BMS
INSTITUTE OF TECHNOLOGY AND MANAGEMENT

Avalahalli, Doddaballapur Main Road, Bengaluru – 560064

DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING

Open Course on DESIGN AND MODELLING OF DC TO DC CONVERTERS

from 16-06-2020 to 20-06-2020

Dt: 25-06-2020

Course Instructor: Dr. Sanjay Lakshminarayanan, Mr. Babu Naik G, Mrs. Shilpa G

This value-added course on **DESIGN AND MODELLING OF DC TO DC CONVERTERS** is planned to expose the students to understand the basics of DC to DC converters and the use of this converter in latest technologies. This course helps the students to get an understanding of various DC to DC converters, various DC to DC converters, how it works, how to design the converters, the parameters to be considered while choosing the components, practical implementation of the converters and its demonstration. The course also exposes them on to applications of each type of converters in industry and automation and demo of few applications.

The **External Resource Persons** identified for hands-on session are:

1. Mr. Rishi, Senior Application Engineer, ROHM Semiconductor India Pvt. Ltd.
2. Mr. Karimulla Baigh, Senior Application Engineer, ROHM Semiconductor India Pvt. Ltd.
3. Ms. Shwetha D V, Junior Application Engineer, ROHM Semiconductor India Pvt. Ltd.

After attending this course, students will be able to

1. **Understand** the basics of DC to DC converter
2. **Analyze and design** DC to DC converters.
3. **Appreciate** the real time applications of converters.

Schedule and Course Contents:

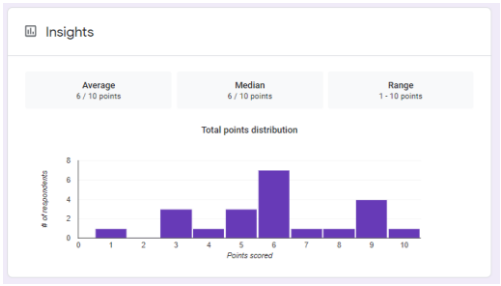
Day 1: 16/06/2020			
Time	**Topics**	**Resource Person Details**	**COs**
9.00AM - 10.00AM	Key note: Introduction to Power Electronics, various converters, Application of DC to DC converter.	Mr. Rishi, Senior Application Engineer, ROHM Semiconductor India Pvt. Ltd.	CO4
10:15 - 11:30AM	Introduction to Buck converter, analysis and design of Buck converter.	Mrs. Shilpa G	CO1, CO2
11:30 - 1:00PM	Introduction to Boost converter, analysis and design of Boost converter	Dr. Sanjay Lakshminarayanan	CO1, CO2
2:00-4:00 PM	Simulation of Buck Converter	Mr. Babu Naik G	CO3
Day 2: 17/06/2020			
Time	**Topics**	**Resource Person Details**	**COs**
9:30-1:00PM	**Demonstration**: Choosing of proper components, demonstration of buck	Ms. Shwetha D V, Junior Application Engineer, ROHM Semiconductor India Pvt.	CO4

	converter with live demo of voltages and currents across the various components.	Ltd.	
2:00-4:00 PM	Simulation of Boost Converter	Mr. Babu Naik G	CO3
Day 3: 18/06/2020			
Time	**Topics**	**Resource Person Details**	**COs**
9:30-11:00AM	Introduction to Buck-Boost converter, analysis and design of Buck-Boost converter.	Mrs. Shilpa G	CO1, CO2
11:15-1:00 PM	Introduction to Flyback converter, analysis and design of Flyback converter.	Dr. Sanjay Lakshminarayanan	CO3
2.00-4.00 PM	Simulation of Buck-Boost and Flyback Converter	Mr. Babu Naik G	CO4
Day 4:19/06/2020			
Time	**Topics**	**Resource Person Details**	**COs**
9:30-11:00AM	Introduction to Cuk converter, analysis and design of Cuk converter.	Dr. Sanjay Lakshminarayanan	CO1, CO2
11:00-1:00 PM	Simulation of Cuk converter	Mrs. Shilpa G	CO3
2.00-4.00 PM	**Demonstration**: Demo of all the converters and its applications from industry	Mr. Karimulla Baigh, Senior Application Engineer, and Ms. Shwetha D V, Junior Application Engineer, ROHM Semiconductor India Pvt. Ltd.	CO4
Day 5: 20/06/2020			
Time	**Topics**	**Resource Person Details**	**COs**
9.30AM-10.30AM	Introduction to Forward converters, advantages of these converters	Dr. Sanjay Lakshminarayanan	CO4
10:30AM-1.00PM	Evaluation and Feedback session	Open course internal cordinators	

COURSE OUTCOMES for the open course - **DESIGN AND MODELLING OF DC TO DC CONVERTERS**

At the end of the course, student will be able to
CO1: **Understand** the basics of DC to DC converter.
CO2: **Analyze and design** DC to DC converters.
CO3: **Appreciate** the real time applications of DC to DC converters.

Summary Charts:



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DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING

BMS INSTITUTE OF TECHNOLOGY AND MANAGEMENT

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

VISION

To emerge as one of the finest Electrical & Electronics Engineering Departments facilitating the development of competent professionals, contributing to the betterment of society

MISSION

Create a motivating environment for learning Electrical Sciences through teaching, research, effective use of state of the art facilities and outreach activities.

FEE: Rs. 100

About the Course

- The electrical system design and estimation deals with different types of electrical circuits design used for domestic, commercial and industrial applications.
- Understanding and trouble shooting capabilities of electrical systems is essential for an engineer.

Course Outcomes:

- Understand the IEC rules for Electrical System Design.
- Analyse the domestic, commercial and industrial electrical circuits.
- Design and estimate the electrical systems.

Coordinators

- Dr Narapreddy Ramarao
- Dr Madhu Palati
- Mr. Manjunath Babu P

Mobile No: 9916255010

FIVE DAY OPEN COURSE ON

ELECTRICAL SYSTEM DESIGN AND ESTIMATION

16TH – 20TH June 2020

Venue: Googlemeet

Organized by:

Department of Electrical and Electronics Engineeing

BMS INSTITUTE OF TECHNOLOGY AND MANAGEMENT

BANGALORE-64

CONSOLIDATED FIVE DAYS REPORT (16-6-20 to 20-6-20)

Open Course Title : **Electrical System Design and Estimation**

Target Students from Branches :All Branch Students

Total duration of the course :**25 Hours.**

No. of Lecture hours :15 hours

No. of hands on Practical/Assignments :10hrs

Coordinators : Dr.N.ramarao, DrMadhuPalati andMrManjunathaBabu.P

Total No. of Students Registered : 25

At the end of the course, student will be able to
CO1: **Analyse** materials used in electrical installations..
CO2: **Analyze** the general rules, design internal wiring and prepare estimation.
CO3: **Analyse** the general rules, design service connections, power wiring circuits, Transmission lines and prepare estimation .

About the Open Coursecourse:

The Electrical System Design and Estimating Covers an important functional area of an Electrical Engineer. This course covers symbols and standards, panel boards, design of light and fan circuits, alarm circuits, design of electrical installations for residential and commercial buildings aswell as Industries. In addition, design of overhead transmission and distribution lines, Sub-Stations and Design of Illumination and ventilation schemes have also been covered. Examples have generally been taken from practical situations. Indeed, students will find this course useful for starting their professional career.

On Day-1(16-06-2020), Dr. Narapareddy Ramarao briefed about the course, importance of the course in the present core industry and has covered the topics Indian Electricity Rules, Electricity Safety Rules, Recognize various electrical devices and their symbols, Types of wiring systems, Methods of wiring systems, Electrical wiring materials, accessories and Electrical wiring circuits. In the second session case studies were taken and explanation about the same was done and students were given some case studies to practice.

On Day-2 (17-06-2020), Dr. Narapareddy Ramarao explained to students about different lighting devices, illumination, various terms pertaining to illumination, factors affecting illumination. Estimation of load requirements, total cost of domestic wiring and different software's used for

estimating the total cost. Numerical problem were given as assignment to students in the afternoon session.

On Day-3 (18-6-2020) Dr. Madhu Palati handled the morning session. He briefed about the importance of Electrical wiring and estimation of Power circuits. Mainly the following topics were emphasized during the presentation: Service connection, Single phase and three phase energy meter connection, Conduit wiring, Types of cables and ratings, Main Board and Distribution board, Types of fuse and ratings, Accessories used in electrical wiring, Electrical wiring symbols. In the Session-2 Dr. MadhuPalati discussed about types of residential loads and their power ratings, general rules for interior wiring, specifications, DOl starter, star delta starter wiring, calculation of starting current of motor. Also few problems were given to students to estimate the total current for different loads, combined 1-phase and 3-phase loads.

On Day-4 (19-6-2020) Dr. Madhu Palati handled the morning session. He briefed about the importance of Electrical wiring of three phase motors in an industry. Mainly the following topics were emphasized during the presentation, Main Switch rating, Individual motor MCB / switch rating, Length of conduit, Types of starter used, Rating of cables used, Other accessories used in electrical wiring, Capacitor rating to improve the power factor, Impact of power factor on terminal Voltage when different loads are connected. One numerical problem was given to students to estimate the wiring cost of three different motors used in a small scale factory. In the Session-2 D.V. Shivanand, Founder , Universal Power controllers delivered lecture on Electrical switchgear and applications. In his presentation he addressed the students about opportunities in core sector, different types of accessories used in control panel, switching devices, protecting devices, wiring diagram of different starters.

On Day-5 (20-6-2020) Mr. ManjunathaBabu P handled morning session. He briefed about the importance of Electrical earthing system and Estimation. Materials used in Transmission and Distribution system design and estimation. After the session Quiz on this five days open course was conducted and all of them scored above 70% of marks in the Quiz. 25% scored 100% marks in the score. Also, feedback was taken by the Open course coordinator at Institute level.

Some of the photo glimpses of the five day open course are shown below