

Course Code: ELE-507

Course Title: ELECTRONICS PRACTICALS – II

Number of Credits: 04

Total Hours: 120

Total Marks: 100

Effective from AY: 2022-23

Prerequisites for the course	
Should have studied microcontrollers, embedded system, OS and EDA tools	
Objectives of Course	
This course is intended to, • Develop skills in handling controllers like 89C51/52, PIC and ARM controller derivatives . • Input Output operation, Various communication interfaces, data acquisition, task management and Robotic applications. • Cover experiments using LabVIEW with MyRIO and NI ELVIS Platform	
Course Content	
Practical Title	120 Hours
Unit I 1. 7-segment Interfacing to ATMEL 89C52 (BCD counter) 2. Display Temperature using ATMEL 89C52 on LCD 3. Obstacle Avoidance using 89V52 based Robot 4. Serial Transmission and reception PIC16F877 5. Configuring On – chip ADC PIC16F877 6. Hex Keypad Interfaced to ARM controller & display on LCD	
Unit II 7. Switching of LED using μ - COS 8. Switching of LED using RTX 9. Switching of LED using FPGA 10. KEY pad and ADC interfacing using RTOS 11. Shell programming – Web Application. 12. Shell programming – System Management	
Unit III 13. VHDL implementation for the Multiplexer & Demultiplexer 14. VHDL Implementation for Encoder & Decoder 15. VHDL implementation for the Counter. 16. LCD and 7 -segment Interfacing using DE2 board 17. UART Interface using DE2 board 18. Echo & Reverberation implementation on speedy33 kit(lab view)	
Unit IV 19. Automated Street lighting 20. Smart Irrigation System 21. Home Automation 22. Smart water monitoring system	

23. Surveillance System 24. Smart Parking System			
Unit V			
25. Switch basic setup 26. Virtual LAN 27. Spanning tree protocol 28. Routing 29. DHCP (Dynamic Host Configuration Protocol) 30. Switch stacking			
Pedagogy			
Presentations /Experiential Learning/laboratory design and implementation			
Course Outcome			
The Students will be, • Able to analyze the architectures of any controller. • Designs application using embedded system using tasks for real time applications. • Handle any computing machine using shell script for computing and management. • Develop and design some applications based on SPEEDY 33 using LABView , NI ELVIS , MYRio, Altera DE2 Board. • Develop an android app.			
References/Readings			
1. Digital Design Principles and Practices, by John F. Wakerly, Prentice Hall's Fourth Edition. Lipovski G. J. Single and multiple Chip Microcontroller interfacing. Prentice Hall, USA 1998. 2. Beginning Android 4 Application Development 3. Professional Android 4 Application Development 4. Learning Android Game Programming : A Hands-On Guide to Building Your First Android Game 1st Edition			