



GUJARAT TECHNOLOGICAL UNIVERSITY

Syllabus for Bachelor of Vocation (B.Voc.), 1st Semester

Branch: Solar & Renewable Energy

Subject Name: Solar and PV Technician

On-Job Training (Elective)

Subject Code: 1110708

Type of course: Basic Science Course

Prerequisite: Mathematics Fundamentals

Rationale: The study of Complex number, Matrices, Vector, Linear Algebra and Boolean algebra, Differentiation, Integration, First order differential equation.

Teaching and Examination Scheme:

Teaching Scheme			Credits	Examination Marks				Total Marks
L	T	P		C	Theory Marks		Practical	
			ESE (E)		PA(M)	ESE (V)	PA (I)	
0	0	15	15	0	0	100	100	200

L- Lectures; T- Tutorial/Teacher Guided Student Activity; P- Practical; C- Credit; ESE- End Semester Examination; PA- Progressive Assessment

Contents:

Sr.No.	Topic	No. of hours	% Weightage
01	<p>Introduction to Solar Photo Voltaic Modules.</p> <p>Introduction to basics of Solar Photo Voltaic Modules , Understand the role of Solar PV Installer and job opportunities, Acquire basic skills of communication, Acquire basic reading capabilities to enable reading of signs, notices and/or cautions at site Identification and rectification of problem/ causes of minor/major problems or replaces faulty modules, Communicate the problems identified and educate on possible reasons.</p> <p>Understand the DO's and Don'ts of material handling</p>	60	40
02	<p>Basics of Solar Photovoltaic systems</p> <p>Understand the movement of the sun and its effect on the performance, Understand terminology used in solar industry, Understand and acquire know-how many different Types, sizes and specifications of modules available, Read and Interpret the manufacturing data specification sheets, Select the right footing/foundation as per site location including suitability of roof condition or suitability of soil</p>	40	25
03	<p>Site Survey for Solar PV modules</p> <p>Understand how to observe Sun path diagram and shading analysis; Understand and assess the site conditions for safe</p>	15	5



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	installation of Solar PV system; Identify the load to be connected to the Solar PV system Read and Interpret the Single Line Diagram, Layout Diagrams, Civil/Mechanical and Electrical Drawings		
04	Health and safety Explain the importance of personal protective equipment (PPE) required for Cutting and Welding, State the causes for accidents, Identify job site hazardous work and state possible causes of risk or accident at the workplace, the importance of “5S” at the workplace Identify the personal protective equipment used for the specific purpose, Identify the hazards associated with photovoltaic installations, Identify work safety procedures and instructions for working at height, Understand Occupational health & Safety standards and regulations for installation of Solar PV system	35	10
05	Emergencies, rescue and first aid procedure Administer first aid in case of bleeding, burns, choking, electrical shock, poisoning, etc., Use of CPR process, Bandage wounds, Explain stages of crisis and crisis management, Prepare an incident report	20	10
06	Work effectively with others Explain the importance of team work and team dynamics, State 4Cs of working in a team, Explain types of communication, Apply effective communication, technique, Demonstrate active listening skills, Demonstrate good customer services skills, Explain the importance of ethical, behaviour in your day-to-day work, State the importance of discipline in life and apply the same at workplace.	30	10
	Total	200	100

Suggested Specification table with Marks (Practical):

Distribution of Practical Marks					
R Level	U Level	A Level	N Level	E Level	C Level
15	15	10	10	0	0

Legends: R: Remembrance; U: Understanding; A: Application, N: Analyze and E: Evaluate C: Create and above Levels (Revised Bloom’s Taxonomy)

Reference Books:

1. Solar photo voltaic Author: Chetan singh solanki
2. Renewable energy technology Author: Chetan singh Solanki PHI School publication



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Course Outcome:

After learning the course the students should be able to:

1. Understanding of functioning of major equipments of Solar PV Modules.
2. Installation of Solar PV Modules, Its Service and Maintenance.
3. Identification and rectification of problem/ causes of minor/major problems.
4. Basic health and safety practices at the workplace and identify risks and hazards at workplace, use of PPE, and apply good housekeeping practices, etc.
5. Work effectively and communicate with others and demonstrate good ethical practices and discipline.

List of Open Source Software/learning website:

1. www.nptel.ac.in/