



**University of Jordan**

**Faculty of Engineering & Technology**

**Department of Mechatronics Engineering**

**B.Sc. Curriculum**

**In Mechatronics Engineering**

**2010-2011**

**Department of Mechatronics Engineering**  
**Faculty of Engineering and Technology**  
**University of Jordan**

**Study Plan for Bachelor's Degree**  
**In**

**Mechatronics Engineering**

**The name of degree in (Arabic) :** البكالوريوس في هندسة الميكاترونكس

**The name of degree in (English) :** B. Sc. in Mechatronics Engineering

**A- Components of the plan**

The study plan of the mechatronics engineering is composed of 160 credit hours distributed as shown below:

Number	Subject	CREDIT HOURS
First	University Requirements	27
Second	Faculty Requirements	21
Third	Department Requirements	112
<b>Total</b>		<b>160</b>

**B- Training field:** The student has to do a practical training after ending the required credit hours under the instructions of training at the Faculty of Engineering and Technology.

**C- Coding System**

1- Department Numbering System:

Number	Department
1	Civil Engineering
2	Architecture Engineering
3	Electrical Engineering
4	Mechanical Engineering
5	Chemical Engineering
6	Industrial Engineering
7	Computer Engineering
8	Mechatronics Engineering

2- Courses Numbering System:

A seven digits number is used to identify any course and the following example will explain the meaning of each number(s):

Example:

0	9	0	8	-	-	-
Faculty		Department		Level	Subject	Sequence

## D- B.Sc. Curriculum

### 1- University Requirements : (27 Credit Hours)

a- Mandatory: 12 credit hours shown in Table 3.

**Table 3: Mandatory University Requirements**

Course Number	Course Title	Credit hours	Prereq.
1501100	Communication Skills / Arabic	3	1501099
1502100	Communication Skills / English	3	1502099
2300100	Military Sciences	3	-
2200100	National Education	3	-

b- Elective: 15 credit hours chosen by the student from the following areas.

### The first area (Human Sciences)

Course Number	Course Title	Credit hours	Course Number	Course Title	Credit hours
1041100	Legal Culture	3	2301100	Creative Writing	3
401100	Islamic Culture	3	807100	Introduction to Library and Information Science	3
402100	Islamic System	3	1132100	Sports and Health	3
2302102	Human Civilizations	3	2001100	Artistic Taste	3
1601105	Management Skills	3	1502103	Foreign Language	3
1032100	Human Rights	3			

### The second area (social and economic sciences)

Course Number	Course Title	Credit hours	Course Number	Course Title	Credit hours
2302104	History of Jordan and Palestine	3	2307100	The Principles of Psychology	3
1607100	The Global Political Economy	3	2304100	Geography of Jordan	3
2308100	Principles of Policy	3	2601100	Jordan Archaeology	3
2303100	Logic and Critical Thinking	3	2701100	Principles of Social Work	3
2305100	Introduction to Sociology	3			

## The third area (science, technology, agriculture and health)

Course Number	Course Title	Credit hours		Course Number	Course Title	Credit hours
505100	Principles of General Health	3		352100	Principles of Energy and Economics	3
300100	Research Methodology	3		905101	Jordanian Industries	3
342100	Science and Society	3		603100	Principles of Human Nutrition	3
641100	Home Plantation	3		305100	Ecology	3
905100	Principles of General Safety	3		710100	First Aid	3

2- **Faculty Requirements:** (21 Credit Hours)

**a. Mandatory:** 21 credit hours shown in Table 4.

**b. Elective:** None.

**Table 4: Mandatory Faculty Requirements**

Course No.	Course Title	Cr. Hrs	Weekly Hours		Prereq.
			Lec.	Prac.	
0301101	Calculus (1)	3	3	-	-
0301102	Calculus (2)	3	3	-	0301101
0302101	General Physics (1)	3	3	-	-
0302111	General Physics Lab. (1)	1	-	3	0302101*
1931102	Computer skills (2)	3	3	-	1902099
0904131	Engineering Graphics	3	2	2 drawing 2 computer	-
0906111	Engineering workshops	1	-	3	-
0906201	Technical Writing	1	1	-	1502100
0901420	Engineering Economy		3	-	completion of 90 credit hours

\* Or Concurrently

3- **Department Requirements:** (112 Credit Hours)

a. Mandatory: 91 credit hours shown in Table 5.

**Table 5: Mandatory Department Requirements**

Course No.	Course Title	Cr. Hrs	Weekly Hours		Prereq.
			Lec.	Prac.	
0302102	General Physics (2)	3	3	-	0302101
0301201	Calculus (3)	3	3	-	0301102
0301202	Engineering Math (1)	3	3	-	0301201
331302	Engineering Math (2)	3	3	-	0301202
0903201	Computer Applications	1	-	2	1931102
0903211	Electrical Circuits (1)	3	3	-	0302102
0903212	Electrical Circuits (2)	3	3	-	0903211
0903219	Electrical Circuits Lab.	1	-	3	0903212*
0953221	Signal Analysis & Systems	3	3	-	0903201&0903211
0904221	Engineering Mechanics	3	3	-	0301101&0302101
0907231	Digital Logic	3	3	-	1902099
0904233	Machine Drawing	1	-	3	0904131
0907234	Digital Logic Lab.	1	-	3	0907231 *
0907235	Assembly Language & Microprocessors	3	3	-	0907231
0904248	Thermal and Fluid Science	3	3	-	0904221
0904249	Thermal and Fluid Science Lab.	1	-	3	0904248
0903261	Electronics (1)	3	3	-	0903211
0943301	Engineering Numerical Methods	3	3	-	0301202
0908312	Simulation and Modeling	3	3	-	0904221
0904314	Dynamics and Vibrations Lab.	1	-	3	0908312
0904331	Mechanics of Machinery	3	3	-	0908312
0907333	Embedded Systems	3	3	-	0907231 & 0903261
0907334	Embedded Systems Lab.	1	-	3	0907333 *
0907337	Microprocessors lab.	1	-	3	0907235
0908341	Engineering Measurements and Instrumentation	3	3	-	0903261 & 0908312
0903361	Electronics (2)	3	3	-	0903261
0933368	Electronics Lab.	1	-	3	0903361*
0904372	Strength of Materials (1)	3	3	-	0904221
0973373	Electrical Machines (Mechanical & Mechatronics Eng.)	3	3	-	0903212
0903374	Electrical Machines Lab.	1	-	3	0973373
0904437	Design of Machine Elements.	3	3	-	0904372
0908441	Control Systems	3	3	-	0908312
0908442	Modern Control Systems	2	2	-	0908441

Course No.	Course Title	Cr. Hrs	Weekly Hours		Prereq.
			Lec.	Prac.	
0908448	Measurements and Control Lab.	1	-	3	0908341&0908441
0908461	Power Electronics for Mechatronics	3	3	-	0903361
0908531	Mechatronics Systems Design	3	2	3	0908341 & 0908441
0908537	Design of Hydraulic and Pneumatic Systems	3	2	3	0904248 & 0908441
0908599	Project	3	3	-	**

\* Or Concurrently

\*\* Project duration is two semesters. Students are allowed to register in the project after completion of 120 credit hours.

b. Elective: 21 credit hours selected from Tables 6.

**Table 6: Elective Department Requirements**

Course No.	Course Title	Cr. Hrs	Weekly Hours		Prereq.
			Lec.	Prac.	
0903424	Digital Signal Processing	3	3	-	0903221
0908443	Transducers	3	2	3	0908341
0903462	Digital Electronics	3	3	-	0903361
0908481	Autotronics	3	3	-	0903212& 0904248
0904484	Computer-Aided Design	3	2	3	0904331 & 0904372
0908541	Intelligent Control	3	3	-	0908441
0908543	Hydraulic and Pneumatic Control	3	3	-	0904537
0908545	Industrial Process Control	3	3	-	0908441
0908561	Automation	3	2	3	0908442
0908563	Robotic Systems	3	3	-	0904331 & 0908441
0908571	System Integration	3	3	-	0908531
0908575	Microelectromechanical Systems (MEMS)	3	3	-	0908312
0908582	Drive Systems	3	3	-	090846 & 0973373
0908589	Selected Topics in Mechatronics	3	3	-	Dept. Decision

**E- Courses Offered by the Mecahtronics Department.**

Course No.	Course Title	Cr. Hrs	Weekly Hours		Prereq.
			Lec.	Prac.	
0908312	Simulation and Modeling	3	3	-	0904221 & 0331302
0908341	Engineering Measurements and Instrumentation	3	3	-	0903261 & 0908312
0908441	Control Systems	3	3	-	0908312
0908442	Modern Control Systems	2	2	-	0908441
0908448	Measurements and Control Lab.	1	-	3	0908341 & 0908441
0908461	Power Electronics for Mechatronics	3	3	-	0903361
0908531	Mechatronics Systems Design	3	2	3	0908341 & 0908441
0904537	Design of Hydraulic and Pneumatic Systems	3	2	3	0904248 & 0908441
0908443	Transducers	3	2	3	0908341
0908481	Autotronics	3	3	-	0903212 & 0904248
0908541	Intelligent Control	3	3	-	0908441
0908543	Hydraulic and Pneumatic Control	3	3	-	0904537
0908545	Industrial Process Control	3	3	-	0908441
0908561	Automation	3	2	3	0908442
0908563	Robotic Systems	3	3	-	0904331 & 0908441
0908571	System Integration	3	3	-	0908531
0908575	Microelectromechanical Systems (MEMS)	3	3	-	0904312
0903582	Electrical Drives	3	3	-	0903461
0908589	Selected Topics in Mechatronics	3	3	-	Dept. Decision
0908599	Project	3	3	-	**

\*\* Project duration is two semesters. Students are allowed to register in the project after completion of 120 credit hours.