N.S.S. College, Ottapalam
Department of Computer Science

Programme Specific Outcome and Course Outcome

Programme / Course Code	Name of Programme / Course Name	Outcome
	B.Sc. Computer Science Programme Specific Outcome (PSO)	PSO-1. Demonstrate the aptitude of Computer Programming and Computer based problem solving skills. PSO-2. Display the knowledge of appropriate theory, practices and tools for the specification, design, implementation PSO-3. Ability to learn and acquire knowledge through online courses available at different massive open online course providers. PSO-4. Ability to link knowledge of Computer Science with other two chosen Complementary disciplines of study. PSO-5. Display ethical code of conduct in usage of Internet and Cyber systems. PSO-6. Ability to pursue higher studies of specialization and to take up technical employment. PSO-7. Ability to formulate, to model, to design solutions, procedure and to use software tools to solve real world problems and evaluate . PSO-8. Ability to operate, manage, deploy, configure computer network, hardware, software operation of an organization. PSO-9. Ability to present result using different presentation tools. PSO-10. Ability to appreciate emerging technologies and tools.
BCS1B01	Computer Fundamentals and HTML	CO1 - Familiar with fundamental concepts of Computer hardware and software CO2 - Understand the problem-solving aspect CO3 - Design a Webpage with CSS
BCS2B02	Problem Solving Using C	CO1 - Design and develop modular programming.
BCS2B03	Lab I: HTML and Programming in C	CO1 Design and develop a webpage with Hyperlinks and Cascading Style Sheets CO2 To write diversified programs using C language
A11	Python Programming	C01 To write diversified programs using Python
A12	Sensors and Transducers	C01 Perceive the concepts of various Transducers
BCS3B04	Data Structures Using C	CO1 Design Programs using various Data Structures
A13	Data Communication and Optical Fibers	Co1 To gain knowlefde of Data Communication and working of Optical Fibers
A14	Microprocessors - Architecture and Programming	Co1 To study the general architecture of Microprocessors and 8086 processor
BCS4B05	Database Management System and RDBMS	CO1 Gain knowledge of database systems and database management system software
BCS4B06	Lab II: Data Structures and RDBMS	CO1 Familiarizing with different Data Structures CO2 Make use of data definition and manipulation commands
BCS5B07	Computer Organization and Architecture	CO1 To familiarize with basic structure, operation and chatracteristics of digital computers CO2 To familiarize with memory organization, instructions and i/o devices
BCS5B08	Java Programming	CO1 Knowledge of the structure and model of the Java programming language
BCS5B09	Web Programming Using PHP	CO1 To understand basics of the Internet and World Wide Web CO2 To understand basic concept of client side scripting language -javascript CO3 To understand the server side scripting language -PHP
BCS5B10	Principles of Software Engineering	CO1 Ability to apply software engineering principles and techniques and acquire the basics of software testing and maintenance phase
BCS5D01	Introduction to Computers and Office Automation	Learn MS-Word, MS-Excel, and MS-Power point
BCS6B11	Android Programming	CO1 To gain knowledge of developing end user application using Android SDK
BCS6B12	Operating Systems	CO1 To Familiarize with the Objectives, functionsand types of Operating System CO2 To learn about CPU scheduling and memory management
BCS6B13	Computer Networks	CO1 To familiarize with different types of Networks, and Layers

BCS6B14	Lab III: Java and PHP Programmin	CO1 To learn about the Object Oriented Concepts in Java CO2 To understand the practical knowledge of Wenprogramming using PHP
BCS6B15	Lab IV: Android and Linux Shell Programming	CO1 To learn the practical knowledge of Android Programming CO2 To familiarize with the practical knowledge of shell programming
BCS6B16	Project Work and Industrial Visit	CO1 To acquire the implementation level knowledge and interaction with industry
BCS6B16a	System Software (Elective Paper)	CO1 To learn about the concept of system software
CSC1C01	Computer Fundamentals	CO1 To understand the basics of Number system, Conversion, Boolean Algebra, Computer Organization, Algorithm and Flowchart
CSC2C02	Fundamentals of System Software, Networks, and DBMS	CO1 To understand the Concept of System Software, Computer Networks, and Database Management Systems
CSC3C03	Problem Solving Using C	CO1 To learn Programming through C Language
CSC4C04	Data Structures Using C	CO1 To learn the concepts of Data Structures, and various types of Data Structures
CSC4C05	Lab: C and Data Structures	CO1.To Acquire the practical knowledge of C language and data structures CO2. To obtain knowledge of the implementation of searching,sorting,Linked list
	M.Sc. Computer Science Programme Specific Outcome (PSO)	PSO-1. Evaluate complex real-world problems by applying principles of theoretical computing, engineering and Mathematical models. PSO-2. Modern Tool usage: Create, select, adapt and apply appropriate techniques, resources, and modern computing tools to complex computing activities, with an understanding of the limitations. PSO-3. Understand all dimensions of the concepts of software application development and projects. PSO-4. Aware the students to publish their work in reputed journals. PSO-5. Conceive Project Management capabilities to solve real world problems inaccordance to the needs of the industry, in a specific time frame. PSO-6. Design and develop computer programs/computer-based systems in the field of Computer Sciences viz. Computational Intelligence, Machine learning, Web technology, Information Retrieval Systems, Data Analytics, Communication and networking. PSO-7. To prepare the students to address the challenging requirements coming from the enterprise applications.
CSS1C01	Discrete Mathematical Structures	CO1: Verify the validity of an argument using propositional and predicate logic. CO2: Understand allocations of set theory by applying operations on set. CO3: Apply operations of relations and functions in discrete structures. CO4: Understand applications of Lattices and Boolean algebra in computer science domain.
CSS1C02	Advanced Data Structures	CO1: Summarize different categories of data structures. CO2: Design algorithms to perform operations with linear and non – linear data structures. CO3: Describe how arrays, linked lists, stacks, queues, trees and graphs are represented in memory and used by algorithms. CO4: Describe common applications for arrays, linked lists, stack, queue, tree and graphs.
CSS1C03	Theory of Computation	CO1: Describe broad overview of the theoretical foundations of computer science. CO2: Understand regular languages and finite automata. CO3: Apply the concept of context free languages in problem solving. CO4: Solve various problems of applying normal form techniques, push down automata and Turing Machines.
CSS1C04	Thae Art of Programming Methodology	CO1: Improve ability to develop effective algorithms. CO2: Understand the fundamental principles of problem-solving using computers. CO3. Demonstrate the applications of the programming constructs including decision making, looping, arrays and strings. CO4. Conceptualize modular programming basics using functions, structures and Unions

CSS1C05	Computer Organization and Architecture	CO1: Identify, understand and apply different number systems and codes. CO2: Understand the digital representation of data in a computer system. CO3: Understand the general concepts in digital logic design and their use in sequential and combinational circuit design. CO4: Describe fundamental organization of a computer system.
CSS1L01	Practical I	CO1: Develop programming skills using the fundamentals and basics of C language. CO2: Develop programs using the basic elements like control statements, arrays and strings. CO3: Design and implement the effective usage of arrays, structures, functions and pointers. CO4: Implement files handling and command line arguments.
CSS1A01	Introduction to Research	CO1: Understand research terminology. CO2: Apply the ethical principles of research. CO3: Identify the components of a literature review process. CO4: Critically analyze published research works.
CSS2C06	Design and Analysis of Algorithms	CO1: Design algorithms in context of space and time complexity and apply asymptotic notation. CO2: Analyze the problem and develop the algorithms related to these problems. CO3: Classify the problems and apply the appropriate design strategy to develop algorithms. CO4: Analyze the problem and develop the algorithms related to these problems
CSS2C07	Operating System Concepts	CO1: Understand the basic components of a computer operating system. CO2: Compare and interpret the applications of Process and threads. CO3: Describe the policies for scheduling, deadlocks, synchronization, system calls, and file systems. CO4: Illustrate the functioning of process management, memory management and file management Modules present in an OS.
CSS2C08	Computer Networks	CO1: Understand the basics concepts of computer network organization and implementation. CO2: Describe theoretical understanding of layered network models - OSI and TCP/IP Models. CO3: Illustrate the functionalities of different network layers. CO4: Analyze the network application such as data transmission between client and server, file transfer, real-time and multimedia transmission.
CSS2C09	Computational Intelligence	CO1: Apply the basic principles, models, and algorithms of AI to recognize, model, and solve problems in the analysis and design of information systems. CO2: Conceptualize various knowledge representation techniques. CO3: Analyze the problem-solving methods and algorithms related to searching, reasoning, game playing and machine learning. CO4: Understand the functioning of expert systems and its importance.
CSS2C10	Principles of Software Engineering	CO1: Understand the software process and development models. CO2: Understand the software design process and structured analysis of systems. CO3: Distinguish different types of modelling like DFD and UML. CO4: Illustrate the knowledge about the design of user interface.
CSS2L02	Practical II	CO1: Discuss and formulate the problems based on the basic principles of networks. CO2: Implementation of different memory management techniques in OS. CO3: Implement various system operations of the operating system and also the various process scheduling algorithms. CO4: Understand the TCP/IP configuration for Windows and Linux.
CSS2A02	Term Paper	CO1: Apply critical thinking skills analytical ability in problem solving. CO2: Apply foundational research skills to address research problem. CO3: Innovate, experiment and analyze research findings. CO4: Demonstrate capacity to lead and manage change through a collaborative environment
CSS3C11	Advanced Database Management System	CO1: Explain the basics of database management system, concepts of relational data model, entity-relationship model, relational database design, relational algebra and calculus. CO2: Apply the normalization techniques to improve the database design. CO3: Describe various database manipulation commands in SQL. CO4: Understand Transaction Processing & Locking using the concept of Concurrency control.

CSS3C12	Object Oriented Programming Concepts	CO1: Recall the object-oriented programing concepts and basics of Java. CO2: Design and implement object-oriented programs including packages and interfaces. CO3: Explain and handle exceptions and threads. CO4: Develop interactive programs using applets, AWT and swings.
CSS3C13	Principles of Compilers	CO1: Understand the major phases of compilation, identify tokens of a typical high -level programming language, define regular expressions for tokens, design and implement a lexical analyzer. CO2: Develop the parsers and experiment the knowledge of different parsers design without automated tools. CO3: Construct the intermediate code representations and generation. CO4: Explain the role of different types of runtime environments and memory organization for implementation of typical programming languages.
CSS3L03	Practical III	CO1: Design and development of relational database systems. CO2: Understand various advanced queries execution such as relational constraints, joins, set operations, aggregate functions, trigger and views. CO3: Apply various software to design and build ER Diagrams, UML, Flowchart for related database systems. CO4: Design and implement database applications on their own.
CSS3E01c	Web Technology	CO1: Understand the basics of HTML, XML and CSS. CO2: Learn client-side programming and basics of Javascript. CO3: Explore web servers and server-side technologies. CO4: Able to do server-side programming with PHP.
CSS3E02b	Wireless and Mobile Networks	CO1: Understand the fundamental concepts of wireless and mobile networks. CO2: Illustrate the wireless application protocols for mobile content development. CO3: Analyze various wireless mobile programming methodologies. CO4: Understand security aspects of wireless networks.
CSS4P04	Project Work	CO1: Demonstrate a depth of knowledge of modern technology. CO2: Practice to communicate effectively and to present ideas clearly and coherently to specific audiences in both the written and oral forms. CO3: Understand the project requirements, reflect on their learning and take appropriate actions to implement it. CO4: Estimate, plan, calculate, and adjust project variables.
CSS4E03c	System Security	CO1: Familiarize with different types of securities in information systems, security goals and CIA. CO2: Illustrate computer system threats and various types of system attacks CO3: Identify different issues associated with system attacks and how attacking occurs; and various types of attackers CO4: Provide knowledge in operating system security, file protections, security assurance
CSS4E04c	Software Development for Portable Devices	CO1: Understanding on Mobile web and CSS3 CO2: Understand the role of jQuery - methods - manipulations CO3: Describe the basics of Android and smartphones its architecture, environment, life cycle and various XML layouts CO4: Understand the role of content providers and databases