

Program Specification – Bylaw 2020 (160 Credit hours) (2025/2026)

1. Basic Information - (معلومات أساسية)

Program Title (according to what is stated in the bylaw):	Mechatronics Engineering	
Total number of credit hours of the program:	160 Credit hours	
Number of academic years/levels (expected program duration):	5 years (5 levels)	
Department (s) Participating (if any) in teaching the program:	Basic Sciences Dept. Mechatronics Engineering Dept. Communication And Computer Engineering Dept. Dept. of General Mechanical Engineering (Mechanical Production Division) Electrical and Renewable Energy Engineering Dept.	
Faculty:	Faculty of Engineering	
University/Academy:	Nahda University in Beni-Suef (NUB)	
Program divisions (tracks) in the final year (if any):	None	
Partnerships with other parties and the nature of each (if any):	None	
Name of the program coordinator (attach the assignment decision):	Prof. Dr. Amir Ali Kamal, Assignment Decision	
Program Specification Approval Date:	6/9/2025	5/10/2025
Council responsible for Program Specification Approval (Attach the Decision / Minutes):	Department council	Faculty council

2. Program Aims - (أهداف البرنامج)

The main goal of the " Mechatronics engineering program" is to prepare Mechatronics engineers who are:

- PA 1. Provide an integrated and modern engineering education in the fields of mechanics, electrical engineering, computer engineering, and artificial intelligence, in line with technological advancements and labor market requirements.
- PA 2. Develop students' practical and applied skills in the design, operation, and maintenance of automated and intelligent systems, while enhancing their abilities in innovation and problem-solving.
- PA 3. Prepare graduates who are capable of competing locally, regionally, and internationally through learning outcomes aligned with quality standards and engineering accreditation requirements.
- PA 4. Promote applied scientific research in the fields of robotics, embedded systems, intelligent control, and energy efficiency, supporting sustainable development and digital transformation.
- PA 5. Develop community and industrial partnerships by providing services, consultations, and training programs that support the needs of industry and society.

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PA 6. Instill principles of quality and continuous improvement in the educational process, and periodically evaluate learning outcomes to ensure their alignment with technological advancements.

PA 7. Foster professional values and social responsibility among students, while enhancing their communication skills, teamwork abilities, and commitment to engineering ethics.

3. Program Structure (Curriculum) - (هيكل البرنامج (المنهج الدراسي))

3-1. Program Components - (مكونات البرنامج)

Item	Requirement Category/Type	Credit hours	The percentage of the hours
I	University Requirements	14	8.75 %
Specialization requirements			
II	Faculty Requirements	41	25.625 %
	Mechatronics Engineering Program Requirement	105	65.625 %
Total credit hours		160	100 %

Requirement Category/Type		Number of Courses	Number of Credit Hours	Percentage from the total number of hours	Notes
University Requirements		7 (Compulsory)	14 (Compulsory)	8.75 %	
Faculty Requirements		17 (14 compulsory + 3 elective)	41 (35 compulsory + 6 elective)	25.625 %	
Program Major Requirements		22 (Compulsory)	60 (Compulsory)	37.5 %	
Program Minor Requirements (tracks)	Mechatronics Engineering Division	14 (12 compulsory + 2 elective)	39 (33 compulsory + 6 elective)	24.375 %	
Other requirements	Field Training	2 (Compulsory)	0 (Pass without credit hours)	0 %	
	Graduation Project	2 (Compulsory)	6 (Compulsory)	3.75 %	
	Mandatory training year	-	-	-	
	Other (to be mentioned): Aptech-Computer Skills	3	0 (Pass without credit hours)	0 %	
Total Compulsory Courses		59	148	92.5 %	
Elective Courses		5	12	7.5 %	
Total		64	160	100 %	

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3-2. Program courses according to the expected study plan - (مقررات البرنامج تبعاً للخطة الدراسية المتوقعة)

Academic Level	Semester	Course Code	Course Title	Course Type (Compulsory / Elective)	Requirement Category/ Type	Credits Hours	Number of Weekly Contact Hours				Pre-requisites
							Lec	Tut	Lab	TT	
Level 1	Semester 1	BAS011	Mathematics (1)	Compulsory	Faculty Requirements	3	2	2	0	4	
Level 1	Semester 1	BAS012	Vibration and Waves	Compulsory	Faculty Requirements	3	2	1	1	4	
Level 1	Semester 1	BAS013	Statics	Compulsory	Faculty Requirements	3	2	2	0	4	
Level 1	Semester 1	BAS014	Engineering Chemistry	Compulsory	Faculty Requirements	3	2	1	1	4	
Level 1	Semester 1	BAS015	Engineering Drawing (1)	Compulsory	Faculty Requirements	3	2	3	0	5	
Level 1	Semester 1	CCE011	Computing in Engineering	Compulsory	Faculty Requirements	2	2	1	1	4	
Level 1	Semester 1	NUB	Complete hours from NUB Compulsory	Compulsory	University Requirements	1	1	0	0	1	
Level 1	Semester 2	BAS021	Mathematics (2)	Compulsory	Faculty Requirements	3	2	2	0	4	BAS011
Level 1	Semester 2	BAS022	Electricity and Magnetism	Compulsory	Faculty Requirements	3	2	1	2	5	BAS012
Level 1	Semester 2	BAS023	Dynamics	Compulsory	Faculty Requirements	3	2	2	0	4	BAS013
Level 1	Semester 2	BAS024	Fundamentals of Engineering	Compulsory	Faculty Requirements	2	2	0	0	2	
Level 1	Semester 2	BAS025	Engineering Drawing (2)	Compulsory	Faculty Requirements	1	0	0	3	3	BAS015
Level 1	Semester 2	MPE021	Production Engineering	Compulsory	Faculty Requirements	2	2	0	2	4	
Level 1	Semester 2	ENG111	English (1)	Compulsory	University Requirements	1	1	0	0	1	
Level 1	Semester 2	NUB	Complete hours from NUB Compulsory	Compulsory	University Requirements	3	3	0	0	3	
Level 2	Semester 3	BAS111	Mathematics (3)	Compulsory	General Mechanical Engineering Requirement	2	2	1	0	3	BAS021
Level 2	Semester 3	BAS112	Building Safety and Fire Protection	Compulsory	Faculty Requirements	2	2	0	0	2	
Level 2	Semester 3	GME111	Rigid Body Dynamics	Compulsory	General Mechanical Engineering Requirement	2	2	0	1	3	BAS023
Level 2	Semester 3	GME112	Mechanical Engineering Drawing	Compulsory	General Mechanical Engineering Requirement	3	0	4	2	6	BAS025
Level 2	Semester 3	GME113	Thermodynamics (1)	Compulsory	General Mechanical Engineering Requirement	3	2	2	0	4	BAS014
Level 2	Semester 3	CCE113	Electrical Circuits	Compulsory	General Mechanical Engineering Requirement	2	2	1	1	4	BAS022

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Academic Level	Semester	Course Code	Course Title	Course Type (Compulsory / Elective)	Requirement Category/ Type	Credits Hours	Number of Weekly Contact Hours				Pre-requisites
							Lec	Tut	Lab	TT	
Level 2	Semester 3		Structures and Properties of Materials Elective	Elective	Faculty Requirements	2	2	0	1	3	
Level 2	Semester 3		Mechanical Engineering Requirement Elective	Elective	General Mechanical Engineering Requirement	2	2	1	0	3	
Level 2	Semester 4	BAS121	Mathematics (4)	Compulsory	General Mechanical Engineering Requirement	2	2	1	0	3	BAS111
Level 2	Semester 4	BAS122	Probability and Statistics	Compulsory	Faculty Requirements	2	2	1	0	3	
Level 2	Semester 4	GME121	Manufacturing Technology (1)	Compulsory	General Mechanical Engineering Requirement	3	2	0	2	4	MPE021
Level 2	Semester 4	GME122	Thermodynamics (2)	Compulsory	General Mechanical Engineering Requirement	3	2	2	0	4	GME113
Level 2	Semester 4	GME123	Mechanics of Machines	Compulsory	General Mechanical Engineering Requirement	3	2	2	0	4	GME111
Level 2	Semester 4	ERE122	Electrical Machines	Compulsory	General Mechanical Engineering Requirement	2	2	1	1	4	CCE113
Level 2	Semester 4	ENG112	English (2)	Compulsory	University Requirements	1	1	0	0	1	ENG111
Level 2	Semester 4		Project Management Elective	Elective	Faculty Requirements	2	2	1	0	3	
Level 3	Semester 5	GME211	Machine Construction	Compulsory	General Mechanical Engineering Requirement	3	2	2	0	4	GME112 ,BAS013
Level 3	Semester 5	GME212	Fluid Mechanics and Turbo-Machinery	Compulsory	General Mechanical Engineering Requirement	3	2	0	2	4	GME113
Level 3	Semester 5	GME213	Metallurgy and Material Testing	Compulsory	General Mechanical Engineering Requirement	3	2	0	2	4	
Level 3	Semester 5	MTE211	Field Training (1)	Compulsory	Mechatronics Program Requirements	0	0	0	0	0	
Level 3	Semester 5	MTE212	Measurement and Instrumentation	Compulsory	General Mechanical Engineering Requirement	2	1	0	3	4	GME113
Level 3	Semester 5	ERE316	Modelling and Simulation of Engineering Systems	Compulsory	General Mechanical Engineering Requirement	3	2	0	2	4	BAS121
Level 3	Semester 5	CCE218	Introduction to Electronics	Compulsory	General Mechanical Engineering Requirement	2	2	1	1	4	CCE113
Level 3	Semester 5	CCE112	Computer Programming	Compulsory	Mechatronics Program Requirements	3	2	0	2	4	CCE011
Level 3	Semester 6	GME221	Heat Transfer	Compulsory	General Mechanical Engineering Requirement	3	2	0	2	4	GME113

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Academic Level	Semester	Course Code	Course Title	Course Type (Compulsory / Elective)	Requirement Category/ Type	Credits Hours	Number of Weekly Contact Hours				Pre-requisites
							Lec	Tut	Lab	TT	
Level 3	Semester 6	GME222	Casting and Welding Technology (1)	Compulsory	General Mechanical Engineering Requirement	2	1	0	3	4	GME213
Level 3	Semester 6	GME223	Mechanical Vibrations	Compulsory	General Mechanical Engineering Requirement	3	2	2	0	4	GME111
Level 3	Semester 6	ERE324	Automatic Control Systems	Compulsory	General Mechanical Engineering Requirement	3	2	0	2	4	ERE316
Level 3	Semester 6	MTE213	Introduction to Mechatronics	Compulsory	Mechatronics Program Requirements	3	2	0	2	4	CCE112
Level 3	Semester 6	ENG113	English (3)	Compulsory	University Requirements	2	2	0	0	2	ENG112
Level 3	Semester 6		Engineering Economy Elective	Elective	Faculty Requirements	2	2	1	0	3	
Level 4	Semester 7	MTE311	Field Training (2)	Compulsory	Mechatronics Program Requirements	0	0	0	0	0	MTE211
Level 4	Semester 7	MTE312	Mechatronic Systems Design	Compulsory	Mechatronics Program Requirements	3	2	0	2	4	ERE316, MTE213
Level 4	Semester 7	MTE313	Industrial Robotics	Compulsory	Mechatronics Program Requirements	3	2	0	2	4	GME123
Level 4	Semester 7	MTE314	Hydraulics and Pneumatics Control	Compulsory	General Mechanical Engineering Requirement	3	2	0	2	4	ERE324, GME212
Level 4	Semester 7	MPE314	Machine Elements Design	Compulsory	General Mechanical Engineering Requirement	3	2	2	0	4	GME211
Level 4	Semester 7	CCE332	Digital & Logic Circuits Design	Compulsory	Mechatronics Program Requirements	3	2	0	2	4	CCE113
Level 4	Semester 7	CCE333	Computer Vision for Mechatronics	Compulsory	Mechatronics Program Requirements	3	2	0	2	4	MTE213
Level 4	Semester 8	MTE321	Mechatronics Graduation Project (1)	Compulsory	Mechatronics Program Requirements)	3	1	0	4	5	MTE312
Level 4	Semester 8	MTE322	Sensors and Measurement Systems	Compulsory	Mechatronics Program Requirements	3	2	0	2	4	MTE212
Level 4	Semester 8	MTE323	Design of Autonomous systems	Compulsory	Mechatronics Program Requirements	4	2	2	2	6	MTE313, CCE333
Level 4	Semester 8	CCE334	Introduction to Embedded Systems	Compulsory	Mechatronics Program Requirements	3	2	0	2	4	CCE112
Level 4	Semester 8	ERE327	Power Electronics and Motor Drives	Compulsory	Mechatronics Program Requirements	3	2	0	2	4	ERE122
Level 4	Semester 8		Mechatronics Engineering Elective (1)	Elective	Mechatronics Program Requirements	2	2	1	1	4	
Level 5	Semester 9	MTE411	Mechatronics Graduation Project (2)	Compulsory	Mechatronics Program Requirements	3	0	0	6	6	MTE321
Level 5	Semester 9	CCE417	Computational Intelligence	Compulsory	Mechatronics Program Requirements	3	2	0	2	4	BAS122, CCE112

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Academic Level	Semester	Course Code	Course Title	Course Type (Compulsory / Elective)	Requirement Category/ Type	Credits Hours	Number of Weekly Contact Hours				Pre-requisites
							Lec	Tut	Lab	TT	
Level 5	Semester 9		Mechatronics Engineering Elective (2)	Elective	Mechatronics Program Requirements	3	2	0	2	4	
Level 5	Semester 9	NUB	Complete hours from NUB Compulsory	Compulsory	University Requirements	3	3	0	0	3	
Level 5	Semester 9	NUB	Complete hours from NUB Compulsory	Compulsory	University Requirements	3	3	0	0	3	

4. Academic Standards - (المعايير الأكاديمية المتبناة)

- Adopted Academic Standards (NARS/ARS):	Academic Reference Standards (ARS)
- Date of Adoption of Standards in the governing Council:	
- Adoption of National Academic Reference Standards (NARS 2018):	The Faculty Council, in its meeting No. (57) on 17/9/2019.
- Adoption of Academic Reference Standards (ARS):	The Faculty Council, in its meeting No. (102) on 17/10/2023, based on the recommendation of the Department Council in its meeting No. (2) in academic year 2023/2024, on 7/10/2023.

The matrix of the Academic Reference Standards (ARS) with the National Academic Reference Standards (NARS):

ARS (Mechatronics Engineering)	NARS 2018 (Engineering)
Competencies for general engineering graduate (Level A)	Competencies for general engineering Graduate (Level A)
A1. Identify, formulate, and solve complex engineering problems by applying engineering fundamentals, basic science and mathematics.	A1. Identify, formulate, and solve complex engineering problems by applying engineering fundamentals, basic science and mathematics.
A2. Develop and conduct appropriate experimentation and/or simulation, analyze and interpret data, assess and evaluate findings, and use statistical analyses and objective engineering judgment to draw conclusions.	A2. Develop and conduct appropriate experimentation and/or simulation, analyze and interpret data, assess and evaluate findings, and use statistical analyses and objective engineering judgment to draw conclusions.
A3. Apply engineering design processes to produce cost-effective solutions that meet specified needs with consideration for global, cultural, social, economic, environmental, ethical and other aspects as appropriate to the Telecommunication Engineering program and within the principles and contexts of sustainable design and development.	A3. Apply engineering design processes to produce cost-effective solutions that meet specified needs with consideration for global, cultural, social, economic, environmental, ethical and other aspects as appropriate to the Telecommunication Engineering program and within the principles and contexts of sustainable design and development.

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ARS (Mechatronics Engineering)	NARS 2018 (Engineering)
A4. Utilize contemporary technologies, codes of practice and standards, quality guidelines, health and safety requirements, environmental issues and risk management principles.	A4. Utilize contemporary technologies, codes of practice and standards, quality guidelines, health and safety requirements, environmental issues and risk management principles.
A5. Practice research techniques and methods of investigation as an inherent part of learning.	A5. Practice research techniques and methods of investigation as an inherent part of learning.
A6. Plan, supervise and monitor implementation of engineering projects, taking into consideration other trades requirements.	A6. Plan, supervise and monitor implementation of engineering projects, taking into consideration other trades requirements.
A7. Function efficiently as an individual and as a member of multi-disciplinary and multicultural teams.	A7. Function efficiently as an individual and as a member of multi-disciplinary and multicultural teams.
A8. Communicate effectively – graphically, verbally and in writing with a range of audiences using contemporary tools.	A8. Communicate effectively – graphically, verbally and in writing with a range of audiences using contemporary tools.
A9. Use creative, innovative and flexible thinking and acquire entrepreneurial and leadership skills to anticipate and respond to new situations.	A9. Use creative, innovative and flexible thinking and acquire entrepreneurial and leadership skills to anticipate and respond to new situations.
A10. Acquire and apply new knowledge; and practice self, lifelong and other learning strategies.	A10. Acquire and apply new knowledge; and practice self, lifelong and other learning strategies.
Competencies for the basic Mechanical Engineering graduate (level b)	Competencies for the basic Mechanical Engineering graduate (level b)
B.1 Model, analyze and design physical systems applicable to the specific discipline by applying the concepts of: Thermodynamics, Heat Transfer, Fluid Mechanics, solid Mechanics, Material Processing, Material Properties, Measurements, Instrumentation, Control Theory and Systems, Mechanical Design and Analysis, Dynamics and Vibrations.	B.1 Model, analyze and design physical systems applicable to the specific discipline by applying the concepts of: Thermodynamics, Heat Transfer, Fluid Mechanics, solid Mechanics, Material Processing, Material Properties, Measurements, Instrumentation, Control Theory and Systems, Mechanical Design and Analysis, Dynamics and Vibrations.
B.2 Plan, manage and carry out designs of mechanical systems and machine elements using appropriate materials both traditional means and computer-aided tools and software contemporary to the mechanical engineering field.	B.2 Plan, manage and carry out designs of mechanical systems and machine elements using appropriate materials both traditional means and computer-aided tools and software contemporary to the mechanical engineering field.
B.3 Select conventional mechanical equipment according to the required performance.	B.3 Select conventional mechanical equipment according to the required performance.
B.4 Adopt suitable national and international standards and codes; and integrate legal, economic and financial aspects to design, build, operate, inspect and maintain mechanical equipment and systems.	B.4 Adopt suitable national and international standards and codes; and integrate legal, economic and financial aspects to design, build, operate, inspect and maintain mechanical equipment and systems.
Competencies for Mechatronics Engineering program Graduate (Level C)	
C1. Illustrate the basic concepts and theories of mathematics, sciences, engineering projection and their applications within the field of mechatronics engineering	
C2. Analyze mechatronic system using scientific, mathematical and computer-based models and asses the limitations of particular cases.	

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ARS (Mechatronics Engineering)	NARS 2018 (Engineering)
C3. Identify and classify the performance of mechatronic systems and components through the use of analytical methods and Modelling techniques	
C4. Interpret experimental and other numerical input/output data from dynamic systems	
C5. Design a mechatronic system using systems approach to meet a given specification and requirements.	
C6. Integrate a wide range of analytical tools, techniques, equipment, and software packages to design and develop mechatronic systems.	
C7. Exercise creative approaches to the analysis and solution of problems in mechatronic engineering.	

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5. Matrix of Academic Standards (Program Outcomes POs) with Courses – (مصفوفة المعايير الأكاديمية (مخرجات البرنامج) مع المقررات)

5-1. Matrix of Academic Standards with “Compulsory” Courses:

Code	Course Title (Compulsory Course)	CHs	Academic Standards (Mention code only)																				
			A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	B1	B2	B3	B4	C1	C2	C3	C4	C5	C6	C7
Nahda University Requirements Courses																							
HUM101	Human Rights	3					*			*	*												
REM101	Scientific Thinking	3		*		*	*		*	*													
MGT101	Principles of General Management	3					*		*	*	*												
ETS401	Professional Ethics	1				*			*	*													
ENG111A	English (1)	1							*	*		*											
ENG112A	English (2)	1							*	*		*											
ENG113A	English (3)	2							*	*		*											
CS-121	Aptech-Computer Skills (1)	0		*						*	*												
CS-122	Aptech-Computer Skills (2)	0		*						*	*												
CS-123	Aptech-Computer Skills (3)	0		*						*	*												
Faculty of Engineering Requirements Courses																							
BAS011	Mathematics (1)	3	*	*																			
BAS021	Mathematics (2)	3	*	*																			
BAS112	Building Safety and Fire Protection	2				*	*		*														
BAS012	Vibration and Waves	3	*																				
BAS022	Electricity and Magnetism	3	*																				

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Code	Course Title (Compulsory Course)	CHs	Academic Standards (Mention code only)																							
			A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	B1	B2	B3	B4	C1	C2	C3	C4	C5	C6	C7			
BAS013	Statics	3	*	*																						
BAS023	Dynamics	3	*	*																						
BAS014	Engineering Chemistry	3	*	*																						
MPE021	Production Engineering	2		*	*	*								*												
BAS015	Engineering Drawing (1)	2									*	*														
BAS025	Engineering Drawing (2)	3							*	*																
CCE011	Computing in Engineering	1	*	*					*		*															
BAS024	Fundamentals of Engineering	2	*						*	*																
	Pool of Structures and Properties of Materials Elective	2																								
	Pool of Engineering Economy Elective Courses	2																								
	Pool of Project Management Elective Courses	2																								
General Mechanical Engineering Requirement																										
BAS111	Mathematics (3)	2	*	*																						
BAS121	Mathematics (4)	2	*	*											*		*									
GME111	Rigid Body Dynamics	2	*		*								*	*												
GME113	Thermodynamics (1)	3	*				*						*		*											
GME122	Thermodynamics (2)	3	*				*						*		*											
GME221	Heat Transfer	3	*	*									*													
GME212	Fluid Mechanics and Turbo-Machinery	3	*	*									*				*									

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Code	Course Title (Compulsory Course)	CHs	Academic Standards (Mention code only)																				
			A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	B1	B2	B3	B4	C1	C2	C3	C4	C5	C6	C7
MTE212	Measurement and Instrumentation	2		*	*	*							*			*							
GME112	Mechanical Engineering Drawing	3	*	*									*	*				*					
GME211	Machine Construction	3										*		*	*								
GME314	Machine Elements Design	3										*	*		*								
GME123	Mechanics of Machines	3	*		*							*	*										
GME223	Mechanical Vibrations	3	*	*								*			*								
GME213	Metallurgy and Material Testing	3		*			*					*			*								
GME222	Casting and Welding Technology	2			*			*			*		*	*									
GME121	Manufacturing Technology (1)	3												*	*		*	*					
ERE316	Modelling and Simulation of Engineering Systems	3			*	*						*		*	*	*	*	*					
ERE324	Automatic Control Systems	3	*	*								*			*								
MTE314	Hydraulic and Pneumatics Control	3	*	*	*							*		*	*	*	*	*					
CCE113	Electrical Circuit	2			*								*	*						*			
ERE122	Electrical Machines	2			*									*	*					*			
CCE218	Introduction to Electronics	2	*					*					*	*									
	Mechanical Engineering Requirement Elective	2																					
Mechatronics Program Requirements																							
MTE213	Introduction to Mechatronics	3												*	*		*	*	*			*	*
MTE313	Industrial Robotics	3	*	*									*				*	*	*	*			

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Code	Course Title (Compulsory Course)	CHs	Academic Standards (Mention code only)																				
			A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	B1	B2	B3	B4	C1	C2	C3	C4	C5	C6	C7
MTE323	Design of Autonomous Systems	4														*	*	*		*	*		
MTE312	Mechatronic System Design	3													*	*	*		*	*	*		
MTE322	Sensors and Measurement Systems	3										*			*				*		*		
CCE112	Computer Programming	3	*					*					*								*	*	
CCE332	Digital and Logic Circuits Design	3	*	*												*	*						
CCE333	Computer Vision For Mechatronics	3															*			*	*		
CCE417	Computational Intelligence	3																		*	*	*	
CCE334	Introduction to Embedded Systems	3															*		*		*		
ERE327	Power Electronics & Motor Drives	3														*			*			*	
MTE321	Mechatronics Graduation Project -1	3	*		*					*					*	*				*	*	*	
MTE411	Mechatronics Graduation Projects-2	3	*		*					*					*	*				*	*	*	
MTE211	Field Training -1	0					*	*			*				*					*	*	*	
MTE311	Field Training -2	0					*	*			*				*					*	*	*	
	Mechatronics Engineering Elective (1)	2																					
	Mechatronics Engineering Elective (2)	3																					

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5-2. Matrix of Academic Standards with “**Elective**” Courses

Code	Course Title (Compulsory Course)	CHs	Academic Standards (Mention code only)																				
			A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	B1	B2	B3	B4	C1	C2	C3	C4	C5	C6	C7
Nahda University Requirements Courses																							
None																							
Faculty of Engineering Requirements Courses																							
MPE171	Structures and Properties of Materials	2	*															*	*				
MPE271	Engineering Economy	2						*										*			*		
MPE371	Industrial Project Management	2			*						*		*										
Mechanical Engineering Requirement Elective																							
GME171	Maintenance Planning and scheduling	2			*							*		*				*					
MTE171	Introduction to Automotive	2	*									*			*								
MTE172	Industrial Automation	2		*	*							*			*								
Mechatronics Engineering Elective (1)																							
MTE173	Embedded Systems for Automotive	2															*		*	*	*	*	
MTE174	Advanced Manufacturing Technology & Prototyping	2														*		*				*	*
MTE175	Motion Control	2											*				*		*	*			
CCE228	Industrial Electronics for Mechatronics	2											*				*			*	*		
CCE436	Advanced Computer Programming	2															*				*	*	
CCE437	Industrial Networks	2																*			*	*	*
Mechatronics Engineering Elective (2)																							
BAS271	Engineering Optimization	3	*				*	*									*		*	*	*	*	
MTE271	Modeling and Control of Electrohydraulic Systems	3														*				*	*	*	*
MTE272	Selected topics in industrial mechatronics	3														*	*			*	*	*	*
MTE273	MEMS Design	3											*			*	*	*			*	*	*
MTE274	Mechatronics in Rehabilitation Technology	3														*		*		*	*	*	*
MTE275	Mechatronics in Automotive Application	3														*		*	*	*	*	*	*

Program Specification

6. Teaching and Learning strategies/methods to achieve Program Outcomes:

(استراتيجيات / طرق التعليم والتعلم لتحقيق مخرجات البرنامج (المعايير المتبناة))

I) Teaching and Learning strategies:

1- Teaching and learning strategies in traditional education:

1-1- Teaching strategies (where the faculty member is the focus)

1-1-1- Lectures

1-1-2- Field visit

1-2- Learning strategies (where the student is the focus)

1-2-1- Cooperative education

a) Education based on group projects

b) Education based on collective research

c) Brainstorming

1-2-2- Interactive education strategies

a) Self-study

b) Reporting and research

c) Problem solving

d) Individual projects

e) Education in experimental discovery

2- Distance teaching and learning strategies (e-learning)

3- Blended Learning strategies

3-1- Blended learning patterns

3-1-1- Rotation

a) Station Rotation

b) Lab Rotation

c) Self Rotation

d) Flipped Classroom

3-1-2- Flex Mode.

II) Teaching and Learning Methods

1-	Lectures
2-	Tutorials
3-	Cooperative education
4-	Self-study
5-	Reports and Researches
6-	Problem Solving
7-	Projects
8-	Laboratory
9-	Online Learning
10-	Hybrid Education
11-	Field Visits

7. Student Assessment strategies/methods to verify and ensure students' acquisition of Program Outcomes:

(استراتيجيات / طرق تقييم الطلاب للتحقق من اكتساب الطلاب لمخرجات البرنامج (المعايير المتبناة))

Assessment Methods

Program Specification

1-	Written Exams (Final Exam, Midterm Exam)
2-	Practical Exam
3-	Oral Exam
4-	Quizzes
5-	Assignments
6-	Research and Reports
7-	In-class discussions
8-	One to one discussion

8. Program Key Performance Indicators (if any) – (مؤشرات قياس أداء البرنامج (إن وجد))

No.	Performance Indicator	Target Level	Assessment Method	Measurement time
1-	Overall success rate of the students	≥ 70 %	Analysis of students' results	At the end of academic year
2-	Student satisfaction level with the program	≥ 80 %	questionnaire	At the end of academic year
3-	Level of job satisfaction among academic staff	≥ 80 %	questionnaire	At the end of academic year
4-	Graduates' satisfaction with the program after graduation	≥ 80 %	questionnaire	At the end of academic year
5-	Employers' satisfaction with program graduates	≥ 70 %	questionnaire	At the end of academic year

Name & Signature Program Coordinator	Name and Signature Head of the department council	Name and Signature Dean of the Faculty
Prof. Dr. Ahmed Abdel Hamid Zaki	Prof. Dr. Amir Ali Kamel	Prof. Dr. Salem M. ElKhodary



