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Approved by AICTE & Govt. of Maharashtra, Affiliated to Savitribai Phule  
Savitribai Phule Pune University Identification No. PU/PN/Engg. /441/2012, DT

### Class: TE E & TC

| SR. No                     | Name Of Subject  | Microcontroller  |
|----------------------------|--|--|
| 1                          | <b>Course Objectives:1</b>                                     | To understand architecture and features of typical Microcontrol      |
|                            | <b>Course Objectives:2</b>                                     | To understand need of microcontrollers in real life applications.    |
|                            | <b>Course Objectives:3</b>                                     | To learn interfacing of real world peripheral devices                |
|                            | <b>Course Objectives:4</b>                                     | To study various hardware and software tools for developing applicat |
|                            | <b>Course Outcomes:1</b>                                       | Learn importance of microcontroller in designing embedded ap         |
|                            | <b>Course Outcomes:2</b>                                       | Learn use of hardware and software tools.                            |
|                            | <b>Course Outcomes:3</b>                                       | Develop interfacing to real world devices.                           |
|                            | 2  | <b>Name Of Subject</b>   |
| <b>Course Objectives:1</b> |  | To introduce students with transforms for analysis of Discrete t     |
| <b>Course Objectives:2</b> |  | To understand the digital signal processing, sampling and alias      |
| <b>Course Objectives:3</b> |  | To use and understand implementation of digital filters.             |
| <b>Course Outcomes:1</b>   |  | Analyze the discrete time signals and system using different tra     |
| <b>Course Outcomes:2</b>   |  | Design and implement LTI filters for filtering different real wo     |
| <b>Course Outcomes:3</b>   |  | Develop different signal processing applications using DSP prc       |
| 3                          |  | <b>Name Of Subject</b>   |
|                            | <b>Course Objectives:1</b>                                     | To introduce the basic mathematical concepts related to electro      |
|                            | <b>Course Objectives:2</b>                                     | To impart knowledge on the concepts of electrostatics, electric      |
|                            | <b>Course Objectives:3</b>                                     | To impart knowledge on the concepts of magnetostatics, magn          |
|                            | <b>Course Objectives:4</b>                                     | To impart knowledge on the concepts of Faraday's law, induce         |
|                            | <b>Course Objectives:5</b>                                     | To impart knowledge on the concepts of Concepts of electroma         |
|                            | <b>Course Outcomes:1</b>                                       | Understand the basic mathematical concepts related to electron       |
|                            | <b>Course Outcomes:2</b>                                       | Apply the principles of electrostatics to the solutions of proble    |
|                            | <b>Course Outcomes:3</b>                                       | Apply the principles of magnetostatics to the solutions of probl     |
|                            | <b>Course Outcomes:4</b>                                       | Understand the concepts related to Faraday's law, induced emf        |
| <b>Course Outcomes:5</b>   | Apply Maxwell's equations to solutions of problems relating tc |  |
|                            | <b>Name Of Subject</b>   | <b>Digital Communications</b>  |

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| 4                        | <b>Course Objectives:1</b>                                      | To understand the building blocks of digital communication sy      |
|                          | <b>Course Objectives:2</b>                                      | To prepare mathematical background for communication signa         |
|                          | <b>Course Objectives:3</b>                                      | To understand and analyze the signal flow in a digital commun      |
|                          | <b>Course Objectives:4</b>                                      | To analyze error performance of a digital communication syste      |
|                          | <b>Course Objectives:5</b>                                      | To understand concept of spread spectrum communication syst        |
|                          | <b>Course Outcomes:1</b>  | Understand working of waveform coding techniques and analy         |
|                          | <b>Course Outcomes:2</b>  | Analyze the performance of a baseband and pass band digital c      |
|                          | <b>Course Outcomes:3</b>  | Perform the time and frequency domain analysis of the signals      |
|                          | <b>Course Outcomes:4</b>  | Design of digital communication system.                            |
|                          | <b>Course Outcomes:5</b>  | Understand working of spread spectrum communication system         |
| 5                        | <b>Name Of Subject</b>  | <b>Mechatronics</b>  |
|                          | <b>Course Objectives:1</b>                                      | To understand the concept and key elements of Mechatronics s       |
|                          | <b>Course Objectives:2</b>                                      | To understand principles of sensors their characteristics          |
|                          | <b>Course Objectives:3</b>                                      | To Understand of various data presentation and data logging sy     |
|                          | <b>Course Objectives:4</b>                                      | To Understand concept of actuator                                  |
|                          | <b>Course Objectives:5</b>                                      | To Understand various case studies of Mechatronics systems         |
|                          | <b>Course Outcomes:1</b>  | Identification of key elements of mechatronics system and its r    |
|                          | <b>Course Outcomes:2</b>  | Understanding basic principal of Sensors and Transducer.           |
| 6                        | <b>Name Of Subject</b>  | <b>Electronics System Design</b>                                   |
|                          | <b>Course Objectives:1</b>                                      | Design working, reliable and electronic system to meet specific    |
|                          | <b>Course Objectives:2</b>                                      | Inculcate circuit designing skills and ability and to use modern   |
|                          | <b>Course Objectives:3</b>                                      | Enhance employability based on knowledge and understanding         |
|                          | <b>Course Objectives:4</b>                                      | To learn basics of database systems used in design / simulation    |
|                          | <b>Course Objectives:5</b>                                      | To create an interest in the field of electronic design as a prosp |
|                          | <b>Course Outcomes:1</b>  | Student will be able to Apply the fundamental concepts and wc      |
|                          | <b>Course Outcomes:2</b>  | Student will be able to interpret datasheets and thus select appr  |
|                          | <b>Course Outcomes:3</b>  | Student will be able to Select appropriate transducer and signal   |
|                          | <b>Course Outcomes:4</b>  | Student will be able to Design an electronic system/sub-system     |
|                          | <b>Course Outcomes:5</b>  | Student will be able to use an EDA tool for circuit schematic a    |
| <b>Course Outcomes:6</b> | Student will be able to Create, manage the database and query l |  |
| 7                        | <b>Name Of Subject</b>  | <b>Power Electronics</b>   |
|                          | <b>Course Objectives:1</b>                                      | To introduce students to different power devices to study their    |
|                          | <b>Course Objectives:2</b>                                      | To give an exposure to students of working & analysis of contr     |
|                          | <b>Course Objectives:3</b>                                      | To study the different motor drives, various power electronics a   |

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|                          | <b>Course Outcomes:1</b>   | Design & implement a triggering / gate drive circuit for a power         |
|                          | <b>Course Outcomes:2</b>   | Understand, perform & analyze different controlled converters.           |
|                          | <b>Course Outcomes:3</b>   | Evaluate battery backup time & design a battery charger.                 |
|                          | <b>Course Outcomes:4</b>   | Design & implement over voltage / over current protection circuit        |
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| 8                        | <b>Name Of Subject</b>   | <b>Information Theory ,Coding Techniques and Com</b>                     |
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|                          | <b>Course Objectives:1</b>   | To understand information theoretic behavior of a communication          |
|                          | <b>Course Objectives:2</b>   | To understand various source coding techniques for data compression      |
|                          | <b>Course Objectives:3</b>   | To understand various channel coding techniques and their capacity       |
|                          | <b>Course Objectives:4</b>   | To Build and understanding of fundamental concepts of data communication |
|                          |  |  |
|                          | <b>Course Outcomes:1</b>   | Perform information theoretic analysis of communication systems          |
|                          | <b>Course Outcomes:2</b>   | Design a data compression scheme using suitable source coding techniques |
|                          | <b>Course Outcomes:3</b>   | Design a channel coding scheme for a communication system.               |
| <b>Course Outcomes:4</b> | Understand and apply fundamental principles of data communication      |  |
| <b>Course Outcomes:5</b> | Apply flow and error control techniques in communication networks      |  |
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| 9                        | <b>Name Of Subject</b>   | <b>Business Management</b>   |
|                          |  |  |
|                          | <b>Course Objectives:1</b>   | To get awareness about various domains in Business Management            |
|                          | <b>Course Objectives:2</b>   | To understand concept of Quality Management, Financial Management        |
|                          | <b>Course Objectives:3</b>   | To learn Human Resource Management, marketing management                 |
|                          | <b>Course Objectives:4</b>   | To promote Entrepreneurship  |
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|                          | <b>Course Outcomes:1</b>   | Get overview of Management Science aspects useful in business            |
|                          | <b>Course Outcomes:2</b>   | Get motivation for Entrepreneurship                                      |
|                          | <b>Course Outcomes:3</b>   | Get Quality Aspects for Systematically Running the Business              |
| <b>Course Outcomes:4</b> | To Develop Project Management aspect and Entrepreneurship              |  |
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| 10                       | <b>Name Of Subject</b>   | <b>Advanced Processors</b>   |
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|                          | <b>Course Objectives:1</b>   | To understand need and application of ARM Microprocessors in             |
|                          | <b>Course Objectives:2</b>   | To study the architecture of ARM series microprocessor                   |
|                          | <b>Course Objectives:3</b>   | To understand architecture and features of typical ARM7& DS              |
|                          | <b>Course Objectives:4</b>   | To learn interfacing of real world input and output devices              |
|                          | <b>Course Objectives:5</b>   | To learn embedded communication systems                                  |
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|                          | <b>Course Outcomes:1</b>   | Describe the ARM microprocessor architectures and its features           |
|                          | <b>Course Outcomes:2</b>   | Interface the advanced peripherals to ARM based microcontroller          |
| <b>Course Outcomes:3</b> | Design embedded system with available resources.                       |  |
| <b>Course Outcomes:4</b> | Use of DSP Processors and resources for signal processing applications |  |
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|                          | <b>Name Of Subject</b>   | <b>System Programming and Operating System</b>                           |

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| <b>Course Objectives:1</b> | To understand system software concepts, like the use and imple |
| <b>Course Objectives:2</b> | To get acquainted with software tools for program developmen   |
| <b>Course Objectives:3</b> | To explore memory allocation methods, input output devices an  |
| <b>Course Objectives:4</b> | To study and implement various processes scheduling techniqu   |
| <b>Course Outcomes:1</b>   | Demonstrate the knowledge of Systems Programming and Ope       |
| <b>Course Outcomes:2</b>   | Formulate the Problem and develop the solution for same.       |
| <b>Course Outcomes:3</b>   | Compare and analyse the different implementation approach of   |
| <b>Course Outcomes:4</b>   | Interpret various OS functions used in Linux / Ubuntu          |

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magnetic vector fields.

potential, energy density and their applications.

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magnetic waves and Transmission lines.

magnetic vector fields.

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'and Maxwell's equations.

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| l analysis.  |
| ication system.                                    |
| m in presence of noise and other interferences.    |
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| se their performance.                              |
| ommunication system in terms of error rate and     |
| in a digital communication system.                 |
| n and analyze its performance.                     |
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| ystem, representation into block diagram           |
| ystems   |
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| representation in terms of block diagram           |
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| ations.  |
| design tools.                                      |
| s of electronic system design.                     |
| software.  |
| ective career option.                              |
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| orking principles of electronics devices to design |
| opriate components and devices                     |
| conditioning circuit to design prototype of Dat    |
| and validate its performance by simulating the     |
| nd simulation.                                     |
| handling using suitable tools.                     |
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| construction, characteristics and turning on circ  |
| olled rectifiers for different loads, inverters,   |
| applications like UPS, SMPS, etc. and some pro     |
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## Communication Networks

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Skills.

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P Processors

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| nd file system w. r. t. various operating system. |
| es and dead lock avoidance schemes in operati     |
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| rating Systems                                    |
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| system programming operating system abstrac       |
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