

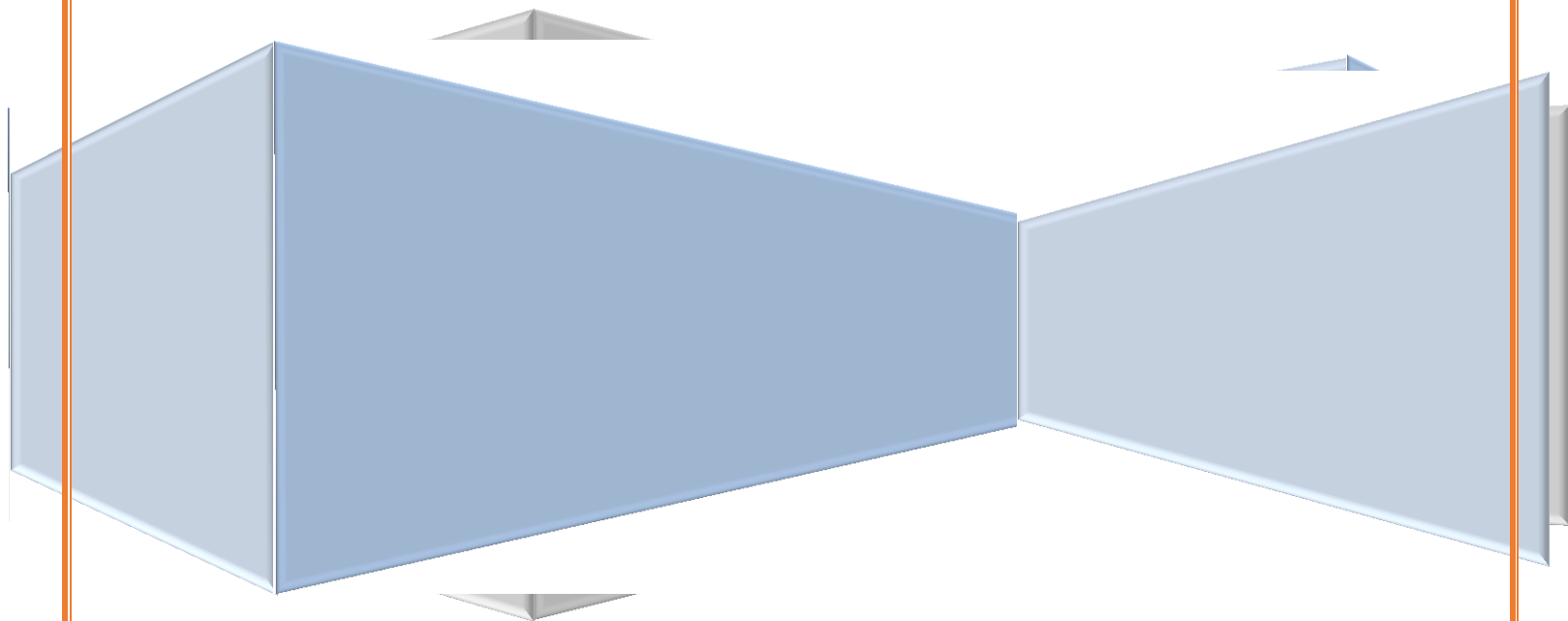


College of engineering
Mechanical engineering
department



Academic program description

University of Mosul/college of
engineering/mechanical engineering department



Academic program description

This academic program description provides a necessary summary of the learning outcomes most important characteristics of the program and the that the student is expected to achieve, demonstrating whether he or she has made the most of the available opportunities. It is accompanied by a description of each course within the program

1. institution Educational	University of Al Mosul
2. department /center Scientific	College of Engineering/Department of Mechanical Engineering
3. or professional Name of the academic program	mechanical engineering
4. Name of the final certificate	Bachelor of Science in Mechanical Engineering
5. annual/courses/others : Study system	Courses
6. accreditation program Accredited	nothing
7. Other external influences	Higher decisions
8. Date the description was prepared	
9. Objectives of the academic program	
<ul style="list-style-type: none"> solid foundations of basic sciences such as mathematics, physics and other engineering sciences related .to the specialty of mechanical engineering 	
<ul style="list-style-type: none"> Establishing a background knowledge based on mechanical engineering sciences 	
<ul style="list-style-type: none"> Introducing the student to his technical and social responsibilities necessary to practice design, operation, and maintenance work for a wide range of thermal, refrigeration, air conditioning, and control systems to achieve the 	

account various scientific determinants such as required goals, taking into .economic, environmental, security, and health determinants

- Developing the student's scientific skills in dealing with power units, from systems, applications, and mechanical and electrical machines, starting the level of designing and analyzing the units to diagnosing problems and .malfunctions
- Consolidating contemporary skills and sciences, including computer science, engineering software applications, and other modern ancillary sciences .sure the student's ability to develop and learn throughout lifenecessary to en
- Enhancing the student's ability and skills in technical communication, such as presentation skills, report writing, and explanations, as a member of a .team or individually

10.outcomes and teaching, learning and evaluation methods program

.Cognitive objectives -A

Principles of basic, applied, and engineering sciences necessary for -A1 familiarity with the specialty of mechanical engineering (such as mathematics, physics, production engineering, materials, digital ,electrical engineering (systems, and automation

with the Mechanical engineering sciences are the sciences concerned -A2 design, manufacture, operation, and development of machines or devices used sectors and areas of life. Mechanical engineering in various engineering relates, for example, to the space and aviation industries, production, energy conversion, building mechanics, transportation, air conditioning and ulation for various refrigeration technology, and information modeling and sim .engineering applications

The foundations of professionalism and related communication skills, -A3 such as presenting and writing reports, with knowledge of economic, legal, .health, social, and security determinants

:objectives of the program Skills - B

Solving and formulating engineering problems in general, especially those - B1 .related to mechanical engineering

Identifying and formulating engineering problems and applying - B2 thods, and creativity skills to mathematical knowledge, science, engineering me .solve problems in the field of mechanical engineering

Interpreting numerical data and applying mathematical methods to - B3

.analyze problems
 Preparing technical and operational specifications for energy components, -B4
 .tems, and mechanical devicessys

Teaching and learning methods

- Theoretical lectures
- Discussion sessions
- Laboratory experiments
- Computer laboratories

Evaluation methods

- .term and final exams-Mid
- .Short exams
- Reports
- Practical exams
- Diction

:skills Thinking -C

Conducting and designing practical experiments for mechanical and -C1
 electromechanical systems, in addition to analyzing and interpreting practical results
 .related to mechanical systems
 to solve made programs-Writing computer programs and using ready -C2
 problems related to the field of specialization
 Applying modern engineering techniques, skills, and tools and intelligent -C3
 .control of mechanical systems

Teaching and learning methods

- Theoretical lectures
- Discussion sessions
- experiments Laboratory
- Computer laboratories
- Projects
- Industrial training

Evaluation methods

- Semester and final exams
- Short exams
- Reports

- Practical exams

other skills related to) transferable skills qualifying and General - D
 . (personal development employability and
 -D1 Work professionally and with ethical responsibility, individually or within
 a multidisciplinary team
 Writing technical reports and delivering effective presentations -D2
 ineering Effective use of information technology related to eng -D3
 .applications in general and the field of mechanics in particular
 The possibility of starting scientific research projects in the future -D4

Teaching and learning methods

- Theoretical lectures
- Discussion sessions
- Laboratory experiments
- laboratories Computer
- Projects
- Industrial training

Evaluation methods

- Semester and final exams
- Short exams
- Reports
- Practical exams

11.Planning for personal development

Student development, teacher's program for student development such as using the Internet, using) (IT) using safety methods in the laboratory and developing the , student's academic personality capable of competition, dialogue, and problem .solving

12.(sion standard (establishing regulations related to college admissionAdmis

1. Central distribution by the Ministry of Higher Education .determines those accepted into the College of Engineering
2. The choices of those accepted into the departments are

and competition takes place between them on the ,determined
.then the total of the differentiation lessons -basis of the total
3. Transfer from other departments and universities is accepted
.in accordance with higher controls and instructions

13.sources of information about the program The most important

- Developing the program through resources
- Higher directives
- What is emerging from the science in the field of specialization

14. goals Department vision, mission and

:Department vision

The department seeks to be one of the leading departments in the field of mechanical engineering in Iraq and the region by graduating engineers specializing in various curricula in mechanical engineering in accordance with the latest approved scientific curricula and using the latest scientific teaching methods such as laboratories and modern teaching methods

Department message

- 1 Graduating competent engineers in various mechanical engineering design, thermal specializations, which include the foundations of mechanical capacity, various production methods, air conditioning and refrigeration, so that they have the ability to be creative and innovative in various engineering fields and keep pace with scientific development
- 2 Providing practical and applied scientific engineering principles and facts and not be satisfied with the theoretical aspect only by establishing the latest engineering laboratories and equipment and workshops, equipping them with the latest types of laboratory supplies, and holding scientific trips to various sectors of the country
- 3 Providing the best capabilities for students to build the spirit of leadership in its graduates by teaching them outstanding teamwork, mobilizing student participation and contribute to student work, and urging students to be efforts to be creative and innovative to fulfill society's needs for qualified mechanical engineers
- 4 Holding seminars, scientific conferences and training courses for employees of institutions in various industrial sectors of all departments and to introduce them to the most prominent scientific and technological developments with the aim of enhancing the efficiency and ability of engineering cadres working in all sectors of society

Department objectives

- 1 Preparing engineers in an integrated manner, scientifically and socially, and developing their love for work, scientific research, the ability to think creatively, and cooperative teamwork, in addition to practicing in the use of modern technologies and their industrial applications
- 2 Preparing engineers to advance and participate in scientific research and studies in the field of the department's specializations, especially those aimed at finding solutions to various issues facing economic and social development
- 3 Communicating with the community and its institutions, providing engineering services, and being open to the community, which encourages the public and private sectors to consolidate a good relationship with the

consultations and holding specialized training courses university by providing in the various fields of mechanical engineering and according to the .community's requirements

- 4 Communicating with reputable international universities and exchanging information to develop theoretical aspects experiences and modern scientific i in addition to practical aspects and urging researchers to apply for .international funding and grant projects
- 5 to support A committee Ethics search Scientific and urging Researchers To advance For projects Finance And grants International.

15. Program structure

University of Mosul/College of Engineering

Mechanical engineering department

Courses/ level 1

academic level :First									
Notes	Course Code	If any Grader	number of units	Number of practical hours	number of	Name of the rapporteur		Requirement type - compulsory (optional)	Requirement name
						In English	In the arabic language		
	UOMC100		3	0	3	Arabic Language	Arabic	Mandatory	Department requirements
	ENGC121		3	0	3	Calculus I	I mathematics	Mandatory	College requirements
	ENGC123		1	3	0	Engineering Drawing	Engineering drawing		
Mandatory for the Mechanics Department	ENGE133		2	0	2	Physics	Physics	my choice	College requirements
	MEC102		3	3	2	Manufacturing Processes I	I processes Manufacturing	Mandatory	Department requirements
	MEC104		3	0	3	Introduction to Electrical Engineering	Introduction to electrical engineering		
	MEC101		3	0	3	Engineering Mechanics-Statics I	I n Engineering Mechanics Sko		
	MEC103		2	3	1	Computer Programming I	I and Computer programming		
			19	9	17	Total hours and units of the first semester			

academic level :First										
Notes	Course Code	Grader, if any	number of units	number of practical	number of theoretical	Name of the rapporteur		type - compulsory)	Requirement name	
						In English	In the arabic language			
	UOMC101		3	0	3	English for Beginner	English language for beginners	Mandatory	University requirements	
	UOMC102		3	2	2	Computer	the computer			
	UOMC103		2	0	2	Human Rights and Freedom	Rights and freedoms			
The student chooses two units from the university's elective courses			2	0	2		Environment pollution	my choice	University requirements	
				0	2		Information technologies			
				0	2		Electrical establishments			
				0	2		Building information modeling			
	ENGC122	Calculus I	3	2	2	Calculus II	_II Mathematics	Mandatory	University requirements	
	ENGC124	Engineering Drawing	1	3	0	Computer Aided Drawing	aided drawing-Computer			
	MEC151	Engineering Mechanics-Statics I	2	0	3	Engineering Mechanics-Statics II	II MechanicsEngineering	Mandatory	Department requirements	
	MEC152	Manufacturing Processes I	3	2	2	Metallurgy Physics I	I Mineral physics			
	MEC153	Computer Programming I	2	3	1	Computer Programming II	II programming Computer			
			21	12	16	semester second				

University of Mosul/College of Engineering

Mechanical engineering department

Courses/ level 2

academic level: Second									
Notes	Course Code	Grader, if any	number of units	number of practical	number of theoretical	Name of the rapporteur		Requirement type - compulsory	Requirement name
						In English	In the arabic language		
Three units in the first level and one unit in the second level			1	0	1	English Language-Pre Intermediate	-English language intermediate -pre	Mandatory	University requirement
Mechanics Department students	ENGE228	2 Mathematics	3	0	3	Engineering Math I	Engineering 1 mathematics	my choice	College requirement
	MEC201	physics	3	0	3	Thermodynamics I	1 Thermodynamics	Mandatory	Department requirements
	MEC202	Engineering - Mechanics 2 Stillness	3	0	3	Mechanics of Materials I	Mechanics of materials 1	Mandatory	
	MEC203	physics	3	0	3	Fluid Mechanics I	1 Fluid mechanics	Mandatory	
	MEC204	aided -Computer drawing	1	3	0	Mechanical Drawing	Mechanical drawing	Mandatory	
	MEC205	physics	3	0	3	Physics for Engineers	Physics for engineers	Mandatory	

	MEC206	Engineering Sukun - Mechanics 2	3	0	3	Engineering Mechanics-Dynamics	Engineering movement - mechanics	Manda tory	
			20			Total hours and units of the first semester			

academic level :Second

Notes	Course Code	Grader, if any	number of units	number of practical	number of theoretical	Name of the rapporteur		Requirement type - compulsory (optional)	Requirement name
						In English	In the arabic language		
									visit require
	ENG226	nothing	2	0	2	Engineering Economics	Engineering economics	Mandatory	College requirements
	ENG227	Calculus I, II	2	0	2	Statistics	Statistics	Mandatory	
Mechanics Department students	ENG230	Engineering mathematics 1	3	0	3	Engineering Math II	Engineering mathematics 2	my choice	
	MEC251	Thermodynamics 1	3	0	3	Thermodynamics II	Thermodynamics 2	Mandatory	Department requirements
	MEC252	Mechanics of 1 materials	2	0	2	Mechanics of Materials II	Mechanics of materials 2	Mandatory	
	MEC253	Fluid mechanics 1	2	0	2	Fluid Mechanics II	Fluid mechanics 2	Mandatory	
	MEC254	Mechanical drawing	2	3	1	Computer Aided Mechanical Drawing	Computer aided mechanical drawing	Mandatory	
	MEC256	nothing	1	3	0	Mechanical Engineering Laboratory I	Laboratories 1	Mandatory	
The student chooses one course. Number of units required unit 1 =	MEC260	nothing	1	2	0	Computer Aid Engineering Applications	aided -Computer engineering applications	my choice	
	MEC261	Mineral physics 1	1	0	1	Non-Destructive Testing	Nondestructive tests	my choice	

			18			semester second	
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University of Mosul/College of Engineering

Mechanical engineering department

Courses/ level 3rd

semester first -third) Academic level: 3rd									
Notes	Course Code	Grader, if any	number of units	Number of practical hours	Number of theoretical hours	Name of the rapporteur		Requirement type - compulsory)	Requirement name
						English In	n the arabic language		
			2	0	2	English Language- Intermediate	-English language intermediate	Mandatory	ity require
Mandatory for the Mechanics Department	ENGC325		2	0	2	Engineering Management	Engineering Management	Mandatory	College requirements
	MEC301	Engineering I Mathematics	3	0	3	Engineering Analysis	Engineering analyses	Mandatory	requirements Department
	MEC302	II Thermodynamics	3	0	3	Conduction Heat Transfer	Heat transfer by conduction		
	MEC303	Mechanics of II Materials	2	0	2	Kinematic Analysis	Kinetic analysis		
	MEC304	Introduction to electrical engineering	2	0	2	Electric Machines	Electrical machines		
	MEC305	Manufacturing I processes	1	2	0	Mechanical Workshop	Mechanical workshop		
The student only chooses	MEC331	II Fluid Mechanics	3	0	3	Compressible Fluid Flow	Flow of compressed fluids	my choice	

one course	MEC332	I Mineral physics	3	2	2	Metallurgy	Metals		
			18	2/4	16/17	the first hours and units semester			

semester second -third)) Academic level:3rd

Notes	Course Code	Grader, if any	number of units	number of practical hours	Number of theoretical hours	Name of the rapporteur		type - compulsory)	Requirement name
						In English	In the arabic language		
	UOMC104		2	0	2	Professional Ethics	Professional ethics	Mandatory	College requirements
Mandatory for the Mechanical Department	ENGE329		2	0	2	Public Safety	Public Safety	my choice	College requirements
	ENGE320	&I Mathematics II	2	2	1	Numerical analysis	Numerical analysis		
	MEC352	Heat transfer by conduction	2	0	2	Convection and Radiation Heat Transfer	Heat transfer by convection and radiation	Mandatory	Department requirements
	MEC353	kinetic analysis	3	0	3	Introduction to Machine Design	Introduction to machine design		
	MEC354	Kinetic analysis	2	0	2	Machines Dynamics	Machine dynamics		
	MEC355	I Laboratories	1	3	0	Laboratories II	II Laboratories		
The student chooses one course	MEC360	Flow of compressed fluids	2	0	2	Turbo-machinery	Turbomachines	my choice	Department requirements
	MEC361	Metals	2	0	2	Metallic-Engineering Materials	Metal engineering materials		
The student chooses one course	MEC362	Thermodynamics II	2	0	2	Introduction to Combustion	Introduction to combustion	my choice	Department requirements
	MEC363	Manufacturing I processes	2	3	1	Intermediate Manufacturing Processes	Intermediate manufacturing		

							operations	
The student chooses one course	MEC364	Heat transfer by conduction	2	0	2	Solar Energy	Solar energy	my choice
	MEC465	Metals	2	0	2	Introduction to Composite Materials	an introduction overlapping materials	
			20	5/8	17/18	the second hours and units semester		

Note: The student is required to complete the summer training after the end of the second semester of the third level

University of Mosul/College of Engineering

Mechanical engineering department

Courses/ level 4th

academic level :Fourth										
Notes	Course Code	Grader, if any	number of units	number of practical	number of theoretical	rapporteur Name of the		type - compulsory	Requirement name	
						In English	n the arabic language			
	MEC401	,motion-Engineering mechanics engineering analyses	3	0	3	Vibration I	I Vibrations	Mandatory	Department requirements	
	MEC402	Introduction to combustion	3	0	3	Internal Combustion Engines	nternal combustion engines			
	MEC403	Introduction to machine design	3	0	3	Design of Machines Parts	Design of machine parts			
	MEC404	Penultimate chapter	1	0	3	Design Project I	Graduation project I			
	MEC405	Heat transfer 2	3	0	3	Air Conditioning	air conditioner			
The student chooses at six least units	MEC421	Thermodynamics 2	3	0	3	Power Plants	Capacity stations	my choice		
	MEC422	turbine I, Renewable energies machines	3	0	3	Renewable Energies II	Renewable II energies			
	MEC423	Metal engineering materials	2	0	2	Elasticity	Flexibility			
	MEC424	Manufacturing processes 2	2	0	2	Quality Control	Quality control			
	MEC425	Metal engineering materials	2	0	2	Nonmetallic-Engineering Materials	metallic -Non engineering materials			
			19			semester first				

academic level Fourth										
Notes	Course Code	Grader, if any	number of units	Number of practical hours	number of theoretical hours	the rapporteur Name of		type - mandatory)	Requirement name	
						In English	In the arabic language			
		-English medium	2	0	2	English Language-Above Intermediate	above -English language intermediate	Mandatory	University requirement	
								my choice	Department requirement	
	MEC451	I Vibrations	3	0	3	Control and Measurements	Control and measurements	Mandatory	Department requirements	
	MEC452	II Laboratories	1	3	0	Laboratories III	III Laboratories			
	MEC453	I Vibrations	3	0	3	Vibration II	II Vibrations			
	MEC454	Final chapter	1			Design Project II	Graduation project 2			
The student chooses at 7 units least	MEC460	ntroduction to combustion	2	0	2	Pollution	pollution	my choice		
	MEC461	air conditioner	2	0	2	Refrigeration	Icing			
	MEC462	Heat transfer 2	3	2	2	Computer Aided Thermal System Design	Computerized design of thermal systems			
	MEC463	Design of machine parts	3	0	3	Design and Analysis of Control Systems	Analysis and design of control systems			
	MEC464	Design of machine parts	2	2	1	Computer Aided Machine Design	Computerized machine design			
	MEC465	Flexibility	2	0	2	Plasticity	plasticity			
			17			semester second				

Curriculum skills chart .16

evaluation Please check the boxes corresponding to the individual learning outcomes from the program subject to

Learning outcomes required from the programme

General and rehabilitative transferable skills Other skills related to) employability and (personal development				thinking skills			specific -Subject skills				Knowledge and understanding			A Jabbari Or optional	Course Name	Course Code	Year/level
D4	D3	D2	D1	C3	C2	C1	B4	B3	B2	B1	A3	A2	A1				
												*	*	Mandatory	Engineering drawing	ENGC123	the first
	*				*					*		*	*	Mandatory	Calculator programming 1	MEC103	
		*										*		Mandatory	Arabic	UOMC100	
										*		*	*	Mandatory	Mathematics1	ENGC121	
										*		*	*	Mandatory	Physics	ENGE133	
							*					*	*	Mandatory	Manufacturing processes 1	MEC102	
												*	*	Mandatory	Introduction to electrical engineering	MEC104	
										*		*	*	Mandatory	Static engineering	MEC101	

															ry	mechanics 1	
		*									*				Mandato ry	English language for beginners	UOMC101
	*				*								*		Mandato ry	the computer	UOMC102
		*											*		Mandato ry	Rights and freedoms	UOMC103
										*			*		my choice	Environment pollution	
	*		*										*		my choice	Information Technology	
						*							*		my choice	Electrical establishments	
	*	*											*		my choice	Building information modeling	
										*		*	*		Mandato ry	Mathematics 2	ENGC122
										*		*	*		Mandato ry	aided -Computer drawing	ENGC124
										*		*	*		Mandato ry	Engineering static 2 -mechanics	MEC151
										*		*	*		Mandato ry	Mineral physics 1	MEC152
	*									*		*	*		Mandato ry	Computer programming 2	MEC153

Please check the boxes corresponding to the individual learning outcomes from the program subject to evaluation

Learning outcomes required from the programme

rehabilitative General and transferable skills Other skills related to) employability and personal (development				thinking skills			specific -Subject skills				Knowledge and understanding			Jabbari A Or optional	Course Name	Course Code	Year/level

		*									*		Mandator y	-pre -English language intermediate		the second
									*		*	*	my choice	Engineering	ENGE228	
									*		*	*	Mandator y	I Thermodynamics	MEC201	
									*		*	*	Mandator y	Mechanics of materials I	MEC202	
									*		*	*	Mandator y	I Fluid Mechanics	MEC203	
											*	*	Mandator y	Mechanical drawing	MEC204	
									*			*	Mandator y	Physics for engineers	MEC205	
									*		*	*	Mandator y	-Engineering mechanics motion	MEC206	
		*										*	Mandator y	Engineering economics	ENGC226	
	*	*						*	*			*	Mandator y	Statistics	ENGC227	
									*		*	*	my choice	Engineering II Mathematics	ENGE230	
									*		*	*	Mandator y	II Thermodynamics	MEC251	
									*		*	*	Mandator y	Mechanics of Materials II	MEC252	
									*		*	*	Mandator y	II Fluid Mechanics	MEC253	
					*							*	Mandator y	aided -Computer mechanical drawing	MEC254	

		*	*			*				*		*	*	Mandatory	I Laboratories	MEC256
	*				*			*		*		*	*	my choice	aided -Computer engineering applications	MEC260
				*					*		*	*	*	my choice	Nondestructive tests	MEC261

Curriculum skills chart																		
Please check the boxes corresponding to the individual learning outcomes from the program subject to evaluation																		
Learning outcomes required from the programme																		
General and rehabilitative transferable skills Other skills related to) employability and (personal development				thinking skills			specific -Subject skills				Knowledge and understanding			Jabbari A Or optional	Course Name	Course Code	Year/level	
																		D4
		*											*		Jabbari A	-English language intermediate		the third
		*	*											*	Jabbari A	Engineering Management	ENGC325	
										*		*	*	Jabbari A	Engineering analyses	MEC301		
										*		*	*	Jabbari A	Heat transfer by conduction	MEC302		
										*		*	*	Jabbari A	Kinetic analysis	MEC303		
							*						*	Jabbari A	Electrical machines	MEC304		
		*				*	*						*	Jabbari A	Mechanical workshop	MEC305		
										*		*	*	my choice	Flow of compressed fluids	MEC331		
										*			*	my choice	Metals	MEC332		
			*								*			Jabbari A	Professional ethics	UOMC104		
		*	*								*			my choice	Public Safety	ENGE329		
	*				*			*	*	*			*	my choice	Numerical analysis	ENGE320		

									*		*	*	Mandator y	Heat transfer by convection and radiation	MEC352
								*	*		*	*	Jabbari A	Introduction to machine design	MEC353
									*		*	*	Jabbari A	Machine dynamics	MEC354
		*	*			*						*	Jabbari A	II Laboratories	MEC355
							*		*		*	*	my choice	Turbomachines	MEC360
									*		*	*	my choice	Metal engineering materials	MEC361
							*		*		*	*	my choice	Introduction to combustion	MEC362
							*					*	my choice	Intermediate manufacturing operations	MEC363
							*					*	my choice	Solar energy	MEC364
											*	*	my choice	Introduction to composite materials	MEC465

Curriculum skills chart

Please check the boxes corresponding to the individual learning outcomes from the program subject to evaluation

Learning outcomes required from the programme

General and rehabilitative transferable skills Other skills related to) employability and (personal development				thinking skills			specific -Subject skills				Knowledge and understanding			Jabbari A optional Or	Course Name	Course Code	Year/level
D4	D3	D2	D1	C3	C2	C1	B4	B3	B2	B1	A3	A2	A1				
										*		*	*		Introduction to vibrations	MEC401	the fourth
							*			*		*	*		Internal combustion engines	MEC402	
									*	*		*	*		Design of medium machines	MEC403	
*			*									*	*		Graduation I project	MEC404	
					*		*			*		*	*		Control and measurements	MEC405	
							*			*		*	*		Capacity stations	MEC421	
										*		*	*		metallic -Non engineering	MEC425	

															materials	
							*						*		Renewable energies	MEC422
									*		*	*			Flexibility	MEC423
		*										*			English -language -post intermediate	
			*						*				*		Analysis and design of control systems	MEC451
		*	*			*							*		Laboratories III	MEC452
									*		*	*			air conditioner	MEC453
*		*										*	*		Graduation II project	MEC454
		*											*		pollution	MEC460
									*		*	*			plasticity	MEC465
									*		*	*			Icing	MEC461
								*	*	*		*	*		Computerized machine design	MEC464
									*				*		Computerized design of thermal	MEC463

																systems		
									*		*	*				Medium vibrations	MEC467	

