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
b. Candidates who have appeared in the qualifying examination and awaiting results.

Outline of the Course

<table>
<thead>
<tr>
<th>S. No</th>
<th>Topic</th>
<th>Minimum No. of Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Embedded C and 8-bit Microcontrollers</td>
<td>120</td>
</tr>
<tr>
<td>2.</td>
<td>System Design using ARM Microcontrollers</td>
<td>90</td>
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<tr>
<td>3.</td>
<td>System Design using Digital Signal Processors</td>
<td>90</td>
</tr>
<tr>
<td>4.</td>
<td>Embedded Linux</td>
<td>60</td>
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<td>5.</td>
<td>Embedded RTOS (RTLinux &amp; VxWorks)</td>
<td>60</td>
</tr>
<tr>
<td>6.</td>
<td>System Design Using FPGAs</td>
<td>60</td>
</tr>
<tr>
<td>7.</td>
<td>Embedded Product Design</td>
<td>60</td>
</tr>
<tr>
<td>8.</td>
<td>Project Work</td>
<td>180</td>
</tr>
</tbody>
</table>

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
6. ARM System - On - Chip Architecture, Furber, Steve
7. Assembly Language Programming: ARM Cortex - M3: Mahout, Vincent
12. GNU/LINUX Application Programming, Jones, M Tims
13. Embedded Linux: Hardware, Software, and Interfacing, Hollabaugh, Craig,
15. Linux Device Drivers: Rubini, Alessandro, Corbet, Jonathan
16. Linux Kernel Development: Love, Robert
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
25. Total quality management Besterfield, Dale H

Group Code: EMBD
Course Code: PG01

Group Name: Embedded System
Course Name: PG Diploma in Embedded System Design