SARDAR PATEL UNIVERSITY
Vallabh Vidyanagar, Gujarat
(Reaccredited with 'A' Grade by NAAC (CGPA 3.11)
Syllabus with effect from the Academic Year 2023

Bachelor of Science (Computer Application & Information Technology)
B.Sc. (CA&IT) Semester VI

Course Code	**US06CIIT51**	Title of the Course	**Web Programming Using PHP**
Total Credits of the Course	4	Hours per Week	4
Course Objectives:	To learn basics of 1. Web application development using PHP. 2. PHP language. 3. Various modules and library functions in PHP. 4. HTML forms processing in PHP. 5. Session management in PHP. 6. Working with the MySQL database. 7. Creating database-driven dynamic web sites using PHP.		

Course Content		
Unit	Description	Weightage (%)
1.	**Introduction to PHP** – History of PHP, Features Merits and Demerits of PHP, General structure of PHP, Displaying Output, Escaping Special Characters, Comments, Variables (Declaring, Assigning, Destroying) – Datatypes, Setting and Testing Datatypes, Constants, Operators (Arithmetic, Comparison, Logical, Assignment, Concatenation), Superglobal variables	25
2.	**PHP Basics** – Control structures – Looping structures - 1-D Array & its manipulation (Storing Data, Assigning, Accessing Array Elements, Displaying) – User-Defined Functions, Function Scope	25
3.	**Advanced PHP and Form Interaction** – Working with Number, Strings functions, Working with Dates and Time – Creating tables using PhpMyAdmin, Interaction with HTML form, Validating HTML Form - Error checking or Exiting – Introduction to Regular Expression, File handling	25
4.	**Database programming and PHP** – Introduction to MySQL : Features, Merits and Demerits - MySQL data types and constraints -Working with Forms PHP and MySQL Integration – Basic SQL Commands (Insert, Update, Delete, Select) – MySQL functions (mysql_connect, mysql_select_db, mysql_query, mysql_num_rows, mysql_fetch_array, mysql_fetch_field, mysql_close) – Generating reports using PHP and MySQL - Introduction and use of Session - Introduction and use of Cookies	25

D:\MUKESH F\SYLLABUS\Syllabus 2023\Faculty of Science\Computer Science 2023\Comp. Sci. 2023-24\Detail Syllabus BSc (CA & IT) Sem. 6.docm

Page 1

SARDAR PATEL UNIVERSITY
Vallabh Vidyanagar, Gujarat
(Reaccredited with 'A' Grade by NAAC (CGPA 3.11)
Syllabus with effect from the Academic Year 2023

Teaching-Learning Methodology	Blended learning approach incorporating both traditional classroom teaching as well as usage of ICT tools

Evaluation Pattern

Sr. No.	Details of the Evaluation	Weightage
1.	Internal Written / Practical Examination (As per CBCS R.6.8.3)	15%
2.	Internal Continuous Assessment in the form of Practical, Viva-voce, Quizzes, Seminars, Assignments, Attendance (As per CBCS R.6.8.3)	15%
3.	University Examination	70%

Course Outcomes: Having completed this course, the learner will be able to	
1.	develop basic PHP scripts to handle HTML forms, use various PHP library functions, manipulate files and directories, perform database operations, manage session, etc.
2.	develop web based applications using MySQL as a back end DBMS with PHP.

Suggested References:	
Sr. No.	References
1.	PHP – A Beginner's guide, Vikram Vaswani, TMH 2009
2.	Web enabled commercial application development using HTML, Javascript, DHTML and PHP by Ivan Bayross, BPB Publication.
3.	Beginning PHP5 By Dave Mercer, Allan Kent, Steven Nowicki, David Mercer, DanSquier, Wankyu Choi, Wrox Publication
4.	Professional PHP by Castagnetto Jesus, Shroff Publication

*****

D:\MUKESH F\SYLLABUS\Syllabus 2023\Faculty of Science\Computer Science 2023\Comp. Sci. 2023-24\Detail Syllabus BSc (CA & IT) Sem. 6.docm

Page 2

SARDAR PATEL UNIVERSITY
Vallabh Vidyanagar, Gujarat
(Reaccredited with 'A' Grade by NAAC (CGPA 3.11)
Syllabus with effect from the Academic Year 2023

Bachelor of Science (Computer Application & Information Technology)
B.Sc. (CA&IT) Semester VI

Course Code	US06CIIT52	Title of the Course	**Multimedia Technology**
Total Credits of the Course	2	Hours per Week	2

Course Objectives:	To familiarize the students with multimedia.

Course Content		
Unit	Description	Weightage (%)
1.	**Introduction** – Introduction to Multimedia – Digital Media : audio, text, graphics, animation, video – Types of Multimedia Applications – Multimedia : hardware/software essentials, Multimedia Application	25
2.	**Working with Audio, Text and Graphics** – Multimedia audio : introduction to digital audio and sound card composition and connectivity, Music synthesis, digital audio playback, Digital Audio : editing process , need and editing terminologies – Multimedia text : introduction, Text as a part of Multimedia Project, Text designing basics ,effects of poor text content design and display design and parameters that control text design, ,hypermedia, hypertext – Multimedia graphics : introduction, basic concepts of colour displays, Color depth, Resolution, colour monitors and their parameters	25
3.	**Working with Video and Animation** – Multimedia video : introduction, Role of digital video in multimedia projects, full motion and full screen videos, digital video production techniques – video shooting , video capture process, video post production – Multimedia Animation : introduction, Need for animation , classifications, two- dimensional animation and three dimensional animation technology, animation development process: Phase 1 and Phase 2.	25

D:\MUKESH F\SYLLABUS\Syllabus 2023\Faculty of Science\Computer Science 2023\Comp. Sci. 2023-24\Detail Syllabus BSc (CA & IT) Sem. 6.docm

Page 3

SARDAR PATEL UNIVERSITY
Vallabh Vidyanagar, Gujarat
(Reaccredited with 'A' Grade by NAAC (CGPA 3.11)
Syllabus with effect from the Academic Year 2023

4.	**Multimedia Project**	25
	– Multimedia project design concepts – introduction, conceptualization and development, data gathering, developing media content , Designing interface. – Multimedia authoring : Introduction, multimedia programming vs. multimedia authoring, authoring methodologies, characteristics of authoring tools, commercial authoring tools.	

Teaching-Learning Methodology	Blended learning approach incorporating both traditional classroom teaching as well as usage of ICT tools

Evaluation Pattern

Sr. No.	Details of the Evaluation	Weightage
1.	Internal Written / Practical Examination (As per CBCS R.6.8.3)	15%
2.	Internal Continuous Assessment in the form of Practical, Viva-voce, Quizzes, Seminars, Assignments, Attendance (As per CBCS R.6.8.3)	15%
3.	University Examination	100%

Course Outcomes: Having completed this course, the learner will be able to
1. Understand the basics of the multimedia technology.

Suggested References:	
Sr. No.	References
1.	Multimedia Magic. (Revised and updated Second edition)By S. Gokul, BPB Publications, 2005.
2.	Introduction to Multimedia : By Ana Weston Solomon, Tata McGraw-Hill Publishing Company Limited, 2005

*****

SARDAR PATEL UNIVERSITY
Vallabh Vidyanagar, Gujarat
(Reaccredited with 'A' Grade by NAAC (CGPA 3.11)
Syllabus with effect from the Academic Year 2023

Bachelor of Science (Computer Application & Information Technology)
B.Sc. (CA&IT) Semester VI

Course Code	US06CIIT53	Title of the Course	Computer Networks
Total Credits of the Course	4	Hours per Week	4

Course Objectives:	1. To understand the basic concepts of computer networks and data communication. 2. To acquire knowledge of basic concepts related to network protocols and standards. 3. To learn fundamentals of wireless networking.

Course Content		
Unit	**Description**	**Weightage (%)**
1.	**INTRODUCTION** – Computer networks : definition, advantages-disadvantages – Classification of computer networks – Categories of computer network : local area networks, metropolitan area networks, wide area networks – Meaning of the basic terms : topology, data rate, modulation rate, spectrum, bandwidth, server, host	25
2.	**DATA COMMUNICATION FUNDAMENTALS** – Various types of transmission media – Guided transmission media : magnetic media – Twisted pair, coaxial cables, fiber optics – Serial transmission vs. Parallel transmission – Circuit switching, packet switching, message switching – Concept of multiplexing : frequency division multiplexing ,time division multiplexing	25
3.	**LAYERED PROTOCOLS AND SATELLITE COMMUNICATION** – Protocol significance and hierarchies – Design issues for the layers – The OSI reference model – Examples of protocols for different layers of the OSI model – Introduction communication satellites and categories (LEO, MEO, GEO)	25
4.	**INTRODUCTION TO WIRELESS NETWORKS AND NETWORKING DEVICES** – Introduction to wireless networks : Bluetooth – LAN topologies with advantages and disadvantages : bus, star, ring, tree, mesh – Introduction to carrier sense multiple access (CSMA), carrier sense multiple access with collision detection (CSMA/CD) protocol for LAN – Functions of various networking components : modems, amplifiers, repeaters, hubs, switches, routers, gateway, bridges	25

D:\MUKESH F\SYLLABUS\Syllabus 2023\Faculty of Science\Computer Science 2023\Comp. Sci. 2023-24\Detail Syllabus BSc (CA & IT) Sem. 6.docm

Page 5

SARDAR PATEL UNIVERSITY
Vallabh Vidyanagar, Gujarat
(Reaccredited with 'A' Grade by NAAC (CGPA 3.11)
Syllabus with effect from the Academic Year 2023

Teaching-Learning Methodology	Blended learning approach incorporating traditional classroom teaching and online /ICT-based teaching practices.

Evaluation Pattern		
Sr. No.	Details of the Evaluation	Weightage
1.	Internal Written / Practical Examination (As per CBCS R.6.8.3)	15%
2.	Internal Continuous Assessment in the form of Practical, Viva-voce, Quizzes, Seminars, Assignments, Attendance (As per CBCS R.6.8.3)	15%
3.	University Examination	70%

Course Outcomes: Having completed this course, the learner will be able to develop	
1.	Ability to describe the significance and functioning of computer networks.
2.	Understanding of the fundamental concepts related to data communication.
3.	Knowledge of various network protocols and standards.
4.	Knowledge of basic concepts related to wireless networking

Suggested References:	
Sr. No.	References
1.	Behrouz Forouzan, introduction to data communications and networking, Tata McGraw-hill publishing co. Ltd., New Delhi, 1998, 4th edition.
2.	Tanenbaum A. S., computer networks, 3rd edition prentice-hall of India Pvt. Ltd., New Delhi, 1997.
3	Stallings W., Data and Computer Communications, 3rd edition, Macmillan Pub. Company, New York, 1991.

*****

D:\MUKESH F\SYLLABUS\Syllabus 2023\Faculty of Science\Computer Science 2023\Comp. Sci. 2023-24\Detail Syllabus BSc (CA & IT) Sem. 6.docm

Page 6

SARDAR PATEL UNIVERSITY
Vallabh Vidyanagar, Gujarat
(Reaccredited with 'A' Grade by NAAC (CGPA 3.11)
Syllabus with effect from the Academic Year 2023

Bachelor of Science (Computer Application & Information Technology)
B.Sc. (CA&IT) Semester V

Course Code	**US06CIIT54**	Title of the Course	**Practical Based on US06CIIT51 & US06CIIT52**
Total Credits of the Course	**6**	Hours per Week	**12**

Course Objectives:	1. To understand the basics of PHP Programing. 2. To understand the concepts of Multimedia Technology

Course Content	
Description	Weightage (%)
Part-1 : Practical based on US06CIIT51	**50%**
Part-2 : Practical based on US06CIIT52	**50%**

Teaching-Learning Methodology	Project work in small groups, Hands on Training ICT tools.

Evaluation Pattern		
Sr. No.	Details of the Evaluation	Weightage
1.	Internal Written / Practical Examination (As per CBCS R.6.8.3)	15%
2.	Internal Continuous Assessment in the form of Practical, Viva-voce, Quizzes, Seminars, Assignments, Attendance (As per CBCS R.6.8.3)	15%
3.	University Examination	70%

Course Outcomes: Having completed this course, the learner will be able to	
1.	gain the knowledge of PHP Programming.
2.	gain the knowledge of Multimedia Technology

*****

D:\MUKESH F\SYLLABUS\Syllabus 2023\Faculty of Science\Computer Science 2023\Comp. Sci. 2023-24\Detail Syllabus BSc (CA & IT) Sem. 6.docm

Page 7

SARDAR PATEL UNIVERSITY
Vallabh Vidyanagar, Gujarat
(Reaccredited with 'A' Grade by NAAC (CGPA 3.11)
Syllabus with effect from the Academic Year 2023

Bachelor of Science (Computer Application & Information Technology)
B.Sc. (CA&IT) Semester VI

Course Code	**US06CIIT55**	Title of the Course	**Project-II**
Total Credits of the Course	2	Hours per Week	4
Course Objectives:	1. To give students a practical experience of using the technologies and methodologies they have learnt in the programme.		

Course Content		
	Description	Weightage (%)
	Project	100

Teaching-Learning Methodology	Project work in small groups, Hands on Training ICT tools.

Evaluation Pattern		
Sr. No.	Details of the Evaluation	Weightage
1.	Internal Written / Practical Examination (As per CBCS R.6.8.3)	15%
2.	Internal Continuous Assessment in the form of Practical, Viva-voce, Quizzes, Seminars, Assignments, Attendance (As per CBCS R.6.8.3)	15%
3.	University Examination	70%

Course Outcomes: Having completed this course, the learner will be able to	
1.	Use of technologies and methodologies in developing software projects.
2.	Solving Industrial problems using computational technology

*****

D:\MUKESH F\SYLLABUS\Syllabus 2023\Faculty of Science\Computer Science 2023\Comp. Sci. 2023-24\Detail Syllabus BSc (CA & IT) Sem. 6.docm

Page 8

SARDAR PATEL UNIVERSITY
Vallabh Vidyanagar, Gujarat
(Reaccredited with 'A' Grade by NAAC (CGPA 3.11)
Syllabus with effect from the Academic Year 2023

Bachelor of Science (Computer Application & Information Technology)
B.Sc. (CA&IT) Semester VI

Course Code	**US06DIIT56**	Title of the Course	**Information Security**
Total Credits of the Course	4	Hours per Week	4

Course Objectives:	To understand the basics of 1. security services and security attack. 2. cryptography and its techniques. 3. different types of threats and how viruses can be detected and prepared. 4. working of Firewall and digital signature 5. concept of Antivirus Approaches like how to identify virus, how to detect virus and how to remove it. 6. factors driving the need for network security. 7. symmetric and asymmetric encryption systems and their vulnerability to attack.

Course Content		
Unit	Description	Weightage (%)
1.	**Introduction** − Attacks, services and mechanism − Security attacks − Security services − A model for network security	25
2.	**Cryptography** − Introduction − Conventional encryption principles − Basic terms : plaintext, cipher text, cryptography, cryptanalysis − Substitution ciphers vs. transposition ciphers − Types of attack on encrypted messages − Introduction to public key cryptography − Applications for public-key cryptosystems	25
3.	**System Security** − Intruders − Viruses and related threats : trap doors, logic bombs, trojan horses, viruses, worms, bacteria − The nature of viruses − Types of viruses − Antivirus approaches : detection, identification and removal	25
4.	**Devices Network Security and Digital Asset Protection** − Digital signatures − Firewalls : introduction, design principles, characteristics, types, configuration	25

D:\MUKESH F\SYLLABUS\Syllabus 2023\Faculty of Science\Computer Science 2023\Comp. Sci. 2023-24\Detail Syllabus BSc (CA & IT) Sem. 6.docm

Page 9

SARDAR PATEL UNIVERSITY
Vallabh Vidyanagar, Gujarat
(Reaccredited with 'A' Grade by NAAC (CGPA 3.11)
Syllabus with effect from the Academic Year 2023

	– An Introduction to Digital Rights Management Systems , Copy Protection Systems, Forensic Watermarking in Digital Rights Management , Person-Based and Domain-Based – Digital Rights Management	

Teaching-Learning Methodology	Blended learning approach incorporating both traditional classroom teaching as well as usage of ICT tools

Evaluation Pattern

Sr. No.	Details of the Evaluation	Weightage
1.	Internal Written / Practical Examination (As per CBCS R.6.8.3)	15%
2.	Internal Continuous Assessment in the form of Practical, Viva-voce, Quizzes, Seminars, Assignments, Attendance (As per CBCS R.6.8.3)	15%
3.	University Examination	70%

Course Outcomes: Having completed this course, the learner will be able to understand	
1.	Different types of security attacks.
2.	Security services.
3.	Cryptography and its techniques.
4.	Different types of threats and how viruses can be detected and prepared.
5.	Working of firewall.
6.	Fundamentals of digital signature.
7.	Approaches taken by antivirus software for detection, identification and removal.
8.	Factors driving the need for network security.

Suggested References:	
Sr. No.	References
1.	William Stallings: Network Security Essentials (Applications and Standards), Pearson Education India, 2001.
2.	Tanenbaum A. S., Computer Networks, Prentice-Hall of India Pvt. Ltd., New Delhi, 1997.
3.	Security, Privacy and Trust in Modern Data Management By Milan Petkovic, Willem Jonker, Springer, ISBN: 978-3-540-69860-9

D:\MUKESH F\SYLLABUS\Syllabus 2023\Faculty of Science\Computer Science 2023\Comp. Sci. 2023-24\Detail Syllabus BSc (CA & IT) Sem. 6.docm

Page 10

SARDAR PATEL UNIVERSITY
Vallabh Vidyanagar, Gujarat
(Reaccredited with 'A' Grade by NAAC (CGPA 3.11)
Syllabus with effect from the Academic Year 2023

*****

D:\MUKESH F\SYLLABUS\Syllabus 2023\Faculty of Science\Computer Science 2023\Comp. Sci. 2023-24\Detail Syllabus BSc (CA & IT) Sem. 6.docm

Page 11

SARDAR PATEL UNIVERSITY
Vallabh Vidyanagar, Gujarat
(Reaccredited with 'A' Grade by NAAC (CGPA 3.11)
Syllabus with effect from the Academic Year 2023

Bachelor of Science (Computer Application & Information Technology)
B.Sc. (CA&IT) Semester VI

Course Code	**US06DIIT57**	Title of the Course	**Simulation**
Total Credits of the Course	2	Hours per Week	2

Course Objectives:	To learn 1. Fundamentals of simulation. 2. Various system models 3. How to carry out system study. 4. Different models of system simulation.

Course Content		
Unit	Description	Weightage (%)
1.	**Introduction to simulation** – Introduction – Continuous and discrete system – System simulation – When to use simulation – Phase of simulation study – Advantages of simulation – Limitations of Simulation Technique – Areas of application	25
2.	**System Models** – Concept of a system – System Environment – System Modeling – Types of Models – Static Physical Model – Dynamic Physical Model – Static Mathematical Model – Dynamic Mathematical Model – Principles Used in Modeling	25
3.	**System Study** – Subsystems – A Corporate model – Environments Segment – Production Segment – Management Segment – The Full Corporate Model – System Analysis – System Design	25

D:\MUKESH F\SYLLABUS\Syllabus 2023\Faculty of Science\Computer Science 2023\Comp. Sci. 2023-24\Detail Syllabus BSc (CA & IT) Sem. 6.docm

Page 12

SARDAR PATEL UNIVERSITY
Vallabh Vidyanagar, Gujarat
(Reaccredited with 'A' Grade by NAAC (CGPA 3.11)
Syllabus with effect from the Academic Year 2023

	– System Postulation	
4.	**System Simulation** – The Technique of Simulation – Monte Carlo Method – Types of system Simulation – NCT for continues Model – NCT for discrete Model – Distributed Lag Models – Cobweb Models – Progress of system simulation	25

Teaching-Learning Methodology	Blended learning approach incorporating both traditional classroom teaching as well as usage of ICT tools

Evaluation Pattern		
Sr. No.	Details of the Evaluation	Weightage
1.	Internal Written / Practical Examination (As per CBCS R.6.8.3)	-
2.	Internal Continuous Assessment in the form of Practical, Viva-voce, Quizzes, Seminars, Assignments, Attendance (As per CBCS R.6.8.3)	-
3.	University Examination	100%

Course Outcomes: Having completed this course, the learner will be able to understand	
1.	Fundamentals of simulation.
2.	Various system models.
3.	How to carry out system study?
4.	Different models of system simulation.

Suggested References:	
Sr. No.	References
1.	D. S. Hira : System Simulation by S. Chand and Company Ltd.
2.	Geoffrey Gordon : System Simulation 2nd Edition by PHI

D:\MUKESH F\SYLLABUS\Syllabus 2023\Faculty of Science\Computer Science 2023\Comp. Sci. 2023-24\Detail Syllabus BSc (CA & IT) Sem. 6.docm

Page 13

SARDAR PATEL UNIVERSITY
Vallabh Vidyanagar, Gujarat
(Reaccredited with 'A' Grade by NAAC (CGPA 3.11)
Syllabus with effect from the Academic Year 2023

*****

D:\MUKESH F\SYLLABUS\Syllabus 2023\Faculty of Science\Computer Science 2023\Comp. Sci. 2023-24\Detail Syllabus BSc (CA & IT) Sem. 6.docm

Page 14

SARDAR PATEL UNIVERSITY
Vallabh Vidyanagar, Gujarat
(Reaccredited with 'A' Grade by NAAC (CGPA 3.11)
Syllabus with effect from the Academic Year 2023

Bachelor of Science (Computer Application & Information Technology)
B.Sc. (CA&IT) Semester VI

Course Code	US06DIIT58	Title of the Course	OOAD USING UML	
Total Credits of the Course	2	Hours per Week	2	
Course Objectives:	To understand the basics of 1. Software development complexity and the role of the object model. 2. Object-oriented analysis and design. 3. Object-oriented modeling and UML. 4. Various categories of models in UML.			

Course Content		
Unit	Description	Weightage (%)
1.	**Complexity** – The inherent complexity of software, The Structure of complex systems, Bringing order to chaos, on designing complex systems, Categories of analysis and Design methods. – The Object Model. – The evolution of object model, Elements of object model.	25
2.	**Classes and Objects** – The Nature of an Object, Relationship among objects, nature of a class, Relationship among classes. – Introduction to Modeling and UML – Importance of modeling, principles of modeling, object oriented modeling, overview of UML conceptual model of the UML, Architecture.	25
3.	**Basic Structural Modeling** – Common Mechanism: Terms and Concepts, Common modeling techniques. Diagrams, Class Diagrams. – Advanced Structural Modeling – Interfaces, Types and Roles, Packages, Object Diagrams.	25
4.	**Basic Behavioral Modeling** – Interaction, Interaction diagram, Use case, Use case diagram. – Advanced Behavioral Modeling – State Machines, State Diagrams. – Case Study – Any application can be discussed with help of an open tool. – Architectural Modeling	25

D:\MUKESH F\SYLLABUS\Syllabus 2023\Faculty of Science\Computer Science 2023\Comp. Sci. 2023-24\Detail Syllabus BSc (CA & IT) Sem. 6.docm

Page 15

SARDAR PATEL UNIVERSITY
Vallabh Vidyanagar, Gujarat
(Reaccredited with 'A' Grade by NAAC (CGPA 3.11)
Syllabus with effect from the Academic Year 2023

	Deployment, Deployment Diagram, Collaboration	

Teaching-Learning Methodology	Blended learning approach incorporating both traditional classroom teaching as well as usage of ICT tools

Evaluation Pattern

Sr. No.	Details of the Evaluation	Weightage
1.	Internal Written / Practical Examination (As per CBCS R.6.8.3)	-
2.	Internal Continuous Assessment in the form of Practical, Viva-voce, Quizzes, Seminars, Assignments, Attendance (As per CBCS R.6.8.3)	-
3.	University Examination	100%

Course Outcomes: Having completed this course, the learner will be able to understand
1.	Software development complexity and the role of the object model.
2.	Basic concepts of object-oriented analysis and design.
3.	Fundamentals of object-oriented modelling and UML.
4.	Various categories of models in UML.

Suggested References:

Sr. No.	References
1.	Grady Booch, Robert A. Makimchul, Michael W. Eagel Jim Conallen, Kelli A. Houston, Object Oriented Analysis and Design with Applications, 3rd Edition, Pearson Education Inc,2013.
2.	Grady Booch, James Rumbaugh, Ivar Jacobson, The Unified Modelling Language User Guide, 2nd Edition, Pearson Education Inc, 2013.
3.	Michael Blaha, James Rumbaugh, Object Oriented Modelling and Design with UML, 2nd Edition, Pearson, 2010.

*****

D:\MUKESH F\SYLLABUS\Syllabus 2023\Faculty of Science\Computer Science 2023\Comp. Sci. 2023-24\Detail Syllabus BSc (CA & IT) Sem. 6.docm

Page 16