## **❖** ERE Undergraduate program (UG)

## **\*** Core Courses

Code	Course Title	Credit Hour		
ERE 311	Project Based Learning in ERE	2		
ERE 312	Fluid Mechanics	3		
ERE 313	Thermodynamics	3		
ERE 315	Computational Methods for Engineers	1		
ERE 316	Theory of Machines and Vibrations	3		
ERE 317	<b>Energy Conversion and Management</b>	2		
ERE 318	Sustainable Energy	3		
ERE 321	Seminar on ERE	2		
ERE 322	Combustion and Fuels	3		
ERE 323	Power Stations	3		
ERE 324	Heat and Mass transfer	3		
ERE 411	Refrigeration and Air Conditioning	3		
ERE 412	Solar Energy	3		
ERE 421	Energy Storage and Transmission	3		
ERE 422	ERE 422 Design of Thermal and Energy Systems	3		
ERE 420	Graduation Project (1)	3		
ERE 500	Graduation Project (2)	7		
ERE 499	Industrial Training	4		

## **\*** Elective Courses

Code	Course Title	Credit Hour	
ERE 413	Hydraulic Machines and Hydraulic Stations	3	
ERE 414	Desalination Technology	3	
ERE 415	Energy Systems and Power Plants and Economics	3	
ERE 416	Computational Fluid Dynamics (CFD)	3	
ERE 417	Safety Codes and Environmental Laws	3	
ERE 418	Project Management	3	
ERE 419	Basics of Electrical Power and Smart Grid	3	
ERE 423	Energy Systems	3	
ERE 424	Energy Efficient Buildings	3	
ERE 425	Energy Economics	3	
ERE 426	Nuclear Power Plants	3	

Graduation project					
Code	Course Title	Credit Hour			
ERE 420	Graduation Project (1)	3			
ERE 500	Graduation Project (2)	(7 Credit hours ) Pre-requisite ERE 420			
Industrial Training					
ERE 499	Industrial Training	(4 Credit hours)			

## ❖ UG program Study Plan

Term	COURSES  Introduction to Philosophy	Clas						
1	later de ation de Divisare les		Midterm	Lab	Oral	Final	Exam Duration	
1		S 0.3	0.3			0.4	2	20
1	Key skills seminar (1)	0.3	0.3			0.4	2	
1	Japanese Language (1)	0.3	0.3			0.4	1	
1	Mathematics (1) ( Calculus + Linear Algebra)	0.3	0.3			0.4	3	
	Physics (1)	0.3	0.3			0.4	3	
_	Chemistry (1) Basic Sciences Lab-1 (Physics (1)	0.3	0.3	1		0.4	2	
	Basic Sciences Lab-1 (Physics (1))  Basic Sciences Lab-2 ( Chemistry (1))			1				
	Mechanics (Statics + Dynamics)	0.3	0.3	-		0.4	3	
	Safety and Risk Management	0.3	0.3			0.4	2	1
	Japanese Language (2)	0.3	0.3			0.4	1	
	Japanese Culture	0.3	0.3			0.4	2	
<u> </u>	Mathematics (2) (Calculus + Linear Algebra)  Physics (2)	0.3	0.3 0.3			0.4	3	
_	Chemistry (2)	0.3	0.3			0.4	2	
2	Basic Science Lab-3 (Physics (2))	0.0	5,5	1			-	20
	Basic Science Lab-4 (Chemistry (2))			1			-	
	Electrical Engineering (Circuits + Machines)	0.3	0.3			0.4	3	
$\vdash$	Electrical Engineering Lab(Circuits + Machines)	0.3	0.3	1 015		0.1	-	-
<del></del>	Engineering Drawing Environment and Earth Science	0.3	0.15 0.3	0.15		0.4 0.4	2	
$\vdash$	Probability and Statistics	0.3	0.3	1		0.4	2	1
<u> </u>	Computer Programming	0.3	0.3			0.4	2	1
	Computer Programming Lab	0.3	0.3			0.4	-	
	Introduction to Electronics Engineering	0.3	0.3			0.4	2	
3	Electronics Engineering Lab			1			-	19
<u> </u>	Introduction to Energy, Environmental and Chem. Engeering	0.3	0.3	1		0.4	2	1
$\vdash$	Energy, Environmental and Chem. Eng. Lab (Energy + Env + Chem Engeering)  Introduction to Manufacturing Processes	0.3	0.3	1		0.4	2	1
	Manufacturing Processes Labortory	0.5	0.3	1		0.4	-	-
	Stress Analysis and Design	0.3	0.15	0.15		0.4	3	
	Peace studies	0.3	0.3			0.4	2	
	Fine Arts appreciation, drawing, and painting	0.3	0.3			0.4	2	
	UR elective 1	0.3	0.3			0.4	2	
	Fundamental of life Science  Measurements and Instrumentations	0.3	0.3 0.3			0.4	2	
_	Measurements and Instrumentations Lab	0.3	0.3	1		0.4	1	
4	Fundamentals of Materials Science	0.0	0,0			0.4	2	19
	Materials Science Lab	0.3	0.3	1			1	
_	Engineering Mathematics			0.15		0.4	2	
<u> </u>	Thermo-Fluids	0.3	0.15 0.3	1		0.4	1	
$\vdash$	Thermo-Fluids Lab Stress Analysis and Design	0.3	0.3	0.15		0.4	3	
	UR elective 2	0.3	0.3	0.15		0.4	2	
	Project Based Learning on ERE	0.3	0.3	1			-	19
	Fluid Mechanics	0.3	0.3			0.4	3	
5	Thermodynamics	0.3	0.3	1		0.4	3	
- <u>-</u>	Computational Methods for Engineers Theory of Machines and Vibrations	0.3	0.3 0.3	1		0.4	3	1
<b></b>	Energy Conversion and Management	0.3	0.3			0.4	2	1
	Sustainable Energy	0.3	0.15	0.15		0.4	3	1
	Automatic control (1)	0.3	0.3			0.4	2	
	Automatic control (1) Lab	0.3		1	$\Box$		1	
$\vdash$	Key skills seminar (2)	0.3	0.3			0.4	2	
6	UR elective 3 Seminar on ERE	0.3	0.3	1	<del>                                     </del>	0.4	2	18
	Combustion and Fuels	0.3	0.15	0.15		0.4	3	1
	Power Stations	0.3	0.3	0.15		0.4	3	1
	Heat and Mass Transfer	0.3	0.15			0.4	3	
	UR elective 4	0.3	0.3		0.4	0.4	2	
$\vdash$	Refrigeration and Air conditioning	0.3	0.15	0.15		0.4	3	-
7 -	Solar Energy Elective 1	0.3	0.3 0.3	1		0.4 0.4	3	17
<u> </u>	Elective 1	0.3	0.3			0.4	3	1
<u> </u>	Elective 3	0.3	0.3			0.4	3	1
	Introduction to Economics and Sustainable Development	0.3	0.3			0.4	2	17
8	Graduation Project (1)			0.7	0.3		-	
	Energy Storage and Transmission	0.3	0.3		-	0.4	3	
$\vdash$	Design of Thermal and Energy Systems  Elective 4	0.5 0.3	0.2 0.3			0.3 0.4	3	
<u> </u>	Elective 5	0.3	0.3			0.4	3	
	Graduation Project (2)	- /-		0.7	0.3	-	-	11
9 –	Industrial Training (2 Modules)	0.7			0.3	-	-	11
	Total				1			160