



**THE HASHEMITE UNIVERSITY**  
**Faculty of Engineering**  
**Department of Mechanical Engineering**

**Study Plan**

The requirements for conferring of the Bachelor's degree in the department of Mechanical Engineering are:

- Minimum total Credit Hours (CH) of (160) according to the following study plan.
- The detailed distribution of the minimum credit hours required is shown below:

	<b>Credit Hours</b>
<b>University Requirements</b>	<b>27</b>
a. Compulsory	12
b. Electives	15
<b>College Requirements</b>	<b>33</b>
a. Compulsory	33
b. Electives	0
<b>Department Requirements</b>	<b>97</b>
a. Compulsory	82
b. Electives	15
<b>Free Elective</b>	<b>3</b>
<b>Total</b>	<b>160</b>

**The indications of the course subject's digits**

<b>Field Title</b>	<b>Field No.</b>
General engineering	0
Fluid mechanics	1
Thermal sciences	2
Applied mechanics	3
Mechanical systems design	4
Thermal systems	5
Energy conversion and management	6
Graduation project and special topics	7
Courses for other engineering departments	8

**Example**

<b>Dynamics</b>						<b>110402231</b>	
11	0	4	0	2	2	3	1
Plan Year	Faculty code		Department code		Level	Field	Sequence

**First: University Requirements: (27) Twenty seven credit hours as follows:****a. Compulsory Requirements: (12) Twelve credit hours as shown in the following table:**

Course No.	Course Title	Detailed Distribution of Credit Hours		Credit Hours	Prerequisite or Co-requisite*
		Lecture	Practical		
111404117	Military Sciences	3	-	3	-
111404118	National Education	3	-	3	-
111405101	Arabic Language	3	-	3	Level test in Arabic language or 110405098
111405110	English Language	3	-	3	Level test in English language or 111405099

**b. Elective Requirements: (15) Fifteen Credit Hours selected from the following table. Students should study one course at least and two at most from each category. Categories include the following fields:**

1. Human Sciences
2. Social and economic sciences
3. Science, Technology, Agriculture and Health.

**First Field: Human Sciences**

Course No.	Course Title	Detailed Distribution of Credit Hours		Credit Hours	Prerequisite or Co-requisite*
		Lecture	Practical		
111404110	Islam and contemporary Issues	3	-	3	-
111404111	Islamic Thought	3	-	3	-
111404112	Jerusalem's History and Civilization	3	-	3	-
111404113	Fundamentals of Art and Literature	3	-	3	-
111404114	Jordan's History and Civilization	3	-	3	-
<b>111405102</b>	Applied Arabic Language	3	-	3	-
<b>111405111</b>	Applied English Language	3	-	3	-
111405112	Technical Translation	3	-	3	-
141603101	Italian Language	3	-	3	-
141404193	Palestinian Cause	3	-	3	-

**Second Field: Social and Economic Sciences**

Course No.	Course Title	Detailed Distribution of Credit Hours		Credit Hours	Prerequisite or Co-requisite*
		Lecture	Practical		
111404101	University life of student	3	-	3	-
111404102	Psychology	3	-	3	-
111404103	Life Skills	3	-	3	-
111404104	Family and child education	3	-	3	-
111404115	Science of Sociology	3	-	3	-
111404116	Archeology and tourism science	3	-	3	-
111404120	Economic Science and Management	3	-	3	-
111404121	Law And The Ordering of Our Life	3	-	3	-

**Third Field: Science, Technology, Agriculture, and Health**

Course No.	Course Title	Detailed Distribution of Credit Hours		Credit Hours	Prerequisite or Co-requisite*
		Lecture	Practical		
110108104	Energy Resources	3	-	3	-
110108113	Biotechnology and society	3	-	3	-
110108114	Automobile Essentials	3	-	3	-
110108115	Computer Ethics	3	-	3	-
110108130	Health promotion and nutrition	3	-	3	-
110108131	Health Education and First Aids	3	-	3	-
110108132	Sport and Health	3	-	3	-
110108133	Environmental awareness	3	-	3	-

**Second: College Requirements: (33) Thirty Three Credit Hours as shown in the following table:**

Course No.	Course Title	Detailed Distribution of Credit Hours		Credit Hours	Prerequisite or Co-requisite*
		Lecture	Practical		
110108101	Calculus 1	3	-	3	-
110101102	Calculus 2	3	-	3	110108101
110101201	Calculus 3	3	-	3	110101102
110101203	Ordinary Differential Equations 1	3	-	3	110101102
110102101	General Physics 1	3	-	3	-
110102103	General Physics lab 1	-	3	1	110102101 or parallel
110102102	General Physics 2	3	-	3	110102101
110103107	Basics of General Chemistry	3	-	3	-
110103108	Basics of General Chemistry Lab.	-	3	1	110103107 or parallel
110400201	Manual Engineering Drawing	1	3	2	
110400202	Computer Aided Engineering Drawing	-	3	1	110400201
110400101	Engineering Workshop	0.5	2	1	-
110400203	Ethics and Communication Skills	3	-	3	111405110
110108112	Computer Programming	3	-	3	Level test in computer skills or 110108099

**Third: Department Requirements: (97) Ninety seven Credit Hours as Follows:**

**a. Compulsory Requirements: (82) Eighty eight Credit Hours as shown in the following table:**

Course No.	Course Title	Detailed Distribution of Credit Hours		Credit Hours	Prerequisite or Co-requisite*
		Lecture	Practical		
110401211	Statics	3	-	3	110108101 + 110102101
110402212	Strength of Materials	3	-	3	110401211
110402221	Thermodynamics (1)	3	-	3	110103107 + 110102101
110402222	Thermodynamics (2)	3	-	3	110402221
110402231	Dynamics	3	-	3	110401211
110402302	Engineering Measurements	3	-	3	110102102 + 110403242
110402303	Numerical Analysis	3	-	3	110108112 + 110101203

110402310	Fluid Mechanics (1)	3	–	3	110101203
110402313	Fluid Mechanics Lab	–	3	1	110402310
110402324	Heat Transfer (1)	3	–	3	110406260 + 110402221 + 110402310
110402325	Thermal Science Lab (1)	–	3	1	110402222
110402330	Strength of Materials Lab	–	3	1	110402212 or 110401214
110402426	Thermal Science Lab (2)	–	3	1	110402324 + 110402325
110402433	Mechanical Vibrations	3	–	3	110406260 + 110402231
110402434	Control Systems	3	–	3	110402433
110402440	Theory of Machines	3	–	3	110406260 + 110402231
110402445	Mechanical Drawing	–	3	1	110400202
110402446	Machine Design (1)	3	–	3	110402330
110402447	Machine Design (2)	3	–	3	110402440 + 110402445 + 110402446
110402448	Dynamics of Machinery	2	–	2	110402440
110402531	Finite Elements Methods for Machine Design	3	–	3	110406260 + 110402303+ 110402447
110402535	Vibration and Control Lab	–	3	1	110402434
110402542	Electromechanical Systems	3	–	3	110402440 + 110406229
110402549	Computer Aided Design	2	–	2	110402446
110402551	HVAC	2	–	2	110402324
110402561	Internal Combustion Engines	2	–	2	110402222
110402572	Graduation Project (1)	–	3	1	The student must pass at least (120) credit hours from the curriculum which must include 110402222, 110402310, and 110402446.
110402573	Graduation Project (2)	–	6	2	110402572
110402599	Practical Training	–	–	0	The student must pass at least (112) credit hours from the curriculum
110403352	Properties of Materials	3	–	3	110103107

110403242	Statistics and Probabilities	3	–	3	110101102
110403324	Manufacturing Processes (1)	3	–	3	110400101 + 110402212
110403325	Manufacturing Processes lab	-	3	1	110403324
110406260	Applied Mathematics	3	–	3	110101203
110406229	Fundamentals of Electrical Circuits	3	–	3	110102102
110409260	Fundamentals of Electrical Circuits Lab	–	3	1	(110409203 or 110406229) + 110102103

**b. Elective Requirements:** (15) Fifteen Credit Hours selected from the following table:

Course No.	Course Title	Detailed Distribution of Credit Hours		Credit Hours	Prerequisite or Co-requisite*
		Lecture	Practical		
110402513	Turbo-machinery	3	–	3	110402222 + 110402310
110402514	Fluid Mechanics 2	3	–	3	110402310
110402527	Heat Transfer 2	3	–	3	110402324
110402536	Composite Materials	3	–	3	110402212
110402538	Introduction to Non-Destructive Testing Techniques	2	1	3	110400101
110402552	Building Services	3	–	3	110402310
110402553	Refrigeration Systems	3	–	3	110402222
110402554	Design of Thermal Systems	3	–	3	110402222
110402562	Energy Conservation	3	–	3	110402222
110402564	Renewable Energy	3	–	3	110402324
110403302	Engineering Economy	3	–	3	–
110402571	Special Topics in Mechanical Engineering	3	–	3	Department consent

**Fourth: Free Elective:** Three (3) credit hours which can be taken from any of the courses provided by the faculties of the University.

**Fifth:** Getting a bachelor's degree in Engineering Mechanical requires practical training for eight consecutive weeks inside or outside Jordan in one of the specialized institutions that either the public or private sectors and a total of 40 hours work per week, (subject to approval by the section on it and end (112) one hundred and Twelve credit hours at least and successfully, including materials without catch-110400203).

### Courses offered by the Department of Mechanical Engineering for its students

Course No.	Course Title	Detailed Distribution of Credit Hours		Credit Hours	Prerequisite or Co-requisite*
		Lecture	Practical		
110402212	Strength of materials	3	–	3	110401211
110402221	Thermodynamics 1	3	–	3	110103107 + 110102101
110402222	Thermodynamics 2	3	–	3	110402221
110402231	Dynamics	3	–	3	110401211
110402302	Engineering Measurements	3	–	3	110102102 + 110403242
110402310	Fluid Mechanics 1	3	–	3	110101203
110402313	Fluid Mechanics Lab	–	3	1	110402310
110402324	Heat Transfer 1	3	–	3	110406260 + 110402221 + 110402310
110402325	Thermal Science Lab 1	–	3	1	110402222
110402330	Strength of Materials Lab	–	3	1	110402212
110402426	Thermal Science Lab 2	–	3	1	110402324 + 110402325
110402433	Mechanical Vibrations	3	–	3	110406260 + 110402231
110402434	Control Systems	3	–	3	110402433
110402440	Theory of Machines	3	–	3	110406260 + 110402231
110402445	Mechanical Drawing	–	3	1	110400202
110402446	Machine Design 1	3	–	3	110402330
110402447	Machine Design 2	3	–	3	110402440 + 110402445 + 110402446
110402448	Dynamics of Machinery	2	–	2	110402440
110402531	Finite Elements Method for Machine Design	3	–	3	110406260 + 110402303 + 110402447
110402513	Turbo-machinery	3	–	3	110402222 + 110402310
110402514	Fluid Mechanics 2	3	–	3	110402310
110402527	Heat Transfer 2	3	–	3	110402324
110402535	Vibration and Control Lab	–	3	1	110402434
110402536	Composite Materials	3	–	3	110402212
110402542	Electromechanical Systems	3	–	3	110402440 + 110406229

110402549	Computer Aided Design	2	–	3	110402446
110402551	HVAC	2	–	3	110402324
110402552	Building Services	3	–	3	110402310
110402553	Refrigeration Systems	3	–	3	110402222
110402554	Design of Thermal Systems	3	–	3	110402222
110402561	Internal Combustion Engines	2	–	3	110402222
110402562	Energy Conservation	3	–	3	110402222
110402564	Renewable Energy	3	–	3	110402324
110402571	Special Topics in Mechanical Engineering	3	–	3	Department consent
110402572	Graduation Project 1	–	3	1	The student must pass at least (120) credit hours from the curriculum which must include 110402222, 110402310, and 110402446.
110402573	Graduation Project 2	–	6	2	110402572
110402599	Practical Training	–	–	0	The student must pass at least (112) credit hours from the curriculum
110402303	Numerical Analysis	3	–	3	110108112 + 110101203
110402450	Mechanical Design	3	-	3	110402212

### Courses offered by the Department of Mechanical Engineering for other departments

Course No.	Course Title	Detailed Distribution of Credit Hours		Credit Hours	Prerequisite or Co-requisite*
		Lecture	Practical		
110402212	Strength of materials	3	–	3	110401211
110402231	Dynamics	3	–	3	110401211
110402330	Strength of Materials Lab	–	3	1	110402212
110402440	Theory of Machines	3	–	3	110406260 + 110402231
110402445	Mechanical Drawing	–	3	1	110400202
110402542	Electromechanical Systems	3	–	3	110402440 + 110406229
110402549	Computer Aided Design	2	–	3	110402446
110402303	Numerical Analysis	3	–	3	110108112 + 110101203
110402450	Mechanical Design	3	-	3	110402212
110402381	Thermo-fluids	3	–	3	110102101
110402382	Thermo-fluids Lab	–	3	1	110402381
110402385	Process Control Systems	2	3	3	110101203
110402450	Mechanical and Electrical Systems for Architectural Students	2	–	2	110402423 or parallel
110108114	Essentials of Automobile Mechanic	3	-	3	
110402536	Composite Materials	3	–	3	110402212
110402310	Fluid Mechanics 1	3	–	3	110101203

