Semester: I

Course Code: HRA210	Course Title: Digital Computer Organization
Course Credits: 03 (3-0-0)	Hours/Week: 03
Total Contact Hours: 44	Formative Assessment Marks: 20
Exam Marks: 80	Exam Duration: 03

Course Outcomes (COs):

On successful completion of this course, students will be able to:

- 1. Understand the digital computer system including classification of computers, anatomy of computer, and input/output devices ad memory organization of computer.
- 2. Illustrate the types of Software, Computer languages and Translator programs.
- 3. Apply Boolean algebra to simplify logical expressions and solve problems using Karnaugh maps and other minimization techniques.
- 4. Design and analyze combinational and sequential logic circuits, including adders, subtractors, flip-flops, encoders, decoders, multiplexers, and counters.
- 5. Perform conversions between decimal, binary, octal, and hexadecimal number systems and carry out arithmetic operations in binary.

Course Code: HRA220	Course Title: Problem Solving using C++
Course Credits: 03 (3-0-0)	Hours/Week: 03
Total Contact Hours: 44	Formative Assessment Marks: 20
Exam Marks: 80	Exam Duration: 03

Course Outcomes (COs):

- 1. Understand the fundamental concepts and benefits of Object-Oriented Programming (OOP) and how it differs from Procedure-Oriented Programming paradigms.
- 2. Interpret and apply C++ syntax and structure, including input-output statements, keywords, identifiers, constants, variables, data types, operators, expressions and file handling to create basic programs and solve problems.
- 3. Describe the control structures, functions, and different parameter passing methods and write programs to solve problems.
- 4. Demonstrate the concepts of classes and objects , access specifiers, constructors, destructors, and OOP features like polymorphism, inheritance with the help of programs.

Course Code: HRA230	Course Title: Mathematical and Statistical Computing
Course Credits: 03 (3-0-0)	Hours/Week: 03
Total Contact Hours: 44	Formative Assessment Marks: 20
Exam Marks: 80	Exam Duration: 03

Course Outcomes (COs):

- 1. Construct, evaluate, and apply logical statements and truth tables, understand the principles of set theory, perform various set operations, and effectively use Venn diagrams for solving complex problems.
- 2. Understand Cartesian products, relations, and their properties, including equivalence relations and partitions. They will also gain skills in function composition, inverse functions, and representing relations through matrices and directed graphs.
- 3. Organize and interpret data using statistical methods, calculate measures of central tendency and dispersion, analyze correlation between variables, and perform linear regression analysis.

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Course Code: CAM21T	Course Title: Data Structures
Course Credits: 03 (3-0-0)	Hours/Week: 03
Total Contact Hours: 44	Formative Assessment Marks: 20
Exam Marks: 80	Exam Duration: 03

Course Outcomes (COs):

On successful completion of this course, students will be able to:

1. Understand the basics of Data Structures.

2.Identify the appropriate data structures and algorithms for solving real world problems.

3. Understand the practical applications of Tree and Graph.

Understand the fundamentals of sorting and searching algorithms. Course

Course Code: CAM22T	Course Title: Object Oriented Programming with Java
Course Credits: 03 (3-0-0)	Hours/Week: 03
Total Contact Hours: 44	Formative Assessment Marks: 20
Exam Marks: 80	Exam Duration: 03

Course Outcomes (COs):

- 1. Understand the Java programming fundamentals.
- 2. Describe with examples of basic Java OOP concepts.
- 3. Understand the Java Interfaces and Packages.
- 4. Deliberate the Details of Multithreading, Exception Handling & File Handling
- 5. Design GUI applications using tools like AWT.

Course Code: CAM23T	Course Title: Operating Systems
Course Credits: 03 (3-0-0)	Hours/Week: 03
Total Contact Hours: 44	Formative Assessment Marks: 20
Exam Marks: 80	Exam Duration: 03

Course Outcomes (COs):

- 1. Understand the fundamentals of the operating system.
- 2. Describe the concepts of process, process management, CPU Scheduling, process synchronization, Dead locks, memory management and Virtual Memory management.
- 3. Illustrate the file system and structure.
- 4. Understand the UNIX OS, Shell Programming, Conditional Control Structures in Shell Programming.