Course	Brief Description
Data Structure	This course covers the fundamentals of data structures, abstract concepts, and how these concepts can be used to solve problems. Data structures such as linked lists, stacks, queues, trees, and graphs will be encountered by the student. In addition, the course will assist the student in comprehending various searching and sorting techniques, among other things.
Problem Solving Through Programming	The course aims to provide exposure to problem solving through programming. It aims to teach the student basic concepts of the C/C++/Java/Python/any other- programming language. This course involves a lab component that is designed to give the student hands-on experience with the concepts.
Microprocessors and Microcontrollers	This course outlines the internal architecture of AVR microcontroller, the concept of addressing modes, and the instruction set. Also, it establishes a foundation of assembly language programming and AVR Programming in C. The students get involved in developing and executing modular assembly-level/C language programs for AVR.
Discrete Mathematics	This course provides students with an overview of discrete mathematics. Students will learn about topics such as set theory, laws of logic, groups, coding theory, and the other important discrete mathematical concepts.
Design &Analysis of Algorithms	This course introduces formal techniques for supporting algorithm design and analysis, with an emphasis on both the underlying mathematical theory and practical efficiency considerations. Topics include the divide and conquer techniques, greedy paradigm, shortest path algorithms, backtracking, and recursive backtracking.
Operating Systems	This course provides an established, convenient, and efficient interface between user programs and the bare hardware of the computer on which they run. The course will begin with a brief historical overview of the evolution of operating systems, followed by a discussion of the major components of most operating systems.
Object Oriented Programming	This course will provide the students with a theoretical understanding, as well as practical skills in object-oriented programming. Practical skills will be learnt using the C++/Java/Python/R/any other programming languages. The main aim of this course is to make it possible for students to deal with complex programming problems and to use object oriented programming to ease the design and implementation process.
Computer Architecture	This course is an introduction to computer systems organization, low-level programming and the hardware/software interface. Topics include instruction sets, computer arithmetic, data path design, data formats, addressing modes, memory hierarchies including caches and virtual memory, I/O devices.

Software Engineering	This course covers the concepts of software construction with a basic understanding of what software engineering is and the difference between traditional process models and agile models. It also discusses how agile methods have made software engineering reduce the time to market a software product. The course also deals with requirement engineering, architectural design, user interface design and deals with some aspects of how a software product is tested.
Database Management Systems	This course explains the concepts of data modeling and database management systems, including relational database management systems. Also, the course helps to understand the design data models, populate the relational database and formulate SQL queries using tools and DBMS packages. The course also emphasizes how to create, organize, store and retrieve data efficiently and effectively.
Theory of Computation	This course introduces the theory of computation through a set of abstract machines that serve as models for computation: finite automata, pushdown automata, and Turing machines and examines the relationship between these automata and formal languages.
Computer Networks	This course introduces computer networks, focusing on the architecture of the internet and protocols. Topics include layered network architectures, addressing, naming, forwarding, routing, communication reliability, the client-server model, web and email protocols.
Artificial Intelligence	This course provides a strong foundation of fundamental concepts in artificial intelligence. Also, it imparts an introductory exposition to the goals and methods of artificial intelligence. The course will assist the student apply these techniques in applications that involve perception, reasoning, and learning.
Machine Learning	This course intends to equip students with basic mathematical and statistical techniques commonly used in machine learning. Also, it introduces the students to a variety of machine learning algorithms. The course also enables students to apply machine learning concepts to real-life problems.
Statistics for Computer Science	This course provides an exposure to the students to the basic concepts of probability and statistical methods and their application. Also, the course serves as a foundation to analyze problems in computer science applications through statistical testing methods.