

Computer Science General and Generic Elective Course

Program Specific Outcomes (PSO):

- a) Analyze a problem, design, implement, and evaluate computational solutions that satisfy real life requirements.
- b) Develop programming, logical and analytical thinking abilities.
- c) Apply theoretical and programming concepts to software design and development.
- d) Learn different computer languages and independently develop software applications and projects.
- e) Communicate efficiently with a variety of audiences.

Class/ Paper/ Semester	Title	Course Outcome (CO)
COM.SC-G-CC-L-101A (Theory) Sem-I	Computer Fundamentals and Programming using C	<p>After completing this course satisfactorily, a student will be able to:</p> <ul style="list-style-type: none"> • Understand the fundamentals of C programming. • Formulate simple algorithms for arithmetic and logical problems. • Implement conditional branching, iteration and recursion. • Decompose a problem into functions and synthesize complete program different approaches. • Understand about arrays, string, pointers, structures, union and files.
COM.SC-G-CC-P-101A (Practical) Sem-I	Computer Fundamentals and Programming using C Lab	<p>After completing this course satisfactorily, a student will be able to:</p> <ul style="list-style-type: none"> • Translate the algorithms to programs. • Test and execute the programs and correct syntax and logical errors. • Implement conditional branching, iteration and recursion. • Use arrays, pointers and structures to formulate algorithms and programs. • Apply programming to solve matrix addition and multiplication problems
COM.SC-G-CC-L-201B (Theory) Sem-II	Computer System Architecture	<p>After completing this course satisfactorily, a student will be able to:</p> <ul style="list-style-type: none"> • Know about Logic gates, Boolean algebra, combinational circuit, sequential circuit, memory system. • Learn about data representation basic computer arithmetic. • Demonstrate sufficient knowledge and understanding of data representation, and experiment with basic arithmetic operations. • Analyze and model various functional units of CPU such as ALU, control unit and register file • Organize the memory hierarchy and design a

		<p>memory of any type.</p> <ul style="list-style-type: none"> • Outline various modes of I/O operations and summarize working principles of I/O interface circuits. • Explain the pipelining technique and its related issues.
COM.SC-G-CC-T-201B (Tutorial) Sem-II	Computer System Architecture Tutorial	<p>After completing this course satisfactorily, a student will be able to: Clear all doubts.</p>
COM.SC-G-CC-L-301C (Theory) Sem-III	Database Management Systems	<p>After completing this course satisfactorily, a student will be able to:</p> <ul style="list-style-type: none"> • Define and understand the fundamentals of Data base management System and traditional file system • Understand and explain the concepts of relational database management system. • Make use of the tools to implement Entity Relationship diagrams. • Utilize and take part in the normalization of the real-world database to remove redundancies and able to apply the conversion of one Normal Form to Higher Normal Form
COM.SC-G-CC-P-301C (Practical) Sem-III	Database Management Systems Lab	<p>After completing this course satisfactorily, a student will be able to:</p> <ul style="list-style-type: none"> • Know about Outline the underlying concepts of database technologies. • Define and demonstrate DBMS architecture, schema, instance, DDL, DML. • Experiment with SQL to construct and apply to execute database query using SQL DML/DDL commands. • List and test the integrity constraints on a database using a RDBMS and discover relationships.
COM.SC-G-SEC-P-301 Sem-III	Office Automation Tools	<p>After completing this course satisfactorily, a student will be able to:</p> <ul style="list-style-type: none"> • Perform basic editing functions, formatting text. • Learning the formatting skills on paragraphs, tables, lists, and pages. • Learn the use and utility of functions and formulas on excel spreadsheet. • Learn Workbook, Worksheet, Formatting in excel and Printing worksheets. • Create a Presentation, Formatting in PowerPoint, Using Templates, Inserting charts, Inserting tables, printing presentations.

		<ul style="list-style-type: none"> • Learn about database concepts and explore the Microsoft Office Access environment. • Design a Database, Build a Database, Work with Forms, Sort, retrieve, Analyze Data and Manage an Access Database. • Learn about file sharing and internet concepts.
COM.SC-G-SEC-P-301 Sem-III	System Administration and Maintenance	<p>After completing this course satisfactorily, a student will be able to:</p> <ul style="list-style-type: none"> • Know about basics of operating system, services. • Familiar with installation and configuration with linux/unix. • Understand about windows operating system PC hardware, BIOS, Devices and drivers. • Learn about windows application installation, configuration and maintenance • Aware about Server services and Client services
COM.SC-G-CC-L-401D (Theory) Sem-IV	Operating System	<p>After completing this course satisfactorily, a student will be able to:</p> <ul style="list-style-type: none"> • Learn about history function and structure of operating system and its types. • Illustrate the resource-management by the Operating System and describe the basic principles used in the design of modern Operating Systems. • Understand about process, thread and different types of thread model. • Learn about different types of scheduling algorithms and apply them for any given problem. • Understand concepts of memory, memory allocation strategies, paging, and virtual memory. • Know about shell, various editors about linux and shell script.
COM.SC-G-CC-T-401D (Tutorial) Sem-IV	Operating System Tutorial	<p>After completing this course satisfactorily, a student will be able to:</p> <p>Clear all doubts.</p>
COM.SC-G-SEC-P-402 Sem-IV	HTML Programming	<p>After completing this course satisfactorily, a student will be able to:</p> <ul style="list-style-type: none"> • Create an HTML document and learn about different formatting such as Font, Background, Paragraph, Line Break. • List various tags in html and use these, apply Cascaded style sheet to create web page. • Insert ordered and unordered lists within a web page.

		<ul style="list-style-type: none"> • Create, validate and publish a web page. • Develop solution to complex problems using appropriate method, technologies, framework, web services and content management
COM.SC-G-SEC-P-402 Sem-IV	XML Programming	<p>After completing this course satisfactorily, a student will be able to:</p> <ul style="list-style-type: none"> • Know XML Structure and Syntax, Document classes and Rules. • XML –Style Sheet Basics, XML basics, XML style sheets. • Understand the various applications of XML in the areas of information representation.
COM.SC-G-DSE-L-501A (Theory) Sem-V	Analysis of Algorithms and Data Structures	<p>After completing this course satisfactorily, a student will be able to:</p> <ul style="list-style-type: none"> • Understand about concepts of data structure, time and space analysis of algorithms using different asymptotic notations. • Learn about different algorithm techniques like Iterative techniques, Divide and Conquer, Dynamic Programming, Greedy Algorithms. • Learn about different sorting and searching algorithms and their advantages, disadvantages. • Learn the concept and implementation of array, stack, queue, dequeue, circular queue, and applications of stack using recursion • Understanding and build non-linear data structure such as trees, binary tree, binary search tree and its traversal, insertion, deletion.
COM.SC-G-DSE-P-501A (Practical) Sem-V	Analysis of Algorithms and Data Structures	<p>After completing this course satisfactorily, a student will be able to:</p> <ul style="list-style-type: none"> • Implement different operations on array such as insertion, deletion and searching. • Implement sorting and searching using different algorithms. • Implement of Recursive function • Implement the stack, Queue and their applications. • perform various operation such as insertion, deletion, traversal using different Linked List • Perform basic operations on trees
COM.SC-G-SEC-P-503 Sem-V	Programming in Visual Basic / GAMBAS	<p>After completing this course satisfactorily, a student will be able to:</p> <ul style="list-style-type: none"> • Know about graphical user interface (GUI), the GUI environment, compiling, debugging, and running the programs. • Understand textboxes, frames, check boxes, option buttons, images, setting borders and

		<p>styles, the shape control, the line control, working with multiple controls and their properties, designing the user interface.</p> <ul style="list-style-type: none"> • Know about data types constant, arithmetic operation, different, loops, msgbox function. • Know to create a form, add and remove form in a project.
COM.SC-G-SEC-P-503 Sem-V	Multimedia and Applications	<p>After completing this course satisfactorily, a student will be able to:</p> <ul style="list-style-type: none"> • Identify a range of concepts, techniques and tools for creating and editing the interactive multimedia applications • Incorporate approaches for Image and Video Database, Document Architecture and Content Management. • Understand recent trends and applications of Multimedia Systems. • Understand Principle of Animations, Techniques, and File Formats.
COM.SC-G-DSE-PRO-601B Sem-VI	Project Work	<p>After completing this course satisfactorily, a student will be able to:</p> <ul style="list-style-type: none"> • Define the requirements of the project by proper analysis and interpretation of data and processes supported by standard documentation. • Justify the project work with technical documentation, presentation, and discussions as a group to share knowledge.
COM.SC-G-SEC-P-604 Sem-VI	MySQL Programming (using SQL/PL-SQL)	<p>After completing this course satisfactorily, a student will be able to:</p> <ul style="list-style-type: none"> • Know about Outline the underlying concepts of database technologies. • Define and demonstrate DBMS architecture, schema, instance, DDL, DML. • Experiment with SQL to construct and apply to execute database query using SQL DML/DDL commands. • List and test the integrity constraints on a database using a RDBMS and discover relationships • Explain Programming in PL/SQL with stored procedures, cursors, packages.
COM.SC-G-SEC-P-604 Sem-VI	R Programming	<p>After completing this course satisfactorily, a student will be able to:</p> <ul style="list-style-type: none"> • Understand installation of R Programming Environment • Know about R Data Types, Subsetting, Vectorized Operations, Reading and Writing Data.

		<ul style="list-style-type: none"> • Understand Control Structures, Functions, And Coding Standards. • Analyze the datasets using R programming capabilities.
COM.SC-H-GE-L-101 (Theory)	Computer Fundamentals and Programming using C	<p>After completing this course satisfactorily, a student will be able to:</p> <ul style="list-style-type: none"> • Understand the fundamentals of C programming. • Formulate simple algorithms for arithmetic and logical problems. • Implement conditional branching, iteration and recursion. • Decompose a problem into functions and synthesize complete program different approaches. • Understand about arrays, string, pointers, structures, union and files.
COM.SC-H-GE-P-101 (Practical)	Computer Fundamentals and Programming using C Lab	<p>After completing this course satisfactorily, a student will be able to:</p> <ul style="list-style-type: none"> • Translate the algorithms to programs. • Test and execute the programs and correct syntax and logical errors. • Implement conditional branching, iteration and recursion. • Use arrays, pointers and structures to formulate algorithms and programs. • Apply programming to solve matrix addition and multiplication problems
COM.SC-H-GE-L-202 (Theory)	Database Management Systems	<p>After completing this course satisfactorily, a student will be able to:</p> <ul style="list-style-type: none"> • Define and understand the fundamentals of Data base management System and traditional file system • Understand and explain the concepts of relational database management system. • Make use of the tools to implement Entity Relationship diagrams. • Utilize and take part in the normalization of the real-world database to remove redundancies and able to apply the conversion of one Normal Form to Higher Normal Form
COM.SC-H-GE-P-202 (Practical)	Database Management Systems Lab	<p>After completing this course satisfactorily, a student will be able to:</p> <ul style="list-style-type: none"> • Know about Outline the underlying concepts of database technologies. • Define and demonstrate DBMS architecture, schema, instance, DDL, DML. • Experiment with SQL to construct and apply to execute database query using SQL DML/DDL commands.

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| | | <ul style="list-style-type: none">• List and test the integrity constraints on a database using a RDBMS and discover relationships. |
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