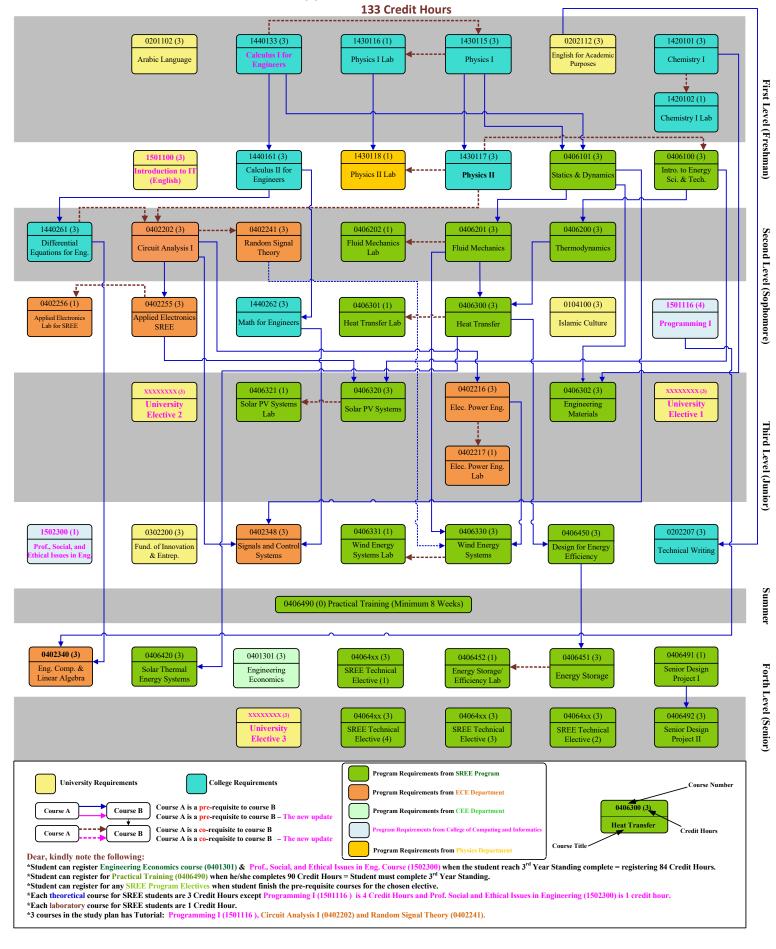
B.Sc. In Sustainable and Renewable Energy Engineering (SREE)

(4 Years, 8 Semesters)

Applicable from Fall 2020-2021



Proposed Framework for Courses in B.Sc. SREE (4 Years, 8 Semesters)

For Students Who Joined the Program in Fall 2020-2021



Sustainable and Renewable Energy Engineering Program Study Plan

To obtain a Bachelor of Science degree in Sustainable and Renewable Energy Engineering, the student must complete a total of 133 credit hours. These hours span University, college and departmental requirements.

The allocation of the credit hours is shown in the following table:

Domain/Category	Compulsory Courses	Electives Courses	Total
University Requirements (UR)	15	9	24
College Requirements (CR)	26	-	26
Program Requirements (DR)	71	12	83
Total	112	21	133

with total of 53 Courses

For Students who joined the SREE after Academic Year 2020-2021

1. University Requirements: (24 Credit Hours)

- A. University Compulsory Courses: Each student must successfully complete 15 credit hours
- B· **University Elective Courses:** Each student must successfully complete four courses (9 credit hours) from a list compiled by the College of Engineering to reflect various specialization in Humanities, Arts and Social Studies. This list can be found in the curriculum section.

All students must successfully complete these requirement courses listed in the curriculum section.

The departmental requirement courses cover the main areas of Sustainable and Renewable Energy Engineering. These courses cover: Solar, Wind, Bio, Hydroelectric and Geothermal Energies, Control and Power Systems, Electronics and Applied Electromagnetic and Engineering Management. These courses give the Sustainable and Renewable Energy Engineering attend the strong foundation in the different disciplines of Sustainable and Renewable Energy Engineering needed to build on. The student receives theoretical information in weekly lectures and tutorial sessions. In addition, most of the core courses include practical hands-on experience in a laboratory environment. To cap their development, students undergo a design project in their final year. This project is to be selected by a student according to his/her chosen area of concentration. Upon completion of the project the student will produce a complete report including the major design and implementation phases. The student will also be required to deliver a demonstration and a presentation to other students and faculty members in the department.

And these courses are as follow

1. University Requirements: (24 Credit Hours)

A. University Compulsory Courses: (15 Credit Hours)

SN	General Education Course Domain	Course No.	Course Name	Credits
1	Islamic Studies, History & Culture	0104100	Islamic Culture	3
2	Languages 0201102 Or 0201105 0202112		Arabic Language: - 0201102 Arabic Language or - 0201105 Arabic Language for non Arab Speakers*	3
3			English for Academic Purposes	3
4	Social Sciences & Education	0302200	Fundamental of Innovation & Enterprises	3
5	IT or Mathematics	1501100	1501100 Introduction to IT (English)	
			Total	15

B. University Elective Courses: (9 Credit Hours)

D. 0			s: (9 Credit Hours)			
SN	General Education Course Domain	Course No.	Course Title	Credit		
1	Course Domain	0201140	Introduction to Arabic Literature	3		
2		0202115	French Language	3		
3		0203100 Islamic Civilization				
4	Literature & Humanities (Domain 4)	Jre & 0203102 History of Arabian Gulf				
5		0203200	History of the Sciences Among the Muslim	3		
6		0602246	Human Rights in Islam	3		
7		0710109	Arts & Medicine	3		
8		0900107	History of Medical & H. Sc.	3		
9	Applied Orleans	0401142	Man and The Environment	3		
10		0503101	Health and Safety (New Elective added by Reg. Dept.)	3		
11		0505101 Fitness and Wellness		3		
12	Applied Sciences (Domain 5)			3		
13	(Domain 5)	(Domain 5) 1430101 Astronomy and Space Sciences				
14		1450100	Biology and Society	3		
15		1502233	Artificial Intelligence (New Elective added by Reg. Dept.)	3		
16		0103103	Islamic System	3		
17		0104130	Analytical Biography of the Prophet	3		
18		0204102	UAE Society	3		
19	Social Sciences &	0206102	Fundamentals of Islamic Education	3		
20	Education	0206103	Introduction to Psychology	3		
21	(Domain 6)	0302150	Introduction to Business Administration for Non Business	3		
22		0301131	Personal Finance	3		
23		0301150	Introduction to Economics for Non Business	3		
24		0800107	Media in Modern Societies	3		

24 courses you can choose any 3 courses (One course from each domain) to be your University Electives, Also you are welcome to meet your Academic Advisor to take his/her opinion

2. List of College Requirements: (26 Credit Hours)

SN	Course No.	Course Name	Credits	Prerequisites
1	0202207	Technical Writing	3	0202112
2	1440133	Calculus I for Eng.	3	Placement Test or 1440098 Pre-calculus (Remedial Math)
3	1440161	Calculus II for Eng.	3	1440133
4	1440261	Differential Equations for	3	1440161
5	1430115	Physics I	3	Placement Test or 1430106 Remedial Physics
6	1430116	Physics I Lab	1	Pre/Co: 1430115
7	1430117	Physics II	3	1430115 & 1430116
8	1420101	Chemistry I	3	None
9	1420102	Chemistry I Lab	1	Pre/Co: 1420101
10	0406490	Practical Training	8 Weeks	90 Credit Hours
11	0401301	Engineering Economics	3	3 rd Year Standing
			26	

3. List of SREE Program Requirements: (83 Credit Hours)

A List of SREE Program Compulsory Courses: (71 Credit Hours)

SN	Course No.	Course Title	Cr. Hrs.	Prerequisites
1	0402202	Circuit Analysis I	3	Pre/Co 1430117, Pre/Co 1440261
2	0402241	Random Signal Theory	3	Pre/Co 0402202
3	0402340	Eng. Comp. & Linear Algebra	3	1411115, 1440261
4	1502300	Prof., Social, and Ethical Issues in	1	Junior Standing
5	0406100	Introduction to Energy Science & Tech.	3	Pre/Co 1430117
6	0406101	Statics and Dynamics	3	1430115, 1440133
7	0406200	Thermodynamics	3	0406100
8	0406201	Fluid Mechanics	3	0406101
9	0406202	Fluid Mechanics Lab	1	Co/Pre 0406201
10	0402216	Electric Power Eng.	3	0402202
11	0402217	Electric Power Eng. Lab	1	Co/Pre 0402216
12	0402255	Applied Electronics For SREE	3	0402202
13	0402256	Applied Electronics Lab For SREE	1	Co/Pre 0402255
14	0406300	Heat Transfer	3	0406200, 0406201
15	0406301	Heat Transfer Lab	1	Co/Pre 0406300
16	0406302	Engineering Materials	3	0406101, 1420101
17	0402348	Signals and Control Systems	3	0402202, 1440262,0406101
18	0406320	Solar PV Systems	3	0402255, 0406100
19	0406321	Solar PV Systems Lab	1	Co/Pre 0406320
20	0406330	Wind Energy Systems	3	0406201, 0402216, 0402241
21	0406331	Wind Energy Systems Lab	1	Co/Pre 0406330
22	0406450	Design for Energy Efficiency	3	0406300
23	0406451	Energy Storage and Transmission	3	0406450
24	0406452	Energy Storage/Efficiency Lab	1	Pre/Co 0406450, Pre/Co 0406451
25	0406420	Solar Thermal Energy Systems	3	0406300
26	0406491	Senior Design Project I	1	Senior Standing
27	0406492	Senior Design Project II	3	Senior Standing
28	1440262	Math for Engineers	3	1440161
29	1430118	Physics II Lab	1	Co/Pre: 1430117
30	1501116	Programming I	4	None
		Total	71	

SN	Area	Course No.	Course Title	Credit hours	Pre-requisites
1		0406421	Advanced Solar Cells and Systems	3	0406320 Solar PV systems 0406302 Engineering Materials
2		0406422	PV Technology and Manufacturing	3	0406320 Solar PV systems
3	Solar Energy	0406423	PV in the Built Environment	3	0406320 Solar PV systems
4		0406424	Passive Solar Buildings	3	0406320 Solar PV systems
5		0406461	Special Topics in Solar Energy	3	Senior Standing
6		0406431	Design of Wind Turbines	3	0406330 Wind Energy
7		0406432	Advanced Fluid Mechanics	3	0406201 Fluid Mechanics
8	Wind Energy	0406433	Special Machine for Wind Turbines	3	0406330 Wind Energy
9		0406462	Special Topics in Wind Energy	3	Senior Standing
10		0406440	Biomass Energy Systems for SREE	3	0406200 Thermodynamics
11	Bio, Hydroelectric.	0406463	Fuel Cells	3	1420101 General Chemistry I 0406302 Engineering Materials
12	and Geothermal	0406464	Special Topics in Bio-Energy	3	Senior Standing
13	Energies	0406465	Hydroelectric Energy Systems	3	0406201 Fluid Mechanics
14		0406466	Geothermal Energy Systems	3	0406300 Heat Transfer
15		0406468	Special Topics in Energy Systems	3	Senior Standing
16		0402413	Electrical Power Distribution Systems for SREE	3	0402216 Elec. Power Eng.
17	Control and	0402433	Instrumentation and Measurement for SREE	3	0402255 Applied Electronics
18	Power	0402435	Digital Control Systems for SREE	3	0402348 Signals & Control
19	Systems*	0402422	Applied Control Engineering for SREE	3	0402348 Signals & Control
20		1502336	Microcontroller Based Systems for SREE	3	0402255 Applied Electronics
21	Claster des and	0402320	Field Analysis	3	1430117 Physics II, 1440262 Math for Eng.
22	Electronics and Applied	0402419	Power Electronics for SREE	3	0402255 Applied Electronics
23		0402459	Optoelectronics for SREE	3	0402255 Applied Electronics
24	Electromagnetic	0406410	Electronic Materials and Devices	3	0402255 Applied Electronics
25	Engineering	0406360	Economics of Energy Systems	3	0406100 Intro. to Energy Sci. & Tech.
26	Management	0406361	Engineering Management	3	Junior Standing

26 courses will be offered in every semester according to Program facilities, and you can choose any 4 courses $through your \, 4\, Academic \, Years. \, Also \, you \, are \, welcome \, to \, meet \, your \, Academic \, Advisor \, to \, take \, his/her \, opinion$

Fire	First Semester				Second Semester				
SN	Course No.	Course Name	Credits	SN	Course No.	Course Name	Credits		
1	0201102	Arabic Language	3	8	1440161	Calculus II for Eng.	3		
2	1440133	Calculus I for Eng.	3	9	1430117	Physics II	3		
3	1430115	Physics I	3	10	1430118	Physics II Lab	1		
4	1430116	Physics I Lab	1	11	1501100	Introduction to IT (English)	3		
5	1420101	Chemistry I	3	12	0406100	Intro. to Energy Sci. & Tech.	3		
6	1420102	Chemistry I Lab	1	13	0406101	Statics & Dynamics	3		
7	0202112	English for Academic Purposes	3						
Total						Total	16		

Course Name 14 0406200 Thermodynamics 20 0406300 Heat Transfe Fluid Mechanics Lab Applied Electronics SRE 0402202 Circuit Analysis I 23 0402256 Applied Electronics Lab SREE 1440262 0104100 Math for Engineer Islamic Culture 1440261 Differential Equations for E Random Signal Theory 0402241 25

	JUNIOR YEAR										
Fit	th Semester			Sixt	Sixth Semester						
SN	SN Course No. Course Name Credits		Credits	SN	Course Name No.		Credits				
27	0402216	Elec. Power Eng.	3	34	0406330	Wind Energy Systems	3				
28	0402217	Elec. Power Eng. Lab	1	35	0406331	Wind Energy Systems Lab	1				
29	0406302	Engineering Materials	3	36	0202207	Technical Writing	3				
30	0406320	Solar PV Systems	3	37	0402348	Signals and Control Systems	3				
31	0406321	Solar PV Systems Lab	1	38	0406450	Design for Energy Efficiency	3				
32	XXXXXXXX	University Elective 1	3	39	0302200	Fundamental of Innovation & Enterprises	3				
33	XXXXXXXX	University Elective 2	3	40	1502300	Prof., Social, and Ethical Issues in Engineering	1				
		T-4-1	47			T-4-1	47				

Summer Semester

	* SENIOR YEAR									
	Seventh Semester				 Eight Semester 					
SN	SN Course No. Course Name Credit			SN	Course No.	Course Name	Credits			
42	0401301	Engineering Economics	3	49	0406492	Senior Design Project II	3			
43	0406451	Energy Storage and Transmission	3	50	04064xx	SREE Technical Elective (2)	3			
44	0406452	Energy Storage/Efficiency Lab	1	51	XXXXXXXXX	University Elective 3	3			
45	04064xx	SREE Technical Elective (1)	3	52	04064xx	SREE Technical Elective (3)	3			
46	0402340	Eng. Comp. & Linear Algebra	3	53	04064xx	SREE Technical Elective (4)	3			
47	0406491	Senior Design Project I	1		•					
48	0406420	Solar Thermal Energy Systems	3							
		Total	17			Total	15			

Total Credit Hours 133