

STUDY SCHEME FOR THIRD SEMESTER LATERAL AND ITI PASSED STUDENTS

THIRD SEMESTER (RENEWABLE ENERGY)

Sr. No.	SUBJECTS	Category & Course Type	STUDY SCHEME			Credits	MARKS IN EVALUATION SCHEME										Total Markso f Internal & External
			Periods/Week				INTERNAL ASSESSMENT			EXTERNAL ASSESSMENT							
			L	T	P		Th	Pr	Tot	Th	Hrs	Pr	Hrs	Tot			
3.1	Fundamentals of Renewable energy Resources	Program Core (Theory)	3	1	-	4	40	-	40	60	3	-	-	60	100		
3.2	Solar Photovoltaic	Program Core (Practicum)	2	-	4	4	40	-	40	60	3	-	-	60	100		
3.3	Fundamental of Thermodynamics and Heat Transfer	Program Core (Practicum)	2	-	4	4	40	-	40	60	3	-	-	60	100		
3.4	Renewable Energy Instrumentation Applications	Program Core (Theory)	4	-	-	4	40	-	40	60	3	-	-	60	100		
3.5	Renewable Energy Instrumentation Applications Laboratory	Program Core (Practical)	-	-	8	4	-	60	60	-	-	40	3	40	100		
3.6	*Minor Project		-	-	-	1	-	50	50	-	-	-	-	-	50		
#Student Centred Activities(SCA)			-	-	8	-	-	50	50	-	-	-	-	-	50		
Total			11	1	24	21	160	160	320	240	-	40	-	280	600		

*Lateral entry students shall undertake a minor project and deliver a presentation on the same. This project will serve as an equivalent to Summer Internship-I for the purpose of earning the associated credits and marks..

Student Centered Activities will comprise of co-curricular activities like extension lectures, games, hobby club, self-study, seminars, declamation contests, educational field visits, N.C.C., NSS, library, Cultural Activities and self-study etc.

- 1) Each period will be 60 minutes duration.
- 2) Each session will be of 16 weeks.
- 3) Effective teaching will be at least 14 weeks per session.

**A. COMPULSORY SUBJECT OF I-SEMESTER RENEWABLE ENERGY TO BE TAUGHT IN III SEMESTER TO ITI
PASSED STUDENTS OF TRADES ARE AS FOLLOWS :-**

Sr. No.	SUBJECTS	STUDY SCHEME			Credits	MARKS IN EVALUATION SCHEME									Total Marks of Internal & External
		Periods/Week				INTERNAL ASSESSMENT			EXTERNAL ASSESSMENT						
		L	T	P		Th	Pr	Tot	Th	Hrs	Pr	Hrs	Tot		
1.1	*Mathematics-I	2	1	-	3+0=3	40	-	40	60	3	-	-	60	100	
1.2	*AppliedPhysics-I	3	-	2	3+1=4	40	60	100	60	3	40	3	100	200	
1.3	*AppliedChemistry	3	-	2	3+1=4	40	60	100	60	3	40	3	100	200	
1.4	*CommunicationSkillsin English	3	-	2	3+1=4	40	60	100	60	3	40	3	100	200	
TOTAL		11	1	6	15	160	180	340	240		120		360	700	

(*) It is compulsory to appear & to pass in examination From III Semester To VI Semester, But credit/marks will not be included for division and percentage of obtained marks.

(*) Four Semester (Two Years) of Extra Time will be given after diploma curriculum period (If Required) to pass the above paper (1.1 To 1.4 and 2.1To 2.2) examination (As Per G. O. No. 2221/16-Pra. Shi.-3-2009 Dated 28-08-2009) & Revised G.O. No. 2704/16-Pra.Shi.-3-2013-46(8)/2002 Dated 09-01-2013 and B.T.E Order No. Pra.Shi.Pa/C.D.C./2022/872021 Dated 21.02.22

FOURTH SEMESTER (RENEWABLE ENERGY)

Sr.N o.	SUBJECTS	Category & Course Type	STUDY SCHEME			Credits	MARKS IN EVALUATION SCHEME									Total Marksof Internal & External
			Periods/Week				INTERNAL ASSESSMENT			EXTERNAL ASSESSMENT						
			L	T	P		Th	Pr	Tot	Th	Hrs	Pr	Hrs	Tot		
4.1	Solar Energy	Program Core (Theory)	2	-	-	2	40	-	40	60	3		-	60	100	
4.2	Solar Energy (Lab)	Program Core (Practical)	-	-	6	3	-	60	60	-	-	40	3	40	100	
4.3	Hydraulics and Pneumatics	Program Core (Practicum)	1	-	4	3	-	60	60	-	-	40	3	40	100	
4.4	Wind Energy	Program Core (Practicum)	2	-	4	4	40	-	40	60	3	-	-	60	100	
4.5	Bio-Energy	Program Core (Theory)	2	-	-	2	40	-	40	60	3	-	-	60	100	
4.6	Bio-Energy (Lab)	Program Core (Practical)	-	-	6	3	-	60	60	-	-	40	3	40	100	
4.7	(Q) Open Elective -1 a) Project Management b) Artificial IntelligenceOR	Open Elective	2	-	-	2	50*	-	-	-	-	-	-	-	-	
	*Advance Skill Development	Certification Course	-	-	-		-	-	-	-	-	-	-	-		
4.8	(Q) Essence of Indian Knowledge and Tradition	Audit Course	2	-	-	-	50*	-	-	-	-	-	-	-	-	
#StudentCentredActivities(SCA)			-	-	5	-	-	50	50	-	-	-	-	-	50	
Total			11	-	25	19	120	230	350	180	-	120	-	300	650	

Note -(Q) - It is compulsory to appear & to pass in examination, But marks will not be included for division and percentage of obtained marks.

Advance Skill Development:-

To fulfill the requirements for Advanced Skill Development, a minimum of 20 hours of skill certification is necessary. This certification must be obtained from a recognized national or international agency or institute. The assessment and certification process will be conducted by the respective agency or institute. Students must present their certificate to earn 02 credits for this subject.

** SUMMER INTERNSHIP (4-6 WEEKS) duration to be organized after fourth semester exam. Evaluation will be in fifth semester.

StudentCenteredActivitieswillcompriseofco-curricularactivitieslikeextensionlectures,games,hobbyclubse.g.photographyetc., seminars, declamationcontests,educationalfieldvisits,N.C.C.,NSS, library, CulturalActivitiesandself-studyetc. .

B.COMPULSORY SUBJECT OF II- SEMESTER RENEWABLE ENERGY TO BE TAUGHT IN IV SEMESTER TO ITI PASSED STUDENTS OF TRADES ARE AS FOLLOWS :-

Sr. No.	SUBJECTS	STUDY SCHEME			Credits	MARKS IN EVALUATION SCHEME									Total Marks of Internal & External
		Periods/Week				INTERNAL ASSESSMENT			EXTERNAL ASSESSMENT						
		L	T	P		Th	Pr	Tot	Th	Hrs	Pr	Hrs	Tot		
2.1	*Mathematics-II	3	1	-	4+0=4	40	-	40	60	3	-	-	60	100	
2.2	*AppliedPhysics-II	3	-	2	3+1=4	40	60	100	60	3	40	3	100	200	
TOTAL		6	1	2	8	80	60	140	120	-	40	-	160	300	

(*) It is compulsory to appear & to pass in examination From III Semester To VI Semester, But credit/marks will not be included for division and percentage of obtained marks.

(*) Four Semester (Two Years) of Extra Time will be given after diploma curriculum period (If Required) to pass the above paper (1.1 To 1.4 and 2.1To 2.2) examination (As Per G. O. No. 2221/16-Pra. Shi.-3-2009 Dated 28-08-2009) & Revised G.O. No. 2704/16-Pra.Shi.-3- 2013-46(8)/2002 Dated 09-01-2013 and B.T.E Order No. Pra.Shi.Pa/C.D.C./2022/872021 Dated 21.02.22

Sr No	Name of Courses	L	T	P	Credit
1	Open Elective -1 (Select any one subject of the given list)				
	a) Project Management	2	-	-	2
	b) Artificial Intelligence	2	-	-	2

OR

OPEN ELECTIVE-1 (Advance Skill Development)

SR.NO.	CERTIFICATE COURSES
1.	COURSES CONDUCTED BY CENTRE OF EXCELLENCE (ESTABLISHED BY THIRD PARTY AS: - TATA TECHNOLOGIES. etc)
2.	COURSES CONDUCTED BY INFOSYS PRINGBOARD
3.	COURSES CONDUCTED BY TCS ION
4.	COURSES CONDUCTED BY OTHER RELEVANT GOVERNMENT, INTERNATIONAL/NATIONAL ORGANIZATION OR PLATFORMS OF REPUTE
5.	COURSES CONDUCTED BY AICTE-ELIS AND CENTRALLY FUNDED TECHNICAL INSTITUTES
6.	COURSES CONDUCTED BY C-DAC
7.	COURSES CONDUCTED BY NEILIT

Semester: V

Sr. No.	SUBJECTS	STUDY SCHEME Periods/Week			Credit	MARKS IN EVALUATION SCHEME									Total Marks of Internal & External	Exam Type
		L	T	P		INTERNAL ASSESSMENT			EXTERNAL ASSESSMENT							
						Th	Pr	Tot	Th	Hrs	Pr	Hrs	Tot			
5.1	Summer Internship-II (4-6 Weeks)	-	-	-	2	-	100	100	-	-	-	-	-	100	Practical	
5.2	Energy Efficiency, Economics and Audit	4	0	0	4	40	-	40	60	3	-	-	60	100	Theory	
5.3	Installation, Maintenance & Monitoring of Solar Energy Power Plant	3	0	2	4		40	40	60	3	-	-	60	100	Theory/Practicum	
5.4	Renewable Energy Power Plant	4	0	0	4	40	-	40	60	3			60	100	Theory	
5.5	Program Elective-1 (Anyone from the list) (A) Distributed generation system (B) Integrated Marine- Geothermal & Fuel cell systems	2	0	4	4	-	40	40	-	-	60	3	60	100	Practicum/Practical	
5.6	Advance Skill Development OR Open Elective-2 (Anyone from the list) (A) Electric & Hybrid Vehicle (B) Internet of things	2	0	-	2	50*	-	50*	-	-	-	-	-	-	Qualifying	
5.7	(Q) Indian Constitution	2	0	0	0	50*	-	50*	-	-	-	--	-	-	*Qualifying	
#Student Centred Activities (SCA)		-	-	13	-	-	50	50	-	-	-	-	-	50	-	
Total		17	0	19	20	80	230	310	180	-	60	-	240	550	-	

Student Centered Activities will comprise of co-curricular activities like extension lectures, games, hobby clubs e.g. photography etc., seminars, declamation contests, educational field visit, Library, N.C.C., NSS, Cultural Activities and self-study etc.

Note -

* Students will present report/ presentation of summer internship completed after fourth semester in SCA period.

* **Qualifying paper** must have to pass, but the marks will not be added in awarded division or total marks.

* **Practicum subjects** are to be evaluated by theory or practical examinations as mentioned in above scheme. The lecture allotted to SCA can also be utilized for the course completion of other subjects.

Study Scheme for Diploma Renewable Energy in (SIX Semester)
Semester: VI(NORMAL PATHWAY)

Sr. No.	SUBJECTS	STUDY SCHEME Periods/Week			Credit	MARKS IN EVALUATION SCHEME									Total Marks of Internal & External	Exam type
		L	T	P		INTERNAL ASSESSMENT			EXTERNAL ASSESSMENT							
						Th	Pr	Tot	Th	Hrs	Pr	Hrs	Tot			
6.1	In-House project	4	-	16	12	-	240	240	-	-	160	3	160	400	Practical	
6.2	Entrepreneurship and Start-ups **	2	0	0	2	40	-	40	60	3	-	-	60	100	Practical	
6.3	Open Elective -3(Any One): (A) Project Management (B) Finance Fundamentals (C) Industry 4.0	2	0	0	2	50*	-	50*	-	-	-	-	-	NA	Qualifying	
6.4	Program Elective-2 (Any One): (A) Energy Storage system for Renewable (B) Environmental Impact of Energy Systems (C) Product Design & Development	4	0	0	4	40	-	40	60	3	-	-	60	100	Theory	
#Student Centred Activities (SCA)		-	-	8	-	-	50	50	-	-	-	-	-	50	-	
Total		12	0	24	20	80	290	370	120	-	160	-	280	650	-	

Note -

Student Centered Activities will comprise of co-curricular activities like extension lectures, games, hobby clubs e.g. photography etc., seminars, declamation contests, educational field visit, Library, N.C.C., NSS, Cultural Activities and self-study etc. The lecture allotted to SCA can also be utilized for the course completion of other subjects.

** Common with other Engineering diploma courses

* **Qualifying paper** must have to pass, but the marks will not be added in awarded division or total marks.

* **Practicum subjects** are to be evaluated by theory or practical examinations as mentioned in above scheme.

OR

SIXTH SEMESTER

INDUSTRIAL PATHWAY

Sr. No.	SUBJECTS	Category & Course Type	STUDY SCHEME			Credits(C) (L+T)+P=C	MARKS IN EVALUATION SCHEME										Total Marks of Internal & External	Assessment
			Periods/Week				INTERNAL ASSESSMENT			EXTERNAL ASSESSMENT								
			L	T	P		Th	Pr	Tot	Th	Hrs	Pr	Hrs	Tot				
6.1	Entrepreneurship and Start-ups (ONLINE Mode)	Humanities & Social Science (Theory)	-	-	-	2	-	-	-	100	03	-	-	100	100	Theory		
6.2	Industrial Hands On Practice	Industrial Training	-	-	-	12	150*			200**					350			
6.3	Industrial Project	Industrial Training	-	-	-	4	50*			50**					100			
6.4	# Seminar	In House	-	-	-	2	-	100	100	-	-	-	-	-	100			
Total			-	-	-	20	-							-	650			

NOTE:

1. The Industrial training tenure should not be less than 14 Weeks.
2. Industry must be registered with MSME / Directorate of industries/Limited Organization/ State/Central Government establishments.
3. Monthly progress reports of Intern/ Trainee should be attested and forwarded by industrial supervisor (allotted to Intern/Trainee) during industrial Internship/Training.
4. The Industrial unit/organisation must evaluate students using the format provided by polytechnic in the form of marks.
5. The Industrial Hands on Practice, Industrial Project and seminar must be evaluated on the basis of the AICTE Internship Policy: Guidelines and procedures (Chapter -9 Procedures /

format for organizing internship)

6. “*Entrepreneurship and Start-up*” course is also mandatory in Industrial internship/training mode. It will be conducted online mode by his/her polytechnic institute. After completing the online course, students must appear for exam conducted by the Board of Technical Education, Lucknow.
7. ***Evaluation by faculty mentor**
The institute will depute one faculty member for mentoring at least 20-30 students undertaking apprenticeship training. Such mentors will monitor, guide and provide counselling to the students as and when required. Faculty mentor of the institute(s) may make a surprise visit to the internship/apprenticeship site to check the student's presence physically. (The Proforma of the evaluation is attached as the Annexure -1)
8. **** Evaluation by industry** :The industry shall assess the candidates based on the following parameters attendance, discipline and punctuality, familiarity of tools and material, engineering skills, application of knowledge and problem-solving skills, comprehension and observation, professional ethics, safety and environmental consciousness, communication skills, supervisory skills and general conduct during the period (The Proforma of the evaluation is attached as the Annexure -2)
9. **# Evaluation through seminar presentation/Viva-Voce at the institute** : The student will give a seminar based on his training report, before an expert committee constituted by the concerned department as per norms of the institute. The evaluation will be based on the following criteria: