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KBPM Pandharpur Autonomous B.Sc Part-I Electronics SEC

Rayat Shikshan Sanstha's
Karmaveer Bahurao Patil Mahavidyalaya, Pandharpur
(Autonomous)
Department of Electronics
Skill Enhancement Course
Semester –I

Theory				Practical				
Course Title	CourseCode	Lecture per week	Credits	Course	Course Title	CourseCode	Lecture per week	Credits
LED Bulb Production-I	ELE-107-SEC	1	1	Practical -I	LED Bulb Production-I	ELE-108-SECP	1	1

Semester –II

Theory				Practical				
Course Title	CourseCode	Lecture per week	Credits	Course	Course Title	CourseCode	Lecture per week	Credits
LED Bulb Production-II	ELE-207-SEC	1	1	Practical -II	LED Bulb Production-II	ELE-208-SECP	1	1

Semester –I**ELE-107-SEC: Skill Enhancement Course
Course Name: LED Bulb Production****• Learning Objectives:-**

1. To learn the LEDs and their types
2. To study components and parameters of LED.
3. To study the techniques of LED manufacturing.

(15Lectures)**Unit I: Introduction to LED****8 L**

Introduction to LED, Types of LED, Basic Structure of LED, Working, I-V characteristics of LED, Need of LED bulb

Unit II: Components of LED**7 L**

Study of components used for manufacturing of LED Panel, LED bulb, LED Tube, PCB making for LED panel.

References:

1. Bergh, A. A. and P. J Dean, Light-Emitting Diodes. Clarendon Press, 1976.
2. Gillessen, Klaus. Light-Emitting Diodes: An Introduction, Prentice Hall, 1987.
3. Optoelectronics/Fiber-Optics Applications Manual, McGraw-Hill, 1981.
4. Understanding Solid State Electronics, Radio Shack/Texas Instruments Learning Center, 1978.
5. Williams, E. W. and R. Hall, Luminescence and the Light-Emitting Diode. Pergamon Press, 1978

• Learning outcomes:-

Students will be able to:

1. understand various types of LEDs
2. design the LED devices.
3. assemble the LED devices.

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Semester –II

**ELE-207-SEC: Skill Enhancement Course
Course Name: LED Bulb Production**

• **Learning Objectives:-**

1. To learn the LEDs and their types
2. To study components and parameters of LED.
3. To study the techniques of LED manufacturing.

(15Lectures)

Unit I: Parameters of LED

8 L

Parameters:- Color, efficiency, energy usage, power cost, purchase cost, life time, eco friendly, quickness of light, emission, Dimming capability, Power calculation in LED , Lumens

Unit II: LED Manufacturing

7 L

Techniques used in LED manufacturing, Construction of LED Panel, Mounting of components, soldering, testing of LED Panel

References:

1. Bergh, A. A. and P. J Dean, Light-Emitting Diodes. Clarendon Press, 1976.
2. Gillessen, Klaus. Light-Emitting Diodes: An Introduction, Prentice Hall, 1987.
3. Optoelectronics/Fiber-Optics Applications Manual, McGraw-Hill, 1981.
4. Understanding Solid State Electronics, Radio Shack/Texas Instruments Learning Center, 1978.
5. Williams, E. W. and R. Hall, Luminescence and the Light-Emitting Diode. Pergamon Press, 1978

• **Learning outcomes:-**

Students will be able to:

1. understand various types of LEDs
2. design the LED devices.
3. assemble the LED devices.

Semester –I
ELE-108-SECP: Skill Enhancement Course
Course Name: LED Bulb Production
Practical (Total Periods = 15)

List of Experiments

1. **Introduction to LEDs.**
2. **Study of analog and digital Multimeter.**
3. **Testing of LED.**
4. **Design circuit for LED bulb (for different Watts).**
5. **Soldering and de soldering techniques.**

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Semester –I
ELE-208-SECP: Skill Enhancement Course
Course Name: LED Bulb Production
Practical (Total Periods = 15)

List of Experiments

1. Soldering and de soldering techniques.
2. Power supply for LED Panel.
3. PCB making for LED panel.
4. Assembling of LED Bulb.
5. Assembling of LED Tube.

• **Evaluation Pattern**

A) Distribution of Theory paper (Marks 50)

i) College Assessment : 30 Marks

ii) Internal (Dept.) Assessment : 20 Marks

i) Semester End Written Examination (Summative Assessment) : 30 Marks

ii) Scheme of Internal (Dept.) Assessment : 20 Marks

Presentation, GD, Seminar, Unit test, H.A., Viva Voce

B) Distribution of Practical (Marks 50)

Practical Examination will be at the end of the course.

i) College Practical Examination (30 Marks)

a) One experiment : 20 Marks

b) Report : 10 Marks

• **Break up of 20 Marks for each experiment**

i) Circuit Diagram 05

ii) Assembly of the circuit 05

iii) Demonstration 05

iv) Oral 05

ii) Internal (Dept.) Practical Examination (20 Marks)

- Identification and testing of components

20

Reference Book

1. Mark.D.Birnbaum , Essential Electronic Design Automation (EDA), Prentice Hall, 2004
2. Muhammad H. Rashid, Introduction ToPSpice Using OrCADfor Circuits and Electronics, Paperback – Import, 3rd Edition, 2003.
3. Walter C. Bosshart, Printed circuit Board – Design & Technology , TMH. 2004.
4. R.S. Khandpur, Printed Circuit Board –Design, Fabrication, Assembly & Testing, TMH,3rd Edition,2017.
5. Robert Boylestead and Louis Nashelsky, Electronic Devices and circuit theory, PHI, 10th Edition, 2009.
6. Paul B. Zbar,Electronics text lab manual, 1989
7. D.C. Kulshresta& D.C Gupta,Basic Electronics & Linear circuits, N.N. Bhargava, TMH, 51 reprint,2008.
8. David A Bell, Electronic devices, Reston Publishing Company, 4th Edition, 2009.
9. Clyde F. Coombs, Printed circuits Handbook McGraw Hill, 3rd Edition,2015