

## Study Plan for Bachelor Degree in Renewable Energy engineering

The Bachelor Degree in Renewable Energy Engineering awarded at Isra University after successful completion of 163 Credit Hours is distributed as follows:-

### First: University Requirements (24) Credits Hours:

#### A- University Compulsory Requirements (12) Credits Hours:

Course Number	Course Title	Credits Hours	Prerequisite
01100011	Arabic Language/Remedial	0	-
01100012	English Language/ Remedial	0	-
01100051	Computer Skills/ Remedial	0	-
01101111	Arabic Language	3	01100011
01101112	English Language	3	01100012
01101101	Military Sciences	3	-
01101102	Civic Education*	3	-
<b>Total</b>		<b>12</b>	

B- University Electives requirements (12) Credits hours, chosen from the following Course :

Course Number	Course Title	Cr. Hrs	Prerequisite	Concurrent
01101103	Traffic Education	3	-	-
01101104	Innovation and Entrepreneurship	3	-	-
01101121	Life Skills	3	-	-
01101131	Islamic Education	3	-	-

01101132	Jerusalem and the Hashemite Custodianship	3	-	-
01101141	Sport and Health	3	-	-
01101142	Environment and Society	3	-	-
01101151	Computer Skills	3	01100011	-
01101152	Internet and Communication	3	-	-
01101161	Economic Systems and Concepts	3	-	-
01101171	Psychology and Society	3	-	-
01101213	Communication Skills in Arabic	3	01101111	-
01101214	Communication Skills in English	3	01101112	-
01101243	Safety and First Aid	3	-	-
01101281	Scientific Research Methods	3	-	-
01101282	Introduction to Astronomy	3	-	-
03011101	Law in our Life	3	-	-
03021201	Human Rights	3	-	-

\*Compulsory for “Communication and Electronics engineering” students

### Second: Faculty compulsory requirements (24) Credits Hours:

Course Number	Course Title	Cr. Hrs	Prerequisite	Concurrent
04021120	Workshops	1	-	-
04032101	Engineering Drawing	3	-	-
04032102	Engineering Ethics	1	-	-
04033101	Technical Writing	2	01101112	Completion of 70 Cr. Hrs

04033102	Administration and Engineering Economy	3	11031101	-
11021101	General Physics (1)	3	-	-
11021202	General Physics (2)	3	11021101	-
11021111	General Physics Lab. (1)	1	11021101	-
11021212	General Physics Lab. (2)	1	11021202	-
11031101	Calculus (1)	3	-	-
11031202	Calculus (2)	3	11031101	-
<b>Total</b>		<b>24</b>		

### Third: Department compulsory requirements (103) Credits Hours:

#### A. Compulsory Courses through Electronics & Communications Engineering (13) Credited Hours

Course Number	Course Title	Cr. Hrs	Prerequisite	Concurrent
04022110	Engineering Analysis (1)	3	11031202	-
04022210	Engineering Analysis (2)	3	04022110	-
04022130	Electrical Circuits (1)	3	11021202	-
04022131	Electrical Circuits Lab	1	-	04022130
04021220	Fundamentals of programming for engineers	3	01101151	-
<b>Total</b>		<b>13</b>		

B. Compulsory Courses through Renewable Energy Engineering (90)  
Credited Hours:

Course Number	Course Title	Cr. Hrs	Prerequisite	Concurrent
11011101	General Chemistry	3	-	-
11011103	Practical General Chemistry	1	-	04081211
04082111	Engineering Statics	3	11031101	-
04082211	Numerical Analysis	3	11031202	-
04082131	Applied Mechanics	3	11031101, 11021101	-
04082231	Materials science	3	04081211	-
04082232	Strength of Materials	3	04082131	-
04082233	Strength of Materials Lab.	1	-	04082232
04083131	Dynamics and Vibration	3	04082131	-
04082232	Strength of Materials	3	04082131	-
04082233	Strength of Materials Lab.	1	-	04082232
04083131	Dynamics and Vibration	3	04082131	-
04082251	Electronics	3	04022130	-
04083151	Electrical Machines	3	04022130	-
04083152	Electrical Machines Lab.	1	-	04083151
04083141	Fluid Mechanics	3	04022110	04082131
04083142	Fluid Mechanics Lab.	1	-	04083141
04083241	Thermodynamics	3	04083141	-
04083242	Heat Transfer	3	04083141	-

04083243	Heat Transfer Lab.	1	-	04083242
04084163	Solar Thermal Energy Systems	3	04083242, 04083241, 04083142	-
04083161	Photovoltaic Energy Systems	2	04082251	-
04084261	Solar Energy Lab.	1	-	04083161
04084161	Wind Energy Systems	2	04083131, 04083241	-
04084162	Wind Energy Systems Lab.	1	-	04084161
04083261	Analysis of Wind Speed and quality of the wind	3	04083131, 04083141	-
04083231	Instrumentations & Measurements Systems	3	04082251	-
04084151	Automatic Control Systems	3	04082211, 04082111	-
04084152	Automatic Control Systems Lab.	1	-	04084151
04084281	Environmental Impact and Energy Protocols	3	-	-
04084282	Energy Economics and Efficiency	3	-	04084281
04084171	Power Electronics	2	04082251	-
04084172	Power Electronics Lab.	1	-	04084171
04084271	Transmission and Distribution Systems	3	04084171	-
04085171	Energy Conversion and Storage	3	04083241+ 04082231+ 04084171	-
04085271	Energy production technology	3	04085171	-

04085161	Design of Renewable Energy Systems	3	04084161, 04083161	-
04085281	Energy Management and Conservation	3	04084171	-
04085191	Graduation Project (1)	1	Graduation Projects Instructions	-
04085291	Graduation Project (2)	2	04085191	-
04084391	Engineering Training. Practical Training of 320 hrs.	3	Completion of 115 C.H	-
<b>Total</b>		<b>90</b>		

#### Fourth: Elective Department Requirements (9) Credits Hours:

Course Number	Course Title	Cr. Hrs	Prerequisite	Concurrent
04084241	Air Conditioning & Refrigeration Systems	3	04083241+ 04083242	-
04084281	Green buildings	3	04083261	-
04084221	Modeling & Simulation	3	04022210	-
04085161	Control and protection of power systems	3	04084151	-
04085171	Geothermal energy	3	04083242	-
04085172	Hydrogen & Fuel Cells	3	04081211	-
04085162	Advanced Solar Cell Systems	3	04084261	-
04085181	Power Saver Design	3	04085161	-
04085182	Wave Energy Technology		04083261	-
04085183	Biological Energy	3	04083241	-

04085163	Solar Water Desalination	3	04084261	-
04085281	Energy and Sustainable Buildings Systems	3	-	04085281
04085271	Electric Power Conversion Devices	3	04085171+ 04084171	-
04085261	Special Topics in Renewable Energy Engineering	3	04085161	-

**Fifth: Free Course (3) Credits Hours:**

<p>Free course (3) Credits Hours Chosen from the courses offered by the university without repetition *Non Jordanian Students can select two other courses as a substitution of the Military Sciences (01101101) and the Civic Education (01101102).</p>
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