PG Diploma in Embedded System Design

Objective of the Course:

To mould fresh electronics engineers and to retrain working engineers into High Caliber Embedded System Designers by enhancing their knowledge and skills in various hardware and software design aspects of Embedded Systems. This course offers a range of topics of immediate relevance to industry and makes the students exactly suitable for industries engaged in Embedded System development. 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 families and architectures of Embedded System tools such as Microcontrollers, DSPs, FPGAs etc.
- Expertise required to design any embedded system (H/w or S/w or both) based on any of the above devices.
- Expertise in Embedded Software particularly in real-time programming with industry standard RTOS such as VxWorks and RTLinux.

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	a. 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. b. 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
2.	System Design using ARM Microcontrollers	90
3.	System Design using Digital Signal Processors	90
4.	Embedded Linux	60
5.	Embedded RTOS (RTLinux & VxWorks)	60
6.	System Design Using FPGAs	60
7.	Embedded Product Design	60
8.	Project Work	180
	Theory/ Lecture Hours:	216
	Practical/ Tutorial Lecture Hours:	504
	Total Hours:	720

Books recommended   1. Let us C by Yashwant Kanetkar

for reference and reading:

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. ARM System Developer's Guide - Designing and Optimizing System Software by: Andrew N Sloss, Dominic Symes, Chris Wright; 2004, Elseiver
6. ARM System - On - Chip Architecture, Furber, Steve
7. Assembly Language Programming: ARM Cortex - M3: Mahout, Vincent
8. Digital Signal Processing: A System Design Approach - David J Defatta
9. Introduction to Digital Signal Processing - John G Proakis, Dimitris G Manolakis
10. Digital Signal Processing Laboratory Using MATLAB – Sanjit K. Mitra
11. Real - Time Digital Signal Processing: Implementations, Applications, and Experiments with the TMS320C55X, Kou, Sen M, Lee, Bob H
12. GNU/LINUX Application Programming, Jones, M Tims
13. Embedded Linux: Hardware, Software, and Interfacing, Hollabaugh, Craig,
14. Building Embedded Linux Systems: Yaghmour, Karim
15. Linux Device Drivers: Rubini, Alessandro, Corbet, Jonathan
16. Linux Kernel Development: Love, Robert
17. Embedded Systems Architecture Programming and Design: Raj Kamal, Tata McGraw Hill
18. Embedded/Real Time Systems Concepts, Design and Programming Black Book, Prasad, KVK
19. Real-Time Systems Design and Analysis : An Engineer's Handbook: Laplante, Phillip A
20. Embedded Software Primer: Simon, David E.
21. VHDL Primer – Bhasker, J, PHI Learning, New Delhi
22. Designer's guide to VHDL - Ashenden, Peter J, Harcourt India, New Delhi
23. VHDL Analysis and Modeling of Digital Systems – Navabi, Zainalabedin, MGH, New York
24. Product Design & Development - Karl T Ulrich & Steven D. Eppinger; Mc Graw Hill
25. Total quality management Besterfield, Dale H

Group Code:	EMBD	**Group Name**:	Embedded System
Course Code:	PG01	**Course Name:**	PG Diploma in Embedded System Design