

**New Horizon College of Engineering**  
**Department of Electrical & Electronics**  
**Engineering**




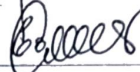


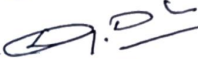

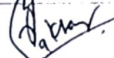
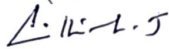




**Autonomous**  
**1<sup>st</sup> BOARD OF STUDIES MEETING**

**DATE:** 11.07.2015



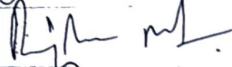
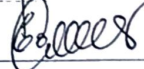


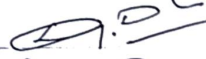

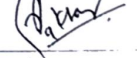
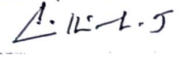


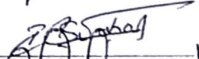
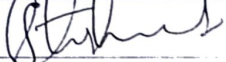
**VENUE:** Electrical Department Conference Room

**TIME:** 11.00am

### MEMBERS PRESENT

Sl No	Name of the person	Signatures
1	Mr. Mahesh K (Chairman)	
2	Dr. B.K Keshavan (Subject Expert)	
3	Dr. H.M Ravikumar (Subject Expert)	
4	Mr. Rajendra Prasad (Industry Representative)	
5	Mr. Vinu Kumar H.K (Industry Representative )	
6	Mr. Inbasakaran S (Faculty member)	
7	Ms. Karthika M (Faculty member)	
8	Mr. Duney D Sam (Faculty member)	
9	Ms. Jyothi D (Faculty member)	
10	Ms. Prtima Gakhar (Faculty member)	
11	Mr. Lithesh J (Faculty member)	
12	Mr. Rohit Kumar (Meritorious alumni)	
13	Mr. Chethan N B (Meritorious alumni)	
14	Mr. Mohan B S (Co-opted members)	
15	Mr. Santhosh (Co-opted members)	

## MEMBERS PRESENT

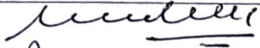



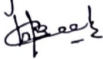




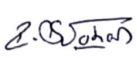
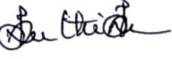
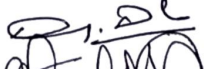
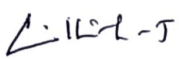

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## RECOMMENDATIONS OF THE BOARD

We have gone through the scheme and approve same in general, considering this is being introduced to all branches. Still in future, one practical can be introduced for Electricals.

The current syllabus is according to the norms and approve same.

### Name and Signatures of all the Attendees:

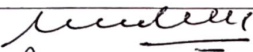
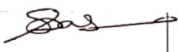
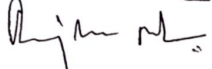






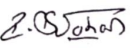

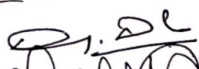

1. MAHESH - K 	9. S. Inbasakeran 
2. Rajendra Prasad 	10. 
3. Chethan N.B 	11. 
4.  Vinukumar H.K	12. JYOTHI.D. 
5. PRITIMA GAKHAR 	13.
6. D.S. Mohan 	14. M. KARTHIKA. 
7. DUNEY. D. Sam 	15. 
8. Santhosh.S. 	

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7. DUNEY. D. Sam		15. L. ILI. J	
8. Santhosh. S.			

To,

The Principal.

New Horizon College of Engineering

Subj: Framing of Syllabus for  
I year Students.

→ Electrical & Electronics Engg.

I have gone through the scheme  
& syllabus of I year B.E. &  
also the syllabi of "Basics of  
Electrical Engineering". I hereby  
approve the same.



(Dr. B. K. Keshavan)

Dr. B. K. KESHAVAN  
Head

Dept. of Electrical & Electronics  
PES Institute of Technology  
100 Feet Ring Road, 8th Stage  
BANGALORE - 560 085

## BASICS OF ELECTRICAL ENGINEERING

Course Code	:15EE15/25	Credits	: 4
L:P:T:S	:3:0:1:0	CIE Marks	: 50
Exam Hours	:03	SEE Marks	: 50

### Course Objectives:

1. To analyze and solve DC and AC electric circuit problems by applying basic electric circuit laws and analysis techniques.
2. To perform simple energy-related calculations and to understand the concepts in electrical and magnetic fields.
3. To study fundamental concepts of Transformers and Machines.
4. To understand the basic concepts of domestic wiring and measuring instruments.

### MODULE 1

#### Electric Elements & Circuit Laws:

Charge and electric forces, voltage, current and magnetic forces. Ohm's law – Resistance, Specific Resistance, Conductivity, Temperature coefficient of resistance and resistor colour coding, Kirchhoff's voltage law and current law. Characteristics of series and parallel circuits. Current divider and voltage divider rules. Equivalent resistance of series – parallel circuits, Definition of Work, Power and Energy and heating effects of electrical current.

6 Hrs

#### Circuit Analysis & Techniques:

Introduction to Superposition, Thevenin's and Norton's theorems and Maximum power transfer theorem (Only with independent sources and Resistive elements).

4 Hrs

## MODULE 2

### **Magnetic Fields:**

Faradays law, Induced voltage. Dynamically Induced EMF and Statically Induced EMF, Self-induced EMF and Mutually Induced EMF, Self-inductance of a Coil, Mutual Inductance (all the laws associated), Energy Stored in a Magnetic Field, Energy Stored in a Capacitor.

5 Hrs

### **Introduction to D.C Machines:**

Principle and construction of D.C machines, EMF equation, classification of D.C. machines based on method of excitation, load characteristics of D.C generators, critical resistance, voltage regulations, speed and torque characteristics of D.C motors. Testing and efficiency of D.C machine, applications.

5 Hrs

## MODULE 3

### **AC Circuits:**

Sinusoidal source, Maximum, Average and RMS values, Form factor, analysis of R, L & C circuits. Complex algebra and phasor diagrams. Reactance, susceptance, impedance and admittance. problems involving series, parallel and series – parallel circuits, Power triangle - Real power, Reactive power, Apparent power Power factor.

6 Hrs

**Transformers:** Single-phase transformers, construction and principle of operation, classification of transformers, E.M.F equation, turns ratio, ideal - equivalent circuit, phasor diagram, losses, efficiency regulation and applications.

4 Hrs

## MODULE 4

### **Three-Phase Circuits:**

Introduction to single phase and poly phase, Advantages of poly-phase systems over single-phase systems. Generation of various phase voltages (2 and 3). Relationship between line and phase quantities in Star and Delta for



balanced systems, measurement of power using various methods and determining power factor using two Watt Meter reading.

5 Hrs

**Domestic wiring:**

Brief discussion on concealed conduit wiring. Two-way and Three-way control of lamps, Electric shock: precautions against shock, various circuit protective devices – fuses, MCB's , Earthing – importance, Pipe earthing, Plate earthing.

2 Hrs

**MODULE 5**

**Induction Machines:**

Three- phase Induction motor, production of rotating magnetic field, construction and principle of operation, Types of Rotor, Slip and its significance, necessity of starter, applications .

5 Hrs

**Measuring Instruments:**

Construction and Principle of operation of Dynamometer type wattmeter and Single phase Induction type energy meter.

2 Hrs

**TEXT BOOKS:**

1. “Basic Electrical Engineering”, DC Kulshreshtha, TMH, 2009 edition
2. “Basic Electrical and Electronics Engineering”, S.K. Bhattacharya, Pearson Publications

**REFERENCE BOOKS:**

1. “Electrical Technology”, E.Hughes, Pearson publishers.
2. “Basic Electrical, Electronics and Computer Engineering”, Muthusubramanian R, Salivahanan S and Muraleedharan K A, Tata McGraw Hill, Second Edition.
3. “Basics of Electrical and Electronics Engineering”, Nagsarkar T K

and Sukhija M S, Oxford press University Press.

4. "Problems in Electrical Engineering", S.Parker Smith & N N Parker Smith,"
5. "Electrical Technology", B.L Teraja, Latest edition.
6. "Basic Electrical Engineering", 3rd edition, TMH, D.P.Kothari.

**Expected Course Outcome:**

**Students shall demonstrate knowledge associated with:**

- Fundamentals of various electrical circuits.
- Construction, basic principles of operation and determination of performance characteristics of electrical equipment.
- Solving complex Electrical Engineering problems.
- Designing of domestic wiring, understanding the precautionary measures against electric shock and the need for earthing.

**Assessment Method:**

**CIE:**

1. Three internals tests of 30 marks each will be conducted and the average of the top two test marks will be considered.
2. Assignment - 10 marks.
3. Quiz test - 10 marks.

**SEE:**

1. SEE will be conducted for 100 marks and shall be for a duration of 3 hours
2. Two Questions will be set from each module carrying 20 Marks each.
3. Students have to answer 5 questions selecting one full question from each module.