

SHIVAJI UNIVERSITY, KOLHAPUR



Accredited by NAAC 'A' Grade

Syllabus for

**Third Year, Bachelor of
Technology (T.Y.B. Tech.)
Electronics &
Telecommunication Engineering
Program
(w. e. f. Academic Year: 2020-21)**

Semester V

Sr. No	Code No.	Subject	Semester	Credits
1.	PCC-ETC501	Signal and Systems	5	5
2.	PCC-ETC502	Electromagnetic Engineering	5	4
3.	PCC-ETC503	Digital and VLSI Design	5	5
4.	PCC-ETC504	Optical Communication	5	5
5.	OEC-ETC501	Open Elective – I	5	4
6.	PCC-ETC505	Simulation and Modeling	5	2
		Total		25

Semester VI

Sr. No	Code No.	Subject	Semester	Credits
1.	PCC-ETC601	Digital Signal Processing	6	5
2.	PCC-ETC602	Microprocessor and Microcontrollers	6	5
3.	PCC-ETC603	Power Electronics	6	5
4.	PCC-ETC604	Antenna and Wave Propagation	6	5
5.	OEC-ETC601	Open Elective – II	6	4
6.	PCC-ETC605	Mini Project	6	1
		Total		25

- **For Theory CIE 30 marks,**
Two tests of 30 marks at college should be conducted and best of two marks should be communicated to university.
- **Guidelines to paper setter:**
In theory ESE examination of 70 marks following points should be considered,
 - Q.1 MCQ's based on complete syllabus. (Carries 14 Marks)**
 - Q.2 based on unit no 1, 2, 3 (Carries 14 Marks)**
 - Q.3 based on unit no 1, 2, 3 (Carries 14 Marks)**
 - Q.4 based on unit no 4, 5, 6 (Carries 14 Marks)**
 - Q.5 based on unit no 4, 5, 6 (Carries 14 Marks)**

Third Year ELECTRONICS & TELECOMMUNICATION ENGINEERING – CBCS PATTERN

SEMESTER – V																					
Sr. No	Course (Subject Title)	TEAETCING SETCEME									EXAMINATION SETCEME										
		THEORY			TUTORIAL			PRACTICAL			THEORY					PRACTICAL			TERM		
		Credits	No. of Lecture	Hours	Credits	No. of Lecture	Hours	Credits	No. of Lecture	Hours	Hours	Mode	Marks	Total Marks	Min	Hours	Max	Min	Hours	Max	Min
1	PCC-ETC501	4	4	4	1	1	1	-	-	-	CIE	30	100	12	As per BOS Guidelines	-	-	2	25	10	
										ESE	70		28								
2	PCC-ETC502	3	3	3	1	1	1	-	-	-	CIE	30	100	12							
										ESE	70		28								
3	PCC-ETC503	4	4	4	-	-	-	1	2	2	CIE	30	100	12			50	20	2	25	10
										ESE	70		28								
4	PCC-ETC504	4	4	4	-	-	-	1	2	2	CIE	30	100	12		50	20	2	25	10	
										ESE	70		28								
5	OEC-ETC501	3	3	3	1	1	1	-	-	-	CIE	30	100	12							
										ESE	70		28								
6	PCC-ETC505	1	1	1	-	-	-	1	2	2						50	20	2	25	10	
	TOTAL	19	19	19	3	3	3	3	6	6			500			150			150		
SEMESTER –VI																					
1	PCC-ETC601	4	4	4	-	-	-	1	2	2	CIE	30	100	12	As per BOS Guidelines	-	-	2	25	10	
										ESE	70		28								
2	PCC-ETC602	4	4	4	-	-	-	1	2	2	CIE	30	100	12			50	20	2	25	10
										ESE	70		28								
3	PCC-ETC603	4	4	4	-	-	-	1	2	2	CIE	30	100	12							
										ESE	70		28								
4	PCC-ETC604	4	4	4	-	-	-	1	2	2	CIE	30	100	12		50	20	2	25	10	
										ESE	70		28								
5	OEC-ETC601	3	3	3	1	1	1	-	-	-	CIE	30	100	12							
										ESE	70		28								
6	PCC-ETC605	-	-	-	-	-	-	1	2	2						50	20	2	25	10	
	TOTAL	19	19	19	1	1	1	5	10	10			500			150			150		
	TOTAL	38	38	38	4	4	4	8	16	16			1000			300			300		

CIE- Continuous Internal Evaluation

ESE – End Semester Examination

Note:

1. **PCC-ETC:** Professional Core course –Electronics & Telecommunication Engineering are compulsory.
2. **OCE-ETC:** Open Elective Course – Electronics & Telecommunication Engineering:
3. **Winter/Summer Internship/Industrial Training of minimum 15 day's compulsory and evaluation of the same will be carried out in Final year Project Phase internal assessment by respective Guide**

• Candidate contact hours per week : 30 Hours (Minimum)	• Total Marks for T.Y. Sem V& VI: 1600
• Theory and Practical Lectures : 60 Minutes	• Total Credits for T.Y. Sem V & VI : 50
• There shall be separate passing for theory and practical (term work) courses.	
(A) Non-Credit Self Study Course : Compulsory Civic Courses (CCC) For Sem I: CCC – I : Democracy, Elections and Good Governance	
(B) Non-Credit Self Study Course : Skill Development Courses (SDC) For Sem II: SDC – I :	
Any one from following (i) to (v)	
i) Business Communication & Presentation ii) Event management iii) Personality Development, iv) Yoga & Physical Management v) Resume, Report & proposal writing	



**BHARATI VIDYAPEETH'S
COLLEGE OF ENGINEERING, KOLHAPUR.**

BACHELOR OF TECHNOLOGY

**DEPARTMENT OF ELECTRONICS & TELECOMMUNICATION
ENGINEERING**

A Training Report

ON

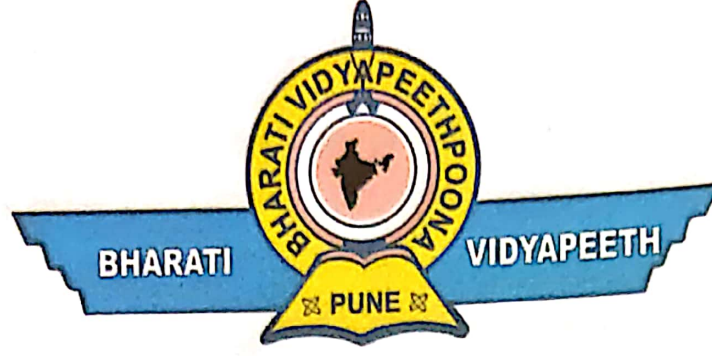
**Lead acid battery, solar water heater, inverter
battery**

SUBMITTED BY

Miss. Sonali Ashok Sutar

Roll no:51

Year 2022-23



**BHARATI VIDYAPEETH'S COLLEGE OF
ENGINEERING, KOLHAPUR**

CERTIFICATE

This is to certify that Industrial Training carried out in the seventh semester by "Sonali Ashok Sutar" in partial fulfilment for the award of Bachelor of Technology in Electronics and Telecommunication Engineering from Shivaji University, Kolhapur during the academic year 2022-2023.

Dr. J.K. Patil

GUIDE

Dr. K.R. Desai

f- HOD

Dr. V.R. Ghorpade

PRINCIPAL

Date:

Place: Kolhapur

ABSTRACT

The report comprises the summary of the 15 days training given to us. It gave us an opportunity to study the actual work-taking place in industry and to learn the working of inverter battery lead acid battery and solar water heater. The leading manufacturer of inverter batteries and services providers. In the field of electrical power conditioning equipment in south Maharashtra like inverters ON -line UPS, servo Stabilizer, solar UPS, solar based lighting systems, solar roof top system, solar water heating systems.

Industrial training is an important phase of a student life. A well planned, properly executed and evaluated industrial training helps a lot in developing a professional attitude. It develops an awareness of industrial approach to problem solving, based on a broad understanding of process and mode of operation of organization. The aim and motivation of this industrial training is to receive discipline, skills, teamwork and technical knowledge through a proper training environment, which will help me, as a student in the field of Information Technology, to develop a responsiveness of the self-disciplinary nature of problems in information and communication technology.

During a period of 15 days of training at “Sigma Sales and Services”, I have observed the working in industry as well as various technologies used in the industry. As a result, I vital to achieve the minimum requirement of the company, it will help the company to get a little bit more efficient than it was yesterday. Throughout this industrial training, I have been learned about new technologies and multiple uses of inverter batteries, solar water heater, lead acid batteries that are required for the industry, the process of Battery installation and somewhat able to implement what I have learnt for the past 3 year in engineering as Electronics and Telecommunication student in Bharati Vidyapeeth’s College of Engineering, Kolhapur.

ACKNOWLEDGEMENT

It gives me immense pleasure to express my sincere gratitude for constant help, encouragement and suggestions to us for our training report entitled “**Lead acid battery, solar water heater, inverter battery**” under the guidance of Mr.Dhanajirao Ekal. I’m also thankful to him for guiding me through various difficulties and making it look easier.

I would also like to extend our sincere gratitude to Dr.V. R. Ghorpade principal of Bharati Vidyapeeth’s college of Engineering, Kolhapur and Dr.K.R. Desai HOD of Electronics and telecommunication Engineering. For their whole support and guidance.

Sonali Ashok Sutar
Btech(Electronics&Telecommunication)

INTRODUCTION

- To Introduce “SIGMA SALES & SERVICES “As One of the Leading Manufacturer of Inverter Batteries & Service Providers In The Field of Electrical Power Conditioning Equipment’s In South Maharashtra like Inverters On-Line UPS lift UPS. Servo Stabilizer. Solar UPS Solar Based Lighting Systems. Solar Roof Top (Net Metering) System. Solar Water Heating Systems, This Business Was Established in 1994.
- The Company Is Committed to Deliver Quality Products. Keeping This In Mind, Supplied With Registered Ministry of New & Renewable Energy Sources (MNRE), New Delhi, Indian Renewable Energy Agency (IREDA), New Delhi, & Maharashtra Energy Development Agency (MEDA). Solar Products this Factory Is Located At A-248, Five Star MIDC. Kagal Kolhapur This Plant Is Fully Equipped with Modern Machinery & Automation Enforcing the Commitment for Quality. Service Are Available Throughout The Good Expert Technical Team.

INFORMATION

1.LEAD-ACID BATTERY:

The lead–acid battery is a type of rechargeable battery first invented in 1859 by French physicist Gaston Planté. It is the first type of rechargeable battery ever created. Compared to modern rechargeable batteries, lead–acid batteries have relatively low energy density. These features, along with their low cost, make them attractive for use in motor vehicles to provide the high current required by starter motors. Lead acid battery have self discharge rate is 3%-20%/month and charge-discharge efficiency is 50%-95%. As they are inexpensive compared to newer technologies, lead–acid batteries are widely used even when surge current is not important and other designs could provide higher energy densities. For these roles, modified versions of the standard cell may be used to improve storage times and reduce maintenance requirements.

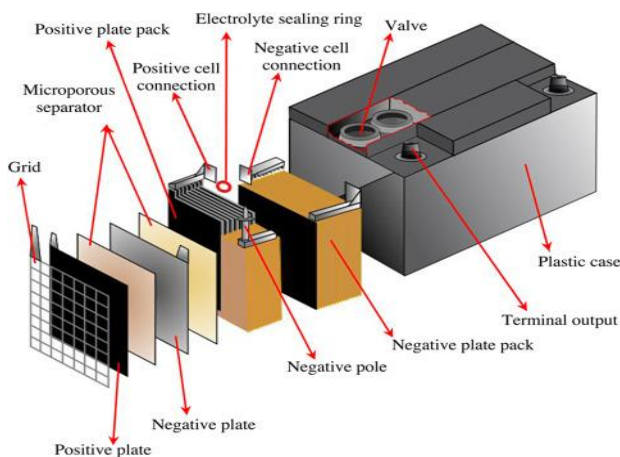


Fig. Lead-acid Battery Construction

APPLICATIONS:

1. House
2. Health instruments
3. Medica
4. Military

ADVANTAGES OF LEAD ACID BATTERY

1. It is mobile
2. Able to produce high current
3. Rechargeable once discharged.
4. Low voltage rating.
5. Available and affordable in different sizes.

DISADVANTAGES OF LEAD ACID BATTERY

1. Short life-span – about 3-5 years
2. Oriented limited to vertical position due to spillage risk.
3. Electrolyte is corrosive
4. Charging takes time
5. The lead electrode used are poisonous and pose a disposal challenge.

2.SOLAR WATER HEATER:

Solar water heater is a device that produced by the action of sun's light or heat.Solar water heater (SWH) is heating water by sunlight, using a solar thermal collector.The sun's rays fall on collector panel.A black absorbing surface inside the collectors absorbs solar radiation and transfers the heat energy to water flowing through it.Heated water is collected in tank and it is move upward in the tank and is ready for use.Fresh cool water enters the tank through the cold water inlet at the base. They use water only, or both water and a working fluid. They are concentrating mirrors.



APPLICATIONS OF SOLAR WATER HEATER:

- 1.Solar pumping
- 2.Solar furnace
- 3.Solar heating of buildings
- 4.Solar cooking

ADVANTAGES OF SOLAR WATER HEATER:

- 1.Solar Heaters help utilizing free natural resource such as sun light and thus helps in saving electricity costs.
- 2.It requires basic fittings and a one time investment and after that its free for up-to 20 years.
- 3.It is a renewable and clean energy source.
- 4.These systems are easy to install and require very little maintenance.
- 5.These systems have long life hence gives value for your investment.
- 6.A solar water heater can wok trouble free for up-to 20 years.

DISADVANTAGES OF SOLAR WATER HEATER:

- 1.Additional roof top space is required to install the solar heater.
- 2.Working of solar heaters depends up on abundance and Availability of direct sun light.
- 3.It heats only in day time, however if the storage tank is well insulated, heated water can be stored and used even at night.
- 4.It will not be very helpful in rainy season or foggy days.

3.INVERTOR BATTERY:

An inverter converts the DC voltage to an AC voltage An inverter battery is designed to provide a small amount of current for a longer duration of time. All the power backup solutions, like inverters, and UPS operate by converting the DC current into AC current as all of our electrical appliances run on AC power. The primary function of the best inverter battery is to adjust the supply of electric charge. Reliable brands like Luminous offers a comprehensive range of the best inverter batteries, and you can choose online according to your needs.



APPLICATIONS OF A INVERTER:

1. Uninterruptible power supplies
2. As standalone inverters
3. In solar power systems
4. As a building block of a switched mode power sup

ADVANTAGES OF A INVERTER:

- 1.No voltage fluctuation caused by compressor
- 2..Maintains constant room temperature
- 3.Efficient cooling and heating
- 4.Can be run on solar panels
- 5.Apart from savings in monthly electricity bill, there is huge savings on fuel if run on backup generator

DISADVANTAGES OF INVERTER

- 1.If room is not insulated, power consumption increases and so does the electricity bill
- 2.Efficiency decreases at noon if weather is extremely hot (over 45 degrees C)
- 3.Relatively expensive repair and maintenance due to the expensive service support and the components used
- 4.Models too powerful for the room size may run frequent short cycles to achieve the target temperature. This can result in the room getting too cold or too hot; inadequate dehumidification (that is, not drying the air enough, making the room feel less comfortable); increased power usage and running costs; and wear and tear on the system
- 5.Underpowered models may have to run more often at maximum output and dry the air too much

THE TRAINING ORGANIZATION

- **Company Name:** SIGMA SALES AND SERVICES
- **Company Address:** C-21,1035,'E'Shahupuri,6th lane, Kolhapur-416001
- **Email Id:**desigmasales@gmail.com
- **Phone Number:** 2666009
- **Vision:** Our vision is to become the global leader in uses of lead acid battery,solar water heater, invertor battery and battery making process providing high quality and cost effective complete solar and battery system & solutions that will provide clean, reliable.
- **Core Value:** We always believe and follow our core values of
 - Teamwork
 - Passion
 - Commitment

OBJECTIVE

The major objective of this industrial training was how to use inverter battery , solar water heater, lead acid battery for the same which inverter is required how much power is required for the solar panel. The overall Training was of 15 Days.

ABOUT THE TRAINING

I learn the use of solar water heater, lead acid battery, inverter and how to make batteries and invertors and develop my skill also.



SITE SELECTION



CERTIFICATE:-



An ISO 9001:2015 Certified Company

Office:- 878, 'E' Ward, Shahupuri, 6th lane, Kolhapur- 416 001.
Factory:- Plot No. A-248, Opp. Konark Industries, 5 Star M.I.D.C, Kagal
Cell:- 8275001566 /9422043337, Email:- desigmasales@gmail.com

MANUFACTURER FOR:- INVERTER & BATTERY
AUTHORISED DISTRIBUTOR FOR:- SWASTIK/SUKAM /LUMINOUS /APC SINE-WAVE
INVERTER, UPS, ON-LINE & OFF LINE UPS,
SOLAR SYSTEMS SIGMA DIGITAL INVERTER,
STABILIZER, S.F. INDUSTRIAL BATTERIES

DATE: 09/09/2022

CERTIFICATION OF INTERNSHIP

This is to certify that **Miss Sonali Ashok Sutar** student of Bharati Vidyapeeth College of Engineering", 3rd Year B.Tech ENTC Branch worked as an intern in Sigma Sales & Services Her period of the internship was from 22nd August 2022 to 09th Sept 2022.

During the internship, she has completed all the tasks assigned to her. Her technical contributions and dedication to work were commendable.

Sincerely,



(Authorized Signatory)
Sigma Sales & Services.

CONCLUSION

We would like to conclude here, The internship program was a great opportunity for us to interact with electrical equipment's like batteries and inverters and we have learned how they operate.