

# Scheme of Studies of BSc. Energy Engineering

## USPCAS-E, UET Peshawar

Scheme of Studies of BSc. Energy Engineering				
Course Code	Title of the Course	Credit Hrs.		Total Credits
		Theory	Lab	
	<b><u>1st Semester</u></b>	<b>Theory</b>	<b>Lab</b>	
ENE-101 (T&L)	Metallurgy & Workshop Practices	2	2	4
ENE-102	Engineering Mechanics	3	0	3
BSI -101	Islamic Studies or Ethics	2	0	2
BSI-113	Linear Algebra & Calculus	3	0	3
BSI-181 (T&L)	Applied Physics	2	1	3
BSI-118 (T&L)	Organic & Inorganic Chemistry	2	1	3
	<b>Semester Credit Hours</b>	<b>14</b>	<b>4</b>	<b>18</b>
	<b><u>2nd Semester</u></b>	<b>Theory</b>	<b>Lab</b>	
ENE-111	Introduction to Energy Engineering	2	0	2
ENE-103 (T&L)	Manufacturing Engineering	2	1	3
BSI-142	Functional English	3	0	3
ENE-104 (T&L)	Engineering Drawing, Graphics, and CAD	2	1	3
ENE-105 (T&L)	Computer Programming	2	1	3
BSI-231	Differential Equations	3	0	3
	<b>Semester Credit Hours</b>	<b>14</b>	<b>3</b>	<b>17</b>
	<b><u>3rd Semester</u></b>	<b>Theory</b>	<b>Lab</b>	
ENE-231 (T&L)	Basic Electrical Circuits and Network Analysis	2	1	3
ENE-221 (T&L)	Engineering Thermodynamics	2	1	3
BSI-242 (T&L)	Numerical Analysis	2	1	3
BSI-110	Ideology and Constitution of Pakistan	2	0	2
ENE-212 (T&L)	Fluid Mechanics	3	1	4
ENE-202 (T&L)	Mechanics of Materials	2	1	3

	<b>Semester Credit Hours</b>	<b>13</b>	<b>5</b>	<b>18</b>
	<b><u>4th Semester</u></b>	<b>Theory</b>	<b>Lab</b>	
ENE-201 (T&L)	Instrumentation & Measurements	2	1	3
ENE-241	Organizational Behavior	2	0	2
ENE-222 (T&L)	Solar Energy Systems	3	1	4
BSI-143	Expository Writing	3	0	3
BSI-351	Statistics and Probability	3	0	3
ENE-311 (T&L)	Heat and Mass Transfer	2	1	3
	<b>Semester Credit Hours</b>	<b>15</b>	<b>3</b>	<b>18</b>
	<b><u>5th Semester</u></b>	<b>Theory</b>	<b>Lab</b>	
ENE-242	Engineering Management	2	0	2
ENE-312 (T&L)	Wind and Hydropower Conversion	3	1	4
ENE-314 (T&L)	Hydrogen & Fuel Cells	2	1	3
ENE-321 (T&L)	Boiler Engineering and Power Plants	2	1	3
ENE-331 (T&L)	Power Transmission, Distribution & Utilization	3	1	4
	<b>Semester Credit Hours</b>	<b>12</b>	<b>4</b>	<b>16</b>
	<b><u>6th Semester</u></b>	<b>Theory</b>	<b>Lab</b>	
ENE-313 (T&L)	Energy Storage Technologies	2	1	3
ENE-316 (T&L)	RS & GIS for Renewable Energy Resources	2	1	3
ENE-332 (T&L)	Control Systems	2	1	3
ENE-323 (T&L)	Heating, Ventilation and Air Conditioning Systems	3	1	4
ENE-315 (T&L)	Photoactive Materials and Their Characterization	2	1	3
ENE-341	Entrepreneurship	2	0	2
	<b>Semester Credit Hours</b>	<b>13</b>	<b>5</b>	<b>18</b>
	<b><u>7th Semester</u></b>	<b>Theory</b>	<b>Lab</b>	
ENE-411 (T&L)	Energy Conservation and Auditing	2	1	3

ENE-431 (T&L)	Smart Grid	2	1	3
ENE-401	Project and Report-I	0	3	3
ENE-XYZ (T&L)	Elective-I	2	1	3
ENE-XYZ	Elective-II	3	0	3
	<b>Semester Credit Hours</b>	<b>9</b>	<b>6</b>	<b>15</b>
	<b>8th Semester</b>	<b>Theory</b>	<b>Lab</b>	
ENE-432(T&L)	Power Electronics	2	1	3
ENE-441	Energy Economics, Policy and Management	2	0	2
ENE-402	Project and Report-II	0	3	3
ENE-XYZ (T&L)	Elective-III	2	1	3
ENE-XYZ	Elective-IV	3	0	3
GE 101	Civic and Community Engagement	2	0	2
	<b>Semester Credit Hours</b>	<b>11</b>	<b>5</b>	<b>16</b>
				<b>136</b>

### List of Elective Courses

Codes	Title of the Course	Credit Hrs.		Total Credits
		Theory	Lab	
ENE-412	Energy and Environment	3	0	3
ENE-422	Nuclear Energy Engineering	3	0	3
ENE-413	Nano Technology and Energy	3	0	3
ENE-423	Geothermal and Tidal Energy	3	0	3
ENE-414	Environmental Impact Assessment	3	0	3
ENE-433	Machine Design	3	0	3
ENE-424	Natural Gas Engineering	3	0	3
ENE-403	Reliability & Maintenance Engineering	3	0	3
ENE-425	Dynamics and Mechanisms of Machinery	3	0	3
ENE-404	Engineering Materials	3	0	3
ENE-426 (T&L)	Fuels & combustion	2	1	3
ENE-427 (T&L)	Clean Coal Technology	2	1	3
ENE-434 (T&L)	Electrical Machines	2	1	3

ENE-415 (T&L)	Renewable Energy Systems	2	1	3
ENE-322 (T&L)	I.C. Engines	2	1	3
ENE-417 (T&L)	Bioenergy Engineering	2	1	3
ENE-418 (T&L)	Microbial Bioenergy and Biofuels	2	1	3
ENE-435 (T&L)	Power System Analysis & Protection	2	1	3
ENE-436	Hybrid and Electric Vehicle	3	0	3
ENE-437 (T&L)	Artificial Intelligence in Energy	2	1	3