

MANGALORE UNIVERSITY
Department of Electronics
MSc Electronics

ELS 457 - PROGRAMMING WITH EMBEDDED PLATFORMS

Course Outcomes:

1. To appreciate the use of different sensors and actuators in the design of modern embedded systems.
2. To understand the use of high level language like C/C++ and python in the design of embedded systems.
3. To apply different embedded platforms in the design of Internet of Things.
4. To appreciate the use of cloud platform.

Unit I

Introduction to the Raspberry Pi: Introduction to the Raspberry Pi, Setting up Raspberry Pi, Setting up Raspberry Pi to Arduino, Bridge Shield, First Project–A Basic Thermometer, From Thermometer to Thermostat.

Unit II

Home Automation using Raspberry Pi and Arduino: Building upon the First Project, Temperature Storage–Setting up a Database to Store Your Results, Curtain Automation–Open and Close the Curtains Based on the Ambient Light, The future of home automation.

14 Hours

Unit III

Programming the Beagle Bone Black: JavaScript Basics, JavaScript Functions and Timers, Arrays, Objects, and Modules, BoneScript, Hardware Interfacing, Using Capes and Modules, Web Interfaces, A Roving Robot, E-mail Notifier.

14 Hours

Books:

1. “Raspberry Pi Home Automation with Arduino”-Andrew K. Dennis, Packt, 2013
2. “Programming the Beagle Bone Black-Getting Started with JavaScript and Bone Script” -Simon Monk, McGraw Hill, 2014
3. “Bad to the Bone - Crafting Electronic Systems with Beagle Bone and Beagle Bone

- Black”-Steven F. Barrett , Jason Kridner, Morgan and Claypool Publishers,2013
4. “Exploring Beagle Bone Tools and Techniques for Building with Embedded Linux”, Derek Molloy, Wiley,2015
 5. “The official raspberry pi projects book”- from the makers of magpi, the official Raspberry Pi magazine
 6. “Raspberry Pi Cookbook” - Simon Monk, Oreilly ,2013

