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| logo New | | | **VIVEKANANDHA COLLEGE OF ENGINEERING FOR WOMEN**  (Autonomous Institution, Affiliated to Anna University ,Chennai)  Elayampalayam, Tiruchengode – 637 205 | | | | | | | | | | |  | | | | |
| Programme | | | **M.E.** | | Programme Code | | | **203** | | | Regulation | | | **2015** | | | | |
| Department | | | **APPLIED ELECTRONICS & VLSI DESIGN /**  **ELECTRONICS AND COMMUNICATION**  **ENGINEERING** | | | | | | | | Semester | | | **-** | | | | |
| Course Code | | | | Course Name | | Periods / Week | | | | Credit | | | Maximum Marks | | | | | |
| L | T | | P | C | | | CA | | ESE | | | Total |
| **P15AEE08** | | | | **Embedded System Design** | | 3 | 0 | | 0 | 3 | | | 50 | | 50 | | | 100 |
| **Course Objective** | | | | * To study the overview of Embedded System Architecture * To provide an in-depth knowledge of embedded system Design. * To study the interfacing Concepts. * To study the design of Software | | | | | | | | | | | | | | |
| **Unit - I** | | | | **EMBEDDED DESIGN LIFE CYCLE** | | | | | | | | **Periods** | | | | **09** | | |
| Product specification – Hardware / Software partitioning – Detailed hardware and software design – Integration – Product testing – Selection Processes – Microprocessor Vs Micro Controller – Performance tools – Bench marking – RTOS Micro Controller – Performance tools – Bench marking – RTOS availability – Tool chain availability – Other issues in selection processes. | | | | | | | | | | | | | | | | | | |
| **Unit - II** | | | | **PARTITIONING DECISION** | | | | | | | | **Periods** | | | | **09** | | |
| Hardware / Software duality – coding Hardware – ASIC revolution – Managing the Risk – Co-verification – execution environment – memory organization – System startup – Hardware manipulation – memory mapped access – speed and code density. | | | | | | | | | | | | | | | | | | |
| **Unit – III** | | | | **INTERRUPT SERVICE ROUTINES** | | | | | | | | **Periods** | | | | **09** | | |
| Watch dog timers – Flash Memory basic toolset – Host based debugging – Remote debugging – ROM emulators – Logic analyzer – Caches – Computer optimization – Statistical profiling | | | | | | | | | | | | | | | | | | |
| **Unit – IV** | | | | **IN CIRCUIT EMULATORS** | | | | | | | | **Periods** | | | | **09** | | |
| Bullet proof run control – Real time trace – Hardware break points – Overlay memory – Timing constraints – Usage issues – Triggers. | | | | | | | | | | | | | | | | | | |
| **Unit - V** | | | | **TESTING** | | | | | | | | **Periods** | | | | **09** | | |
| Bug tracking – reduction of risks & costs – Performance – Unit testing – Regression testing – Choosing test cases – Functional tests – Coverage tests – Testing embedded software – Performance testing – Maintenance. | | | | | | | | | | | | | | | | | | |
| **Total Periods** | | | | | | | | | | | | | | | | | **45** | |
| **REFERENCES:** | | | | | | | | | | | | | | | | | | |
| 1 | Arnold S. Berger – “Embedded System Design”, CMP books, USA 2002. | | | | | | | | | | | | | | | | | |
| 2 | J.W. Valvano, "Embedded Microcomputer System: Real Time Interfacing", Brooks/Cole, 2000 | | | | | | | | | | | | | | | | | |
| 3 | ARKIN, R.C., Behaviour-based Robotics, The MIT Press, 1998 | | | | | | | | | | | | | | | | | |
| 4 | Sriram Iyer, “Embedded Real time System Programming” | | | | | | | | | | | | | | | | | |
| **Course Outcome** | | At the end of the course students will be :   * Able to comprehend the embedded system Design * Able to analyze partitioning decision * Able to examine debugging * Able to explore in-circuit emulators * Able to assess different types of test | | | | | | | | | | | | | | | | |