PROGRAMME SYNOPSIS

PROGRAMME:	**DIPLOMA IN COMPUTER SCIENCE (DCS)**
PROGRAMME SYNOPSIS:	The Diploma in Computer Science is an academic program specifically designed to produce graduates proficient in computing and software development. This program spans 2 years and 8 months, combining theoretical knowledge and practical training to ensure students are well-prepared for the rapidly evolving technology industry. Throughout their studies, students will learn the fundamentals of programming, data structures, databases, computer architecture, and cybersecurity. Subsequently, they will undergo a 3-month industrial training, allowing them to apply their acquired knowledge in a real work environment. Graduates of this program have the opportunity to pursue careers in software development, data analytics, cybersecurity, and system development.
CORE COURSES:	**COURSE DESCRIPTIONS**
Programming for Computing (CSC 1383) Credit Hours: 3	This course provides students with an introduction to fundamental programming languages for application development. The course will emphasizes various elements of problem-solving and fundamental techniques for developing a solution.Upon completion of the course, students are expected to adeptly employ the core principles of application programming, formulate suitable algorithms for addressing common problems systematically and effectively apply these concepts across diverse application development contexts.
User Interface and Experience (UIUX) Design (CSC 1313) Credit Hours: 3	This course introduces the concepts and practices of User Interface (UI) and User Experience (UX) design. Students will explore the entire design process, from initial user research to final interface design, equipping them with the skills needed to craft intuitive and engaging user experiences. At the end of the course, students should be able to build low fidelity mockup designs into interactive prototype.
Computer Architecture (CSC 1423) Credit Hours: 3	This course seeks to equip students with both theoretical understanding and practical skills in computer architecture, covering essential aspects such as hardware and software fundamentals, subsystem relationships, analysis of computer system hardware and software, and configuration of computer systems along with network connections. By the course's conclusion, students are expected to grasp the key concepts and components integral to a computer system for everyday use

Programming Fundamentals 2 (CSC 1433) Credit Hours: 4	This course introduces the students to programming language during application development. The course focuses on building a strong foundation in programming concepts, problem-solving skills, and software development practices. Student will develop programming skill by learning array, list, tuple,pointer, fucntion, module, recursion, data files and also error and

	exception handling. At the end of the course, students should be able to write, test, and debug code while learning to design and implement solutions to realworld problems.
Database Fundamentals (CSC 1393) Credit Hours: 3	This course involves an understanding of the principles and practical applications essential for implementing databases. This course will cover both theoretical and practical applications of database design and implementation. It ranges from the fundamentals of database concept, database design, structured query language,practical work using a DBMS, and producing technical documents for databases. At the end, students will acquire knowledge and skills for organizing and managing data efficiently, enabling them to design and implement robust databases.
System Analysis Design and Fundamentals (CSC 1403) Credit Hours: 3	This course provides students with a comprehensive understanding of the principles and methodologies involved in analyzing, designing, and implementing information systems. The course focuses on the entire system development life cycle, emphasizing the importance of systematic approaches to meet organizational needs. Students will gain practical skills in problemsolving, requirement elicitation, system modeling, and design techniques, preparing them for roles in IT and business environments.
Web Programming (CSC 1413) Credit Hours: 3	This course aims to provide students with a solid foundation in the essential principles and techniques of developing dynamic and interactive websites. It will cover the basic concepts of web programming, client-side and server-side programming, build robust and efficient web solutions, as well as incorporate various web components. By the end of the course, students will acquire the knowledge and skills to develop dynamic web applications to retrieve data from a database or other application, manipulate it and respond adequately.
Algorithm Analysis and Design (CSC 1443) Credit Hours: 3	The aim of this unit is to provide students with a solid foundation in understanding and analyzing the runtime behavior of algorithms, using recurrence relations to determine time complexity, and applying various algorithmic approaches to solve routine problems. The course is designed to enhance students' problem-solving skills and analytical thinking in the context of algorithm design and analysis.

Operating System (CSC 1453) Credit Hours: 3	This course serves as an introduction to the fundamental concepts of operating systems (OS). Students will gain understanding of the operating system functions and processes. Students are also exposed to operating system related topics. Practical hands-on exercise using operating systems will be integrated to reinforce learning. At the end of the course, students should be able to demonstrate competency in using various operating systems used in the industry.

Object Oriented Programming (CSC 2833) Credit Hours: 3	This course introduces the way of modelling software that maps programming code to the real-world using object-oriented approach. It focuses on the development of applications with classes and objects as a fundamental which can simplify the task of creating and maintaining complex applications. The application development also involved third-party data that is processed using graphical user interface (GUI) programming. At the end of the course, student will develop their knowledge on how to adapt object-oriented methodology in developing application.
Systems Fundamentals (CSC 2873) Credit Hours: 3	This course equips students with a deep understanding of advanced logic design and parallel programming. Students will learn to create sequential and parallel solutions for practical problems, integrating error detection, recovery methods, and synchronization tools. Through hands-on experiences, students will master program tracing, debugging, and performance evaluation. By the end, students are expected to have a strong foundation in designing efficient, error-resistant programs and the capability to optimize performance using relavant tools.
Network and Data Communication (CSC 2843) Credit Hours: 3	By the end of the course, students will have acquired a solid foundation in computer networking and data communication, empowering them to analyze, design, and troubleshoot networks in diverse technological landscapes. The integration of theoretical knowledge with practical applications ensures that students are well-prepared for the challenges and opportunities in the dynamic field of networking. Encompassing key areas such as data communication, network principles, network protocol and network components in this course equips students with the knowledge and skills necessary to architect and implement effective computer networks.

Mobile Application Development (CSC 2813) Credit Hours: 3	This course focuses on the development of mobile application. Throughout this course, students gain valuable experience in developing mobile applications using any mobile application framework for iOS or Android, along with learning programming languages, software development tools, and techniques to design user interfaces, work with databases and implementing security features. The curriculum will also delve into modern cross-platform tools, which enable developers to share code across projects and integrate well with application lifecycle management tools. Students will develop mobile application to gain hands-on experience as an integral part of the program, which prepares them to enter the industry.
Parallel and Distributed Computing (CSC 2883) Credit Hours: 3	This course introduces the understanding of the principles on which the parallel and distributed computing are based, its architecture, algorithms and design. It focuses on the design and implementation of parallel and distributed algorithms for solving computationally intensive problems across a range of application domains. At the end of the course, student will have knowledge on how to build scalable and efficient application solutions.

Computer Network Technology (CSC 2893) Credit Hours: 3	This course introduces fundamental of computer networking technologies. It covers the network technologies, protocols, construction, configuration and implementation of networking setup. At the end of the course, students will be able to explain the connectivity of devices, demonstrate communication skills in proposing network topologies and applying basic configurations for routers and switches.
Ethics in Computing (CSC 2903) Credit Hours: 3	This subject is designed to provide students with a comprehensive understanding of the ethical considerations ,responsibilities and social issues associated with computing. Studetns will also be exposed to IT governance, rules and regulations to better enhance their knowledge regarding ethical guidelines in organzations. Through a blend of theoretical exploration, practical applications, and case studies, students will delve into key knowledge areas to develop the skills necessary for ethical decision-making in the rapidly evolving field of computing.

Project (CSC 2854) Credit Hours: 4	The Final Project in Computer Sciences is the culminating experience in the diploma program, providing students with the opportunity to apply their knowledge and skills acquired throughout the curriculum to a real-world project. The course emphasizes hands-on experience, problem-solving, and collaboration. Students will work on a substantial project, demonstrating their proficiency in various aspects of computer sciences. It requires the students to identify, plan, implement and manage a project and finally present the outcomes, in terms of the process and the product of the project. At the end of the course, students will develop their skills and knowledge in order to plan, design and implement the project by using appropriate software.
Cybersecurity Fundamentals (CSC 2863) Credit Hours: 3	This course helps to equip students with basic principle of cybersecurity terminology and concept. It covers the topics of the threats and attack in Information Technology as well as other general security areas such as program, network, evaluating the relative risks of these threats, developing cost-effective and user-friendly countermeasures.The students also able to describe the nature of cybercrime and its cyber ethics and the the effectiveness of information assurance in cybercrime. Then, this course contains knowledge and experience with respect to the risks of secure the system and software. At the end of this course, student can propose information assurance to overcome cyber security threats.
Intelligent Systems (CSC 2913) Credit Hours: 3	The course aims to provide students with basic concepts of Intelligent Systems. It will discuss the principles,concepts,theories and technologies that are developed in the fields of artificial and computational intelligence. Students will learn how the intelligent techniques can be used in the construction of information systems to support decision making.
	Upon the completion of the course, students should be able to master the techniques for problem solving of various application areas in business, computing and engineering.