	maintain data. CO6: To use appropriate modern tools to understand and analyze the functionalities confined to the secondary storage.
9	**210254: Software Engineering**
	CO1: Apply software engineering principles to develop software. CO2: Analyze software requirements and formulate design solution for a software. CO3: Explain concepts of project estimation, planning and scheduling. CO4: Explain risk management and software configuration management. CO5: Explain various types of software testing.
10	**210255: Microprocessor**
	CO1: To apply the assembly language programming to develop small real life embedded application. CO2: To understand the architecture of the advanced processor thoroughly to use the resources for programming CO3: To understand the higher processor architectures descended from 80386 architecture
11	**210256: Principles of Programming Languages**
	CO1: Make use of basic principles of programming languages CO2: Able to develop a program with Data representation and Computations CO3: Able to develop programs using Object Oriented Programming language : Java CO4: Develop application using inheritance, encapsulation, and polymorphism CO5: Able to demonstrate Applet and Multithreading for robust application development CO6: Able to develop a simple program using basic concepts of Functional and Logical programming paradigm

Third Year Computer Engineering

Course Outcome	
Sr. No	Name of Subject
1	**310241: Database Management Systems**
	CO1: Analyze and design Database Management System using ER model CO2: Implement database queries using database languages CO3: Normalize the database design using normal forms CO4: Apply Transaction Management concepts in real-time situations CO5: Use NoSQL databases for processing unstructured data CO6: Differentiate between Complex Data Types and analyze the use of appropriate data types
2	**310242: Theory of Computation**

Amrutvahini Pawar College of Engineering & Research ★ Pune

	CO1: Understand formal language, translation logic, essentials of translation, alphabets, language representation and apply it to design Finite Automata and its variants CO2: Construct regular expression to present regular language and understand pumping lemma for RE CO3: Design Context Free Grammars and learn to simplify the grammar CO4: Construct Pushdown Automaton model for the Context Free Language CO5: Design Turing Machine for the different requirements outlined by theoretical computer science CO6: Understand different classes of problems, classify and analyze them and study concepts of NP completeness
3	**310243: Systems Programming and Operating System**
	CO1: Analyze and synthesize basic System Software and its functionality. CO2: Identify suitable data structures and Design & Implement various System Software CO3: Compare different loading schemes and analyze the performance of linker and loader CO4: Implement and Analyze the performance of process scheduling algorithms CO5: Identify the mechanism to deal with deadlock and concurrency issues CO6: Demonstrate memory organization and memory management policies
4	**310244: Computer Networks and Security**
	CO1: Summarize fundamental concepts of Computer Networks, architectures, protocols and technologies CO2: Illustrate the working and functions of data link layer CO3: Analyze the working of different routing protocols and mechanisms CO4: Implement client-server applications using sockets CO5: Illustrate role of application layer with its protocols, client-server architectures CO6: Comprehend the basics of Network Security
5	**310245(D): Software Project Management**
	CO1: Comprehend Project Management Concepts CO2: Use various tools of Software Project Management CO3: Schedule various activities in software projects CO4: Track a project and manage changes CO5: Apply Agile Project Management CO6: Analyze staffing process for team building and decision making in Software Projects and Management
6	**310249: Seminar and Technical Communication**
	CO1: Analyze a latest topic of professional interest CO2: Enhance technical writing skills CO3: Identify an engineering problem, analyze it and propose a work plan to solve it CO4: Communicate with professional technical presentation skills

7	**310251: Data Science and Big Data Analytics**
	CO1: Analyze needs and challenges for Data Science Big Data Analytics CO2: Apply statistics for Big Data Analytics CO3: Apply the lifecycle of Big Data analytics to real world problems CO4: Implement Big Data Analytics using Python programming CO5: Implement data visualization using visualization tools in Python programming CO6: Design and implement Big Databases using the Hadoop ecosystem
8	**310252: Web Technology**
	CO1: Implement and analyze behavior of web pages using HTML and CSS CO2: Apply the client side technologies for web development CO3: Analyze the concepts of Servlet and JSP CO4: Analyze the Web services and frameworks CO5: Apply the server side technologies for web development CO6: Create the effective web applications for business functionalities using latest web development platforms
9	**310253: Artificial Intelligence**
	CO1: Identify and apply suitable Intelligent agents for various AI applications CO2: Build smart system using different informed search / uninformed search or heuristic approaches CO3: Identify knowledge associated and represent it by ontological engineering to plan a strategy to solve given problem CO4: Apply the suitable algorithms to solve AI problems CO5: Implement ideas underlying modern logical inference systems CO6: Represent complex problems with expressive yet carefully constrained language of representation
10	**310254(D): Software Modelling and Architecture**
	CO1: Analyze the problem statement (SRS) and choose proper design technique for designing web-based/ desktop application CO2: Design and analyze an application using UML modeling as fundamental tool CO3: Evaluate software architectures CO4: Use appropriate architectural styles and software design patterns CO5: Apply appropriate modern tool for designing and modeling
11	**310255: Internship**
	CO1: To demonstrate professional competence through industry internship. CO2: To apply knowledge gained through internships to complete academic activities in a professional manner. CO3: To choose appropriate technology and tools to solve given problem. CO4: To demonstrate abilities of a responsible professional and use ethical practices in day to day life.

	CO5: Creating network and social circle, and developing relationships with industry people. CO6: To analyze various career opportunities and decide carrier goals.

Final Year Computer Engineering

Course Outcome	
Sr. No	Name of Subject
1	**410241: Design and Analysis of Algorithms**
	CO1: Formulate the problem CO2: Analyze the asymptotic performance of algorithms CO3: Decide and apply algorithmic strategies to solve given problem CO4: Find optimal solution by applying various methods CO5: Analyze and Apply Scheduling and Sorting Algorithms. CO6: Solve problems for multi-core or distributed or concurrent environments
2	**410242: Machine Learning**
	CO1: Identify the needs and challenges of machine learning for real time applications. CO2: Apply various data pre-processing techniques to simplify and speed up machine learning algorithms. CO3: Select and apply appropriately supervised machine learning algorithms for real time applications. CO4: Implement variants of multi-class classifier and measure its performance. CO5: Compare and contrast different clustering algorithms. CO6: Design a neural network for solving engineering problems.
3	**410243: Blockchain Technology**
	CO1: Interpret the fundamentals and basic concepts in Blockchain CO2: Compare the working of different blockchain platforms CO3: Use Crypto wallet for cryptocurrency based transactions CO4: Analyze the importance of blockchain in finding the solution to the real-world problems. CO5: Illustrate the Ethereum public block chain platform CO6: Identify relative application where block chain technology can be effectively used and implemented.
4	**410244(D): Object oriented Modeling and Design**
	CO1: Describe the concepts of object-oriented and basic class modelling. CO2: Draw class diagrams, sequence diagrams and interaction diagrams to solve problems.