

BSC CS			
Semester I/II/III/IV/V/VI	All Subjects / Course	Objective of teaching the subject (Minimum 4)	OUTCOMES
Semester I	USCS101 Digital System Architecture	To understand computer architecture	This subject will help in Understanding digital logic making complex decision making possible in programs.
		Comprehend the basic digital electronics	
		To learn the computer instruction set	digital logic is also essential for many other fields in engineering.
		Obtain a clear understanding of data transfer between processor and I/O devices	
Semester I	USCS102 Programming With Python	To learn the design of python program structure	Students can start service in any of the below sectors
		Explore the components of python program	Scientific and mathematical computing, Data Science, web development
		To construct an application with variables and data types	Game developing, security testing computer graphics etc
		Learn and understand the different programming constructs and built in data structures	
Semester I	USCS103 Linux Operating system	Work with linux file system	Students will be skilled for various positions Linux Administration, Security Engineers,
		Understand Linux security systems and how to handle shell	
		Use of Linux editors	Technical Support, Linux System Developer, Kernel Developers, Application Developers.
		Install softwares and develop programs in c/python in Linux platform	
Semester I	USCS104 Open Source Technologies	Understand open-source philosophy, methodology and ecosystem	Students will learn the following concepts: Learn computing concepts, Lower total cost of ownership,
		Awareness with Open-Source Technologies	Affordable computing at student homes, Customise and reuse software,
		Recognize the applications, benefits and features of Open-Source Technologies	Extend lifetime of old hardware, Lucrative career opportunities.
		Gain knowledge to start, manage open-source projects	
Semester I	USCS105 Discrete Mathematics	The purpose of the course is to familiarize the prospective learners with mathematical structures that are fundamentally discrete	Students will have best skills in probabilities, trees, graphs, logic, mathematical thinking, and
		This course will enhance prospective learners to reason and ability to articulate mathematical problems.	
		Understand, construct and solve simple mathematical problems.	and much more which they can implement in Data science, Artificial intelligence, Digital Image processing.
		Solve puzzles based on counting principles.	

Semester I	USCS106 Descriptive Statistics	To develop the learners ability to deal with different types of data	Skill enchances learning this subjects allow a researcher to quantify and for Data analytics.
		To develop ability to analyze statistical data through R software.	
		Organize, manage and present data.	Students will be skilled with analysis, summary, and presentation of findings related to a data set derived from a sample.
		Study the relationship between variables using techniques of correlation and regression	
Semester I	USCS107 Soft Skills	Understand the significance and essence of a wide range of soft skills.	This subject helps the student to have a good Team buildidng, Better realtionship ,
		Learn how to employ soft skills to improve interpersonal relationships	
		Learners will able to understand Leadership Qualities and Ethics.	Increased job satisfaction,Problem-solving,Increase productivity and engagement
		Learners will develop skills for Academic and Professional Presentations.	
Semester II	USCS201 Design & Analysis of Algorithms	To make students understand the basic principles of algorithm design	If an individual wants to grow and solve projects for a team then they should be proficient in algorithms.
		To give idea to students about the theoretical background of the basic data structures	
		Students should be able to appreciate the use of various data structures as per need	As a developer, your everyday work is to solve problems which is best understandable in this subject
		To select, decide and apply appropriate design principle by understanding the requirements of any real life problems.	
Semester II	USCS202 Advanced Python Programming	To learn about reading, writing and implementing other operation on files in Python.	Students will have a vast job opportunity in the field of Software Engineer,Python Developer
		To implement threading concept and multithreading on Python	
		Ability to work with files and perform operations on it using Python.	Research Analyst,Data Analyst,Data Scientist,Software Developer.
		Ability to implement exception handling in Python applications for error handling.	

Semester II	USCS203 Introduction to OOPs using C++	Work with numeric, character and textual data and arrays.	Students will be skilled to learn how to handle data and perform operations on data according to the output required.
		Understand the importance of OOP approach over procedural language.	
		Understand how to model classes and relationships using UML.	
		Handle basic file operations.	
Semester II	USCS204 Database Systems	To make students aware fundamentals of database system.	Students will be skilled for various positions support specialist,,security analyst programmer, software developer, and administrator.
		To experience the students working with database using MySQL.	
		Handle data permissions.	
		To appreciate the importance of database design.	
Semester II	USCS205 Calculus	The course is designed to have a grasp of important concepts of Calculus in a scientific way.	It provides them with the mathematical foundation they
		It covers topics from as basic as definition of functions to partial derivatives of functions in a gradual and logical way.	need to understand and apply the principles of these subjects.
		Develop mathematical skills and enhance thinking power of learners	In addition, calculus helps students develop the necessary
		Appreciate real world applications which uses the learned concepts	skills to solve problems and understand scientific concepts.
Semester II	USCS206 Statistical Methods	To make learner aware about basic probability axioms and rules and its application.	Statistical knowledge helps students to use proper methods to collect the data, employ the correct analyses, and effectively present the results
		To understand the concept of conditional probability and Independence of events.	
		Apply non-parametric test whenever necessary.	
		Conduct and interpret one-way and two-way ANOVA.	
Semester II	USCS207 E-Commerce & Digital Marketing	Understand the core concepts of E-Commerce.	-
		Understand the various online payment techniques	
		Understand the core concepts of digital marketing	
		Apply digital marketing through different channels and platforms	

Semester III	USCS301 Theory of Computation	Understand Grammar and Languages	Since all machines that implement logic apply TOC, studying TOC gives learners an insight into computer hardware and software limitations.
		Learn about Automata theory and its application in Language Design	
		Learn about Turing Machines and Pushdown Automata	The essence of the theory of computation is to help develop mathematical and logical models
		Understand Linear Bound Automata and its applications	
Semester III	USCS302 Core Java	Object oriented programming concepts using Java.	Learning Java will help students to become a software programmer and software developer.
		Knowledge of input, its processing and getting suitable output.	
		Understand, design, implement and evaluate classes and applets.	Other jobs that potentially use Java include tester, quality assurance analyst, programmer analyst, and UX designer.
		Knowledge and implementation of AWT package	
Semester III	USCS303 Operating System	Learners must understand proper working of operating system	An operating system helps students to gain various knowledge such as: (1) manage the computer's resources, such as the central processing unit, memory, disk drives, and printers, (2) establish a user interface, and (3) execute and provide services for applications software.
		provide a sound understanding of Computer operating system	
		To provide a understanding of operating system, its structures	
		Develop and master understanding of algorithms	
Semester III	USCS304 Database Management Systems	Master concepts of stored procedure and triggers and its use.	Students will be skilled for various positions Linux Administration, Security Engineers,
		Learn about using PL/SQL for data management	
		Understand concepts and implementations of transaction management	Technical Support, Linux System Developer, Kernel Developers, Application Developers.
		Understand concepts and implementations of crash recovery	
Semester III	USCS305 Combinatorics and Graph Theory	Appreciate beauty of combinatorics	Graphs are very useful structures for students to work with in programming since very often computer science problems can be represented as a graph and solved with one of many existing graph techniques.
		Understand the combinatorial features in real world situations and Computer Science applications.	
		Apply combinatorial and graph theoretical concepts	
		To understand Computer Science concepts and apply them to solve problems	

Semester III	USCS306 Physical Computing and IoT Programming	Enable learners to understand System On Chip Architectures.	Studying this subject will help students in:
		Introduction and preparing Raspberry Pi with hardware and installation.	design devices that compute in real life settings
		Learn physical interfaces and electronics of Raspberry Pi and program them using practical's	learn how to connect these virtually to each other and globally via the internet.
		Learn how to make consumer grade IoT safe and secure with proper use of protocols.	apply your learned skills in the creative arts, smart homes, robotics, engineering control systems and many more computer related areas.
Semester III	USCS307 Web Programming	To develop and implement client-side and server-side scripting language programs.	The outcomes of web programming are Designing user interfaces and navigation menus
		To develop and implement Database Driven Websites.	
		Design and apply XML to create a markup language	Writing and reviewing code for sites, typically HTML, XML, or JavaScript
		To design valid, well-formed, scalable, and meaningful pages using emerging technologies	Integrating multimedia content onto a site, Collaborating with designers, developers, and stakeholders
Semester IV	USCS401 Fundamentals of Algorithms	To understand how to implement algorithms in Python	Students will be skilled to understand how to transform new problems into algorithmic problems with efficient solutions
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		To understand algorithm design techniques for solving different problems	
		To understand basic principles of algorithm design	
Semester IV	USCS402 Advanced Java	Understand the concepts related to Java Technology	Students will be skilled to do programming in Java ,develop web application and work on Android platform.
		Explore use of Java Server Programming	
		should be able to perform java programs and create java based projects	
		Understand use of Java Server Programming	
Semester IV	USCS403 Computer Networks	Learner will be able to understand the concepts of networking	Concepts of network communication will be cleared and jobs related to networks will be applicable for them.
		Useful to proceed with industrial requirements	
		Useful to proceed with International vendor certifications.	
		Students should understand the framework and working of communication networks	

Semester IV	USCS404 Software Engineering	Students should understand concepts of software Engineering	Students will understand the entire SDLC life cycle which will help them for project management
		Learner will be able to understand Software Project Management	
		Learner will be able to understand Risk Management in software	
		Learner will be able to understand Software Testing and Software Quality Assurance	
Semester IV	USCS405 Linear Algebra using Python	Appreciate the relevance of linear algebra in the field of computer science.	Students will learn the relevant linear algebra concepts through computer science applications
		Understand the concepts through program implementation	
		Install a computational thinking while learning linear algebra.	And also how to implements its program.
		To offer the learner the relevant linear algebra concepts through computer science applications	
Semester IV	USCS406 .Net Technologies	Understand the .NET framework	Students will be skilled with C# language and will be able to develop web applications using ASP.NET
		Develop a proficiency in the C# programming language	
		Proficiently develop ASP.NET web applications using C#	
		Use ADO.NET for data persistence in a web application	
Semester IV	USCS407 Android Developer Fundamentals	Understand the requirements of Mobile programming environment.	Students will develop Andriod Applications and can publish those applications
		Learn about basic methods, tools and techniques for developing Apps	
		Explore and practice App development on Android Platform	on google playstore generating revenues.
		Develop working prototypes of working systems for various uses in daily lives.	

Semester V	USCS501 Artificial Intelligence	Artificial Intelligence (AI) and accompanying tools and techniques bring transformational changes in the world	Students will get a clear understanding of AI.
		This course aims to introduce the learner to the world of AI	With Artificial intelligence, errors are reduced and the chance of reaching accuracy with a greater degree of precision is a possibility.
		Learner should get a clear understanding of AI and different search algorithms used for solving problems.	student's will understand decisions are taken
		The learner should also get acquainted with different learning algorithms and models used in machine learning.	from the previously gathered information applying a certain set of algorithms.
Semester V	USCS503 Software Testing and Quality Assurance	Understand various software testing methods and strategies.	Students will realise software testing is becoming more popular and important in the software development industry.
		Understand a variety of software metrics, and identify defect	
		Design SQA activities, SQA strategy, formal technical review report for software quality control and assurance.	Students will learn and develop skills to design test case plan for testing software
		To provide skills to design test case plan for testing software	
Semester V	USCS504 Information and Network Security	Understand the principles and practices of cryptographic techniques	After the coarse students will understand and can implement steps
		Understand a variety of generic security threats and vulnerabilities	to protect their priority information from data breaches,
		Understand various protocols for network security to protect against the threats in a network	unauthorized access, and other disruptive data security threats .
		To identify & analyze particular security problems for a given application	
Semester V	USCS506 Web Services	Emphasis on SOAP based web services and associated standards such as WSDL	Students will learn how to implement and deploy web service client and server.
		Design SOAP based / RESTful / WCF services	Students can use web services in different styles and paradigms
		Deal with Security and QoS issues of Web Services	with intention to solve different problems.
		To learn how to implement and deploy web service client and server.	

Semester V	USCS507 Game Programming	Learner should study Graphics and gaming concepts	It assesses the knowledge gaps between students
		Learner should get the understanding computer Graphics programming using Directx or Opengl.	majoring in computer science and game development.
		Learner should also aware of GPU, newer technologies	Students will have a range of technical skills , addressing the persistent issues
		Learner should be a part of community and learn.	of access and diversity present in traditional digital gaming cultures.
Semester VI	USCS601 Wireless Sensor Networks and Mobile Communication	Learner should be able to list various applications of wireless sensor networks	Students will implement and evaluate new ideas for solving wireless sensor network issues.
		Learner should be able to conceptualize and understand the framework	
		Learner should implement and evaluate new ideas for solving wireless sensor network design issues	
		Student should describe the concepts, protocols, design, implementation and use of wireless sensor networks.	
Semester VI	USCS603 Cyber Forensics	The student will be able to plan and prepare for all stages of an investigation	Computer forensics also helps beef up network security and defend private servers,
		To understand the procedures for identification, preservation	preventing those hacker attacks in the first place.
		To understand extraction of electronic evidence, auditing and investigation of network	Forensic tools inspect packet data, help organizations isolate suspicious activities,
		To understand host system intrusions, analysis and documentation of information gathered	identify hackers and their methods, and design the best defenses against these threats.
Semester VI	USCS605 Digital Image Processing	To study two-dimensional Signals and Systems.	With Digital Image Processing ,students will manipulate
		To understand image fundamentals and transforms necessary for image processing	digital data with the help of computer hardware and software.
		Evaluate the techniques for image enhancement and image segmentation.	Students will be aware and use different enhancement techniques.
		Learner will be familiar with basic image processing techniques for solving real problems	

Semester VI	USCS606 Data Science	Understanding basic data science concepts	Studying Data science, students are prepared to succeed
		Learning to detect and diagnose common data issues, such as missing values, special values, outliers, inconsistencies, and localization.	in industries that deal with data such as banking,
		Learner should be able to define suitable statistical method to be adopted.	healthcare, government, insurance companies.
		Making aware of how to address advanced statistical situations, Modeling and Machine Learning.	
Semester VI	USCS607 Ethical Hacking	To understand the methodologies and techniques of hacking	Students will know Hidden Techniques and Explore Better Ways.
		To understand the ethics, legality of hacking	By learning ethical hacking, students can play a vital role in
		Learner will know to identify security vulnerabilities and weaknesses in the target applications.	securing the systems and data from threats and attacks.
		To understand the impact of hacking in real time machines.	