Electronics Practical
[CORE COURSE]

Semester: IV	Credits:2	Subject Code: BSP42110	Lectures: 48

Course Outcomes:

At the end of this course, the learner will be able to:

- Build and develop own smart applications using Raspberry-Pi and write Python program for simple applications
- Demonstrate different wireless communication techniques.
- Build and implement basic IoT based system

Guidelines for Practical:

- Practical batch size: 12
- Minimum no of Practical to be performed: 10
- Eight compulsory experiments: At least four practicals from each Group
- One activity equivalent to 2 experiments by the student. **(12 Lectures)**
  - Continuation of F. Y. activity.
  - Electronics project Based on the Theory Courses learnt
  - Documentation type experiments
  - Presentation/Seminar on Electronics /advanced topic/research topics.
- Prerequisite: Raspberry Pi boards, Arduino / LoRa boards

Guidelines for Assessment

- All the students are required to complete a minimum of 8 experiments (Four from each group) from the following list.
- For certification of Journal minimum 6 experiments have to be completed.
- The students must bring their certified journals, hobby project and project report, activity report.
- The students are expected to perform in both the sections for minimum passing marks.
- Internal marks will include weekly viva in practical and regular submission of journals during practical.

Group A: Any Four	
• Introduction to Python programming. • Programming of Raspberry Pi to control LEDs attached to the GPIO pins • Programming of Raspberry Pi to get feedback from a switch connected to the GPIO pins • Programming of Raspberry Pi to detect temperature using temperature sensor • Programming of Raspberry Pi to detect light intensity using photocell sensor • Programming of Raspberry Pi for Motion detection	

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• Programming of Raspberry Pi for image detection	

Group B: Any four	
• Study of GSM system (Message transmission & Reception). • To study working of SIM card in GSM handset • Study of GPRS system • Study of Zig-bee for one application • Study of RFID system • To study Arduino based LED switching using mobile • Temperature and humidity sensing using Arduino • LoRa Interfacing.	

Websites
• https://python.fossee.in/ • https://www.vlab.co.in/broad-area-electronics-and-communications

	Activity description	Allotted Time
1	Overview of the experiment: (Aim, objectives, Application area with examples etc.) taken in the theory lectures before performing practical. Submission of journal containing previous practical performance.	30 min
2	Video clips or animated film or presentation to support explanation	30 min
3	Theoretical Explanation- Basic concept, working, circuit diagram viva by students	60 min
4	Demonstration of experiment by the instructor: Circuit detail, connections, precautions, how to take observations etc.	60 min
5	Performance of experiment by students: Connections, noting down the observations, results and conclusions	60 min
6	Completion of the experiment-write up and checking.	20 min

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