

Savitribai Phule Pune University

Faculty of Science and Technology



Syllabus for

T.E (Electronics & Telecommunication Engineering)

(Course 2019)

(w.e.f. June 2021)

Savitribai Phule Pune University

Third Year of E & Tc Engineering (2019 Course)

304181: Digital Communication

Teaching Scheme:	Credit	Examination Scheme:
Theory: 03 hrs. / week	03	In-Sem (Theory): 30 Marks End Sem (Theory): 70 Marks

Course Outcomes: On completion of the course, learner will be able to -

CO1: Apply the statistical theory for describing various signals in a communication system.

CO2: Understand and explain various digital modulation techniques used in digital communication systems and analyze their performance in presence of AWGN noise.

CO3: Describe and analyze the digital communication system with spread spectrum modulation.

CO4: Analyze a communication system using information theoretic approach.

CO5: Use error control coding techniques to improve performance of a digital communication system.

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Third Year of E & Tc Engineering (2019 Course)

304182: Electromagnetic Field Theory

Teaching Scheme:	Credit	Examination Scheme:
Theory: 03 hrs. / week Tutorial: 01 hr. / week	03 + 01 = 04	In-Sem (Theory): 30 Marks End Sem (Theory): 70 Marks Term Work: 25 Marks

Course Outcomes: On completion of the course, learner will be able to -

- CO1:** Apply the basic electromagnetic principles and determine the fields (E & H) due to the given source.
- CO2:** Apply boundary conditions to the boundaries between various media to interpret behavior of the fields on either sides.
- CO3:** State, Identify and Apply Maxwell's equations (integral and differential forms) in both the forms (Static, time-varying or Time-harmonic field) for various sources, Calculate the time average power density using Poynting Theorem, Retarded magnetic vector potential.
- CO4:** Formulate, Interpret and solve simple uniform plane wave (Helmholtz Equations) equations, and analyze the incident/reflected/transmitted waves at normal incidence.
- CO5:** Interpret and Apply the transmission line equation to transmission line problems with load impedance to determine input and output voltage/current at any point on the Transmission line, Find input/load impedance, input/load admittance, reflection coefficient, SWR, V_{max}/V_{min} , length of transmission line using Smith Chart.
- CO6:** Carry out a detailed study, interpret the relevance and applications of Electromagnetics.

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Third Year of E & Tc Engineering (2019 Course)

304183: Database Management

Teaching Scheme:	Credit	Examination Scheme:
Theory: 03 hrs. / week	03	In-Sem (Theory): 30 Marks End Sem (Theory): 70 Marks

Course Outcomes: On completion of the course, learner will be able to -

CO1: Ability to implement the underlying concepts of a database system.

CO2: Design and implement a database schema for a given problem-domain using data model.

CO3: Formulate, using SQL/DML/DDDL commands, solutions to a wide range of query and update problems.

CO4: Implement transactions, concurrency control, and be able to do Database recovery.

CO5: Able to understand various Parallel Database Architectures and its applications.

CO6: Able to understand various Distributed Databases and its applications.

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Third Year of E & Tc Engineering (2019 Course)

304184: Microcontroller

Teaching Scheme:	Credit	Examination Scheme:
Theory: 03 hrs. / week	03	In-Sem (Theory): 30 Marks End Sem (Theory): 70 Marks

Course Outcomes: On completion of the course, learner will be able to -

CO1: Understand the fundamentals of microcontroller and programming.

CO2: Interface various electronic components with microcontrollers.

CO3: Analyze the features of PIC 18F XXXX.

CO4: Describe the programming details in peripheral support.

CO5: Develop interfacing models according to applications.

CO6: Evaluate the serial communication details and interfaces.

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Third Year of E & Tc Engineering (2019 Course)

304185 (D): Computer Networks (Elective - I)

Teaching Scheme:	Credit	Examination Scheme:
Theory: 03 hrs. / week	03	In-Sem (Theory): 30 Marks End Sem (Theory): 70 Marks

Course Outcomes: On completion of the course, learner will be able to -

CO1: Design LAN using appropriate networking architecture, topologies, transmission media, and networking devices.

CO2: Understand the working of controlling techniques for flawless data communication using data link layer protocols.

CO3: Learn the functions of network layer, various switching techniques and internet protocol addressing.

CO4: Explore various interior and exterior, unicasting and multicasting protocols.

CO5: Analyze data flow using TCP/UDP Protocols, congestion control techniques for QoS.

CO6: Illustrate the use of protocols at application layer.

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Third Year of E & Tc Engineering (2019 Course)

304190: Skill Development

Teaching Scheme:	Credit	Examination Scheme:
Practical: 02 hrs. / week	01	Term work: 25 Marks

Course Outcome: After Successfully completing the course,

CO1: Student should recognize the need to engage in independent and life-long learning in required skill sets

CO2: Student needs to experience the impact of industries on society by visiting different industries and understand the importance of industrial products for analog and digital circuits and systems.

CO3: Student has to make use of the modern electronic and IT Engineering Tools and Technologies for solving electronic engineering problems.

CO4: Student would be able to communicate effectively at different technical and administrative levels.

CO5: Student will exhibit leadership skills both as an individual and as a member in a team in multidisciplinary environment.

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Third Year of E & Tc Engineering (2019 Course)

304192: Cellular Networks

Teaching Scheme:	Credit	Examination Scheme:
Theory: 03 hrs. / week	03	In-Sem (Theory): 30 Marks End Sem (Theory): 70 Marks

Course Outcomes: On completion of the course, learner will be able to -

CO1: Understand fundamentals of wireless communications.

CO2: Discuss and study OFDM and MIMO concepts.

CO3: Elaborate fundamentals mobile communication.

CO4: Describes aspects of wireless system planning.

CO5: Understand of modern and futuristic wireless networks architecture.

CO6: Summarize different issues in performance analysis.

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Third Year of E & Tc Engineering (2019 Course)

304193: Project Management

Teaching Scheme:	Credit	Examination Scheme:
Theory: 03 Hrs. / week	03	In-Sem (Theory): 30 Marks End Sem (Theory): 70 Marks

Course Outcomes: On completion of the course, learner will be able to -

CO1: Apply the fundamental knowledge of project management for effectively handling the projects.

CO2: Identify and select the appropriate project based on feasibility study and undertake its effective planning.

CO3: Assimilate effectively within the organizational structure of project and handle project management related issues in an efficient manner.

CO4: Apply the project scheduling techniques to create a Project Schedule Plan and accordingly utilize the resources to meet the project deadline.

CO5: Identify and assess the project risks and manage finances in line with Project Financial Management Process.

CO6: Develop new products assessing their commercial viability and develop skillsets for becoming successful entrepreneurs while being fully aware of the legal issues related to Product development and Entrepreneurship.

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Third Year of E & Tc Engineering (2019 Course)

304194: Power Devices & Circuits

Teaching Scheme:	Credit	Examination Scheme:
Theory: 03 hrs. / week	03	In-Sem (Theory): 30 Marks End Sem (Theory): 70 Marks

Course Outcomes: On completion of the course, learner will be able -

CO1: To differentiate based on the characteristic parameters among SCR, GTO, MOSFET & IGBT and identify suitability of the power device for certain applications and understand the significance of device ratings.

CO2: To design triggering / driver circuits for various power devices.

CO3: To evaluate and analyze various performance parameters of the different converters and its topologies.

CO4: To understand significance and design of various protections circuits for power devices.

CO5: To evaluate the performance of uninterruptible power supplies, switch mode power supplies and battery.

CO6: To understand case studies of power electronics in applications like electric vehicles, solar systems etc.

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Third Year of E & TC Engineering (2019 Course)

304195 (D): Embedded Processors (Elective - II)

Teaching Scheme:	Credit	Examination Scheme:
Theory: 03 hrs. / week	03	In-Sem (Theory): 30 Marks End Sem (Theory): 70 Marks

Course Outcomes: On completion of the course, learner will be able to -

CO1: Understand basics of Embedded C Programming and usage of Embedded C and study different software tools for programming microcontrollers.

CO2: Get acquainted with various Embedded Processor architectures related to industrial application.

CO3: Know about the programming of ARM 7 based microcontroller with on chip peripherals and external peripherals.

CO4: Understand the architectures of ARM Cortex M4 Microcontrollers and its advantages over ARM 7 Microcontrollers.

CO5: Implement the real world programming of ARM 7 based microcontroller with on chip peripherals and external peripherals.

CO6: Recognize the interfacing of real world sensors and standard buses. Will also able to design different case studies.