"Dissemination of Education for Knowledge, Science and Culture"

- Shikshanmaharshi Dr. Bapuji Salunkhe

Shri Swami Vivekanand Shikshan Sanstha Kolhapur's

RAJE RAMRAO MAHAVIDYALAYA, JATH

Dist-Sangli, Maharashtra, India

(Affiliated to Shivaji University, Kolhapur)

Department of Physics

Certificate Course

In

"Introduction of Household Instruments and their Repairing"

To be implemented from June 2022

Aim- This course provides a foundation for an independent business and getting a physics-based job. In this course, the students will study the fundamental ideas and principles underlying the operation of household instruments as well as how to repair them. On a breadboard, students will learn how to create circuits using the soldering process. Students will acquire knowledge on how to repair the household instruments used in daily life such as LCD & LED TVs, voltage stabilizers, amplifiers, iron, fan, grinding mixers, etc.

Objective

- To raise awareness of safety precautions while using electronic and electrical equipments.
- Repairing electric/electronic instruments will create self-employment among the youth.
- To meet the demand for skilled manpower for society.

Learning Outcomes

- After completion of this course, you should be able to accomplish these outcomes within the electronic industry standards.
- You shall be able to accomplish identify electronic components, their principle, and working function in the electronic circuits.
- Getting a lot of knowledge of the operating mechanism of electronic circuits and instruments.
- Skills for fault analysis and diagnosis of electronic instruments repair and replacement of faulty parts.
- Getting knowledge of entrepreneurship activities.
- You should be able to examine the schematic layout of the wiring diagram and product.
- You should be able to assist in the maintenance of audio and radio equipment in the laboratory field.
- You should be able to repair your own household electronic equipment on your own like TV, Radio, Refrigerator, fan, mixers, etc.

Evaluation System

All the student will be continuously evaluated by,

• Attendance	(10 marks)
• Assignments	(10 marks)
• Theory examination	(80 marks)
• Practical examination	(50 marks)
• Project	(50 marks)
Total	(200 marks)

Nature of question paper for Theory examination (Paper I and Paper II**)**–

Q.1 Multiple choice	10 Marks
Q.2 Long answer type (any two) out of three	20 Marks
Q.3 Write short notes (any four) out of six	20 Marks
Total Marks, Paper I	**50 Marks**
Paper II	**50 Marks**

Practical

Evaluation of the performance of the students in practical shall be on the basis of examination

Practical	50 Marks

Project

- One project will be assigning to students individually and their dissertation to be submit at end of the course.
- Project work consist of 40 marks for project completion and 10 marks for viva-voce.

Grades- A grade= above 75, B grade = above 60, C grade = above 50

Certification- A certificate will be issued after successful completion of the course.

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Certificate Course

"Introduction of Household Instruments and their Repairing"

Paper- I Introduction of Household Electric Instrument

[Total periods: 20 hours]

Unit-1: Basic Electricity **(10 Hours)**

Electrical safety and Tools, Introduction to Electricity, Study of electronic components, Electrostatics, Magnetism and Electromagnetism, A C Circuit, Electrical Measurements.

Unit: 2 Basic Electronics **(10 Hours)**

Semiconductors, Special Semiconductor, Power supplies, Amplifiers, Oscillators, special semiconductor devices.

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Paper- II Repairing of Household Instruments

[Total periods: 20 Hours]

Unit-1: Cathode Ray Tube (CRT) (5 hours)

Cathode Ray Tube (CRT): Introduction, Principle, Construction, Working, Block diagram. Use of CRT in Television.

Unit-2: LCD and LED (5 hours)

LCD and LED: Types of LED and LCD, principle, construction, working, its applications.

Unit-3: Voltage stabilizer (5 hours)

Zener diode as voltage regulator: Principle, Construction, Working, and its uses in Household Instrument.

Unit-4: Integrated circuit (IC) (5 hours)

Integrated circuit, Types of integrated circuit, and its applications.

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Paper- III Practical's

[Total periods: 40 Hours]

List of Practical's

1. Use of multimeter
2. LCR Circuits
3. Verification of Ohm's Law
4. Verification of Kirchhoff's current Law and voltage Law
5. Identification and testing of electronic components
6. Find Iron fault and repairing
7. Bridge rectifier for AC to DC converter
8. Zener diode as voltage regulator
9. Thevenin's Theorem
10. Norton's Theorem

List Text/Reference Books

1. Applied Electronics by- R.S.Sedha
2. Basic Electronics by- Bernard Grob
3. A text book of Applied Electronics by- R.S.Sedha (S.Chand & Company)
4. Basic Electronics and Linear circuits by- N.N.Bharagava, D.C.Kulshreshtha and S.C.Gupta (TMH)
5. Practical Physics by- Gupta and Kumar (Pragati Prakashan, Meerat)
6. Advance level Practical Physics by -J M Nelcom and J M Ogloom (EIBS)
7. A text book of Practical Physics by- Shrinivasan and Balsubramanyam