

## PG Diploma in Embedded Wireless & Mobile Applications

### Objective of the Course:

To mould fresh electronics engineers and to retrain working engineers into High Caliber Embedded Wireless Communication System Designers by enhancing their knowledge and skills in various hardware and software design aspects of Embedded Systems, Wireless and Mobile Communications. This course offers a range of topics of immediate relevance to industry and makes the students exactly suitable for industries engaged in Embedded and Wireless System development and applications. This course is also an excellent preparation for those wishing to engage in application research in this rapidly developing area.

### Learning Outcomes:

On completion of the Course, the Participants shall get

- Exposure with different Wireless and Mobile Communication Technologies.
- Expertise required in designing and developing different wireless applications using Java and J2ME.
- Familiarization with usage of different Wireless and Mobile communication Modules/ kits such as WiFi (WLAN), GSM/GPRS, Bluetooth, ZigBee, GPS etc.
- Exposure to Embedded & Wireless applications.
- Familiarization with usage of different Wireless Simulators.
- Expertise in various programming languages such as C, C++ and Java.
- Hands on experience in Operating system (Linux) internals

### Expected Job Roles:

Design Engineer

**Duration of the Course (in hours)** 720 hrs /24 Weeks

**Appr. Fees (INR):** Rs. 68,000/- (Service Tax Extra)

### Minimum eligibility criteria and prerequisites if any

- M.E./M.Tech or B.E./B.Tech in Electronics/ Electronics & Communication/ Electrical/ Electrical and Electronics/Instrumentation/ Biomedical /Computer Science/Information Technology or MSc in Electronics/ Instrumentation/ Computer Science/Information Technology.
- Candidates who have appeared in the qualifying examination and awaiting results.

### Outline of the Course

S. No	Topic	Minimum No. of Hours
1.	Embedded C and 8 bit Microcontrollers	120 hrs
2.	System Design using ARM Microcontrollers	90 hrs
3.	Fundamentals of Wireless Communication and Simulation using	60 hrs
4.	Embedded Linux	60 hrs
5.	Wireless and Mobile Technologies	120 hrs
6.	Mobile Application Development (Java and J2ME)	150 hrs
7.	Project Work	120 hrs
Theory/ Lecture Hours:		216 hrs
Practical/ Tutorial Lecture Hours:		504 hrs
Total Hours:		720 hrs

## Short Term Courses – NIELIT

### Books recommended for reference and reading:

1. Let us C by Yashwant Kanetkar
2. Embedded C, Pont, Michael J
3. C Programming language, Kernighan, Brian W, Ritchie, Dennis M
4. 8051 Microcontroller and Embedded Systems – Mazidi, Muhammad Ali, Mazidi, Janice Gillispie
5. C and the 8051 Programming for Multitasking – Schultz, Thomas W
6. ARM System Developer's Guide - Designing and Optimizing System Software by: Andrew N Sloss, Dominic Symes, Chris Wright; 2004, Elseiver
7. ARM System - On - Chip Architecture, Furber, Steve
8. Assembly Language Programming: ARM Cortex - M3: Mahout, Vincent
9. Computer Networks; By: Tanenbaum, Andrew S; Pearson Education Pte. Ltd., Delhi, 4<sup>th</sup> Edition
10. Data and Computer Communications; By: Stallings, William; Pearson Education Pte. Ltd., Delhi, 6<sup>th</sup> Edition
11. The Complete Reference C++, Herbert Schildt, TMH
12. C++ programming language, Bjarne Stoustrup, Addison-Wesley
13. GNU C++ For Linux, Tom Swan , Prentice Hall India
14. GNU/LINUX Application Programming, Jones, M Tims
15. UNIX Network Programming : Steven, Richard
16. Linux: The Complete Reference: Petersen, Richard
17. Linux Device Drivers: Rubini, Alessandro, Corbet, Jonathan
18. Linux Kernel Development: Love, Robert
19. Wireless Communications – Principles and Practice; by Theodore S Rappaport, Pearson Education Pte. Ltd., Delhi
20. Wireless Communication Technology; By: Blake, Roy; Delmar, New York.
21. Wireless Communications and Networking; By: Stallings, William; Pearson Education Pte. Ltd., Delhi
22. Java2: The Complete Reference, Patrick Naughton and Herbert Schildt, TMH.
23. J2ME James Edward Keogh, Tata McGraw Hill.
24. Relevant Data sheets and application notes

Group Code: EMBD

Group Name: Embedded System

Course Code: PG02

Course Name: PG Diploma in Embedded Wireless & Mobile Applications