



# **School of Sustainability Studies**

**Course Curriculum Pack (CCP)**

**For B.Tech. (Solar and Alternative Energy)**

**Course Structure**

**To be implemented from AY 2022-23**



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**Course Curriculum Pack**

**First Year: Semester I**

Sr. No.	Course Code	Subject	Hours Per Week					Credits (Academic Teaching)
			L	T	P	S	Total	
1		Applied Mathematics-I	1	1	1	1	4	4
2		Applied Physics	2	0	1	1	4	4
3		Engineering Drawing Basic drawing to continue, introduce design of solar & wind power plant in upcoming semester	0	0	1	3	4	4
4		Basics of Electrical Engineering	1	0	1	1	3	3
5		Renewable Energy System-I	1	1	1	1	4	4
6		Environmental Studies/ Focussed on climate,	2	0	0	1	3	3
7		IDSC-Communication Skill-I	0	0	0	3	3	3
		Total						25
		Total Duration of Teaching						

**Six Subjects to be included for each semester**

**Solar Energy Resource Instruments**

**Lab+ Field Oriented Project**

**Physics Lab**

**Solar Energy & Wind Energy, Biomass**

**Geothermal, Tidal,**



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**First Year: Semester II**

Sr. No.	Course Code	Subject	Hours Per Week					Credits (Academic Teaching)
			L	T	P	S	Total	
1		Applied Mathematics-II Basics of Mechanical Engineering Applied Thermodynamics Plumbing and other	1	1	1	1	4	4
2		Applied Chemistry	2	0	1	1	4	4
3		Basics of Electronics Engineering Electronics Circuits for Renewable Energy System	1	0	1	1	3	3
4		Environmental Impact of Energy System	1	1	1	1	4	4
5		Computer Programming Introduction to Solar Simulation Software (PVSOL), Computer applications, in upcoming semester	1	0	1	1	3	3
6		Solar Energy I: Energy Conversion & Energy Storage	1	1	1	1	4	4
7		IDSC-Communication Skill-II Technical Communication, Contract Management, Stress Management, MOU Bids in 4 <sup>th</sup> semester	0	0	0	3	3	3
8		Internship-I (Two Months) At End of First Year						8
		Total						32
		Total Duration of Teaching						

**Six technical Subjects and One IDSC (To be the part of CCP)**



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**Second Year: Semester III**

Sr. No.	Course Code	Subject	Hours Per Week					Credits (Academic Teaching)
			L	T	P	S	Total	
1		Renewable Energy System-II Every Semester Once Focussed Subject Solar/Wind/Biomass/Hydropower/Geothermal /Tidal/ Wind	1	1	1	1	04	4
2		Solar Energy II (Earlier Heat And Mass Transfer)	1	1	1	1	04	4
3		Material Science	1	0	1	1	03	3
4		Measurement and Instrumentation	1	1	1	1	04	4
5		Energy Concepts in Green Building	1	0	1	1	04	4
6		Computer Applications	1	0	1	1	03	3
7		IDSC-Technical Communication	1	1	1	03	03	3
		Total					25	25
		Total Duration of Teaching						



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**Second Year: Semester IV**

Sr. No.	Course Code	Subject	Hours Per Week					Credits (Academic Teaching)
			L	T	P	S	Total	
1		Renewable Energy System: Biomass	1	1	1	1	4	4
2		Solar Energy-III Advance Solar Thermal & Photovoltaic	1	1	1	1	4	4
3		Hydrogen Energy & Fuel Cell To be Included in Two Semesters	1	0	1	1	3	3
4		Financial Management Of Renewable Energy-I	1	0	1	1	3	3
5		Computer Applications	1	0	1	1	3	4
6		Energy Scenario and Energy Policy Solar Energy	1	1	1	1	4	4
7		General Aptitude-I	0	0	0	3	3	3
8		Internship-II (Two Months) At End of Second Year						8
		Total					25	32
		Total Duration of Teaching						

**Third Year: Semester V**

Sr. No.	Course Code	Subject	Hours Per Week					Credits (Academic Teaching)
			L	T	P	S	Total	
1		Energy Audit and Management-I	1	1	1	1	4	4
2		Operation And Maintenance of Solar Utility	1		1	1	3	3
3		Renewable Energy: Wind Energy Conversion System	1	1	1	1	4	4
4		Shared Energy Infrastructure-I	2	0	1	1	4	4
5		Solar Energy IV Resource Assessment	1	0	1	1	3	3
6		Financial Management of Renewable Energy Projects	1	1	1	1	4	4
7		IDSC-General Aptitude-II Foreign Languages	0	0	0	3	3	3
		Total					25	25
		Total Duration of Teaching						



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**Third Year: Semester VI**

Sr. No.	Course Code	Subject	Hours Per Week					Credits (Academic Teaching)
			L	T	P	S	Total	
1		Energy Audit and Management-II BEE, Syllabus of BEE, Energy Auditor	2	0	1	1	4	4
2		Solar Energy: Roof Top Solar PV System Design More Weightage to the subjects Higher Credits for subject Solar PV Design and Simulation	1	1	1	1	4	4
3		Innovations And Research In Renewable Energy Introduction to Research Methodology	1	0	1	1	3	3
4		Shared Energy Infrastructure-II	2	0	1	1	4	4
5		Digitization in Renewable Energy	1	0	1	1	3	3
6		Electives: To Be Identified	2	0	1	1	4	4
7		IDSC-Entrepreneurship	0	0	0	3	3	3
8		Internship-III (Two Month)						8
		Total					25	32
		Total Duration of Teaching						

**Fourth Year: Semester VII**

Sr. No.	Course Code	Subject	Hours Per Week					Credits (Academic Teaching)
			L	T	P	S	Total	
1		Project Management	1	0	1	1	3	3
2		Project						13
3		Elective: Artificial Intelligence in Energy Management	1	0	1	1	3	3
		Elective: PV Technology: Entrepreneurship & Business Management	1	0	1	1	4	3
4		IDSC-Employability Skill	0	0	0	3	3	3
		Total						25
		Total Duration of Teaching						



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Less Subjects: To be accommodate in earlier semester

Elective Subject to be included in third and final year.

To Propose internship in 8<sup>TH</sup> Semester.

Entrepreneurship and Business Developments

Fourth Year: Semester VIII

Sr. No.	Course Code	Subject	Hours Per Week					Credits (Academic Teaching)
			L	T	P	S	Total	
1		Internship-IV (Long Internship) Six Months						13
2		Seminar						2
		Total						25
		Total Duration of Teaching						