

### B.Tech in Chemical Engineering: Major in Renewable Energy Engineering (2023-24 Batch)

1st Semester		Credit	2nd Semester		Credit
Classical Physics (3 1 0)	IS	11	Modern Physics (2 1 0)	IS	8
Organic and Hydrocarbon Chemistry (2 1 0)		11	Inorganic & Physical Chemistry (3 1 0)		11
Applied Mathematics-1 (3 1 0)		11	Applied Mathematics-2 (3 1 0)		11
Physics Lab (0 0 2/2)		1	Physics Lab (0 0 2/2)		1
Chemistry lab (0 0 2/2)		1	Chemistry lab (0 0 2/2)		1
Engineering Thermodynamics (3 1 0)	IE	11	Computer Programing (3 1 0)	IE	11
Workshop Practices (0 0 3)	EP	3	Computer Programing Lab (0 0 2)		2
<b>Credit</b>		<b>49</b>	Fluid Mechanics (3 1 0)		11
Universal Human Values (1 1 0)	HU	5	Renewable Energy Engineering Practices (1 0 2)	EP	<b>5</b>
<b>Total Credit</b>		<b>54</b>	Engineering Graphics (0 0 3)		3
Basic English (1 2 0)	L	7	<b>Credit</b>		<b>64</b>
			Community Internship (1 1 0)	HU	5
			<b>Total Credit</b>		<b>69</b>

3rd Semester		Credit	4th Semester		Credit
Applied Mathematics-3 (3 1 0)	IS	11	Materials Science and Strength of Materials (3 0 0)	IE	9
Fundamentals of Electronics Engg (3 1 0)	IE	11	Fundamentals of Electrical Engineering (3 0 0)		9
Fundamentals of Electronics Engg Lab (0 0 2)		2	Mass Transfer Operations-1 (3 1 0)	11	
Fundamentals of Mechanical Engineering (3 0 0)		9	Heat Transfer Operations (3 1 0)		11
Chemical Engineering Thermodynamics (3 1 0)	DC	11	Chemical Reaction Engineering-1 (2 1 0)	DC	8
Mass & Energy Balances (2 1 0)		8	Chemical Reaction Engineering Lab (0 0 2)		2
Fluid Flow Operations (2 1 0)		8	Heat Transfer Operation Lab (0 0 2)		2
Solid Fluid Mechanics and Mechanical Operations (2 1 0)		8	Professional Communication (2 1 0)	L	8
Fluid Flow Operations Lab (0 0 2)		2	<b>Credit</b>		60
<b>Total Credit</b>		70	Group Discussions	EP	2
			<b>Total Credit</b>		62

5th Semester		Credit	6th Semester		Credit	
Mass Transfer Operations-2 (2 0 0)	DC	6	Process Dynamics and Control (3 1 0)	DC	11	
Chemical Reaction Engineering-2 (2 1 0)		8	Plant Design and Economics (3 0 0)		9	
Process Instrumentation (2 0 0)		6	Mass Transfer Operations-3 (2 0 0)		6	
Energy Resources and Utilization (2 0 0)		6	Electrochemical Processes and Energy Systems (3 0 0)		9	
Chemical Process Technology-02 (2 0 0)		6	Corrosion Engineering (2 0 0)		6	
Equipment Design: Mechanical Aspects (2 0 0)		6	Plant Design and Economics Lab (0 0 2)		2	
Mass Transfer Operation Lab (0 0 2)		2	Process Dynamics and Control Lab (0 0 2)		2	
Energy Resources Utilization Lab (0 0 2)		2	Energy Conversion Lab (0 0 2)		2	
Chemical Engineering Software Lab (0 0 2)		2	DE: Nuclear Energy Engineering		DE	9
Equipment Design: Mechanical Aspects Project (0 0 2)		2				
DE: Biomass and Biofuels Engineering (3 0 0)	DE	9	<b>Total Credit</b>		<b>55</b>	
<b>Credit</b>		<b>55</b>				
Seminar	EP	2				
B.Tech Project	DP	5				
<b>Total Credit</b>		<b>62</b>	<b>Summer Internship</b>	<b>10</b>		

7th Semester		Credit	8th Semester		Credit
Industrial Pollution and Control (2 0 0)	DC	6	Modelling Simulation and Optimization (2 0 0)	DC	6
Process Equipment Design (2 0 0)		6	Environmental Studies (2 0 0)		6
Industrial Pollution and Control Lab (0 0 2)		2	Modelling Simulation and Optimization Lab		2
Process Equipment Design Project (0 0 2)		2	DE: (Solar Thermal Energy, Fuel Cell Technology, Hydrogen Energy, Biochemical Engg. )	DE	9
DE: Photovoltaic (3 0 0)	DE	9	Open Elective-2	OE	9
Open Elective-1	OE	9	Sociology of Industry and Work Culture (2 0 0)	HU	6
Organizational Psychology (2 0 0)	HU	6	Principles of Economics (3 0 0)	M	9
Foundations of Management (3 0 0)	M	9	<b>Total Credit</b>		<b>47</b>
<b>Total Credit</b>		<b>49</b>			

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	<b>Proposed B. Tech. Course Structure</b>			
<b>Category</b>	<b>Programme Component</b>	<b>Without Minor</b>		
		<b>Min</b>	<b>Max</b>	<b>Recommended</b>
HU	Humanities and Social Science	22	22	22
IS	Science	70	90	72
IE	Institute Engineering	40	70	57
EP	Engineering Drawing, Workshop	18	24	15
L	Language and Management	18	24	26
DC	Departmental Core	145	190	211
DE	Departmental Elective	30	75	36
OE	Open Elective	15	20	18
DP	Project/Industrial Visit	20	50	20
	<b>Total</b>	<b>440</b>	<b>490</b>	477