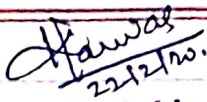
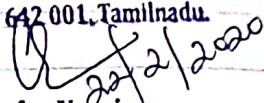
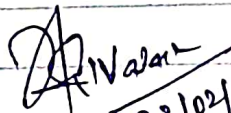
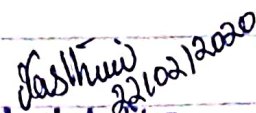
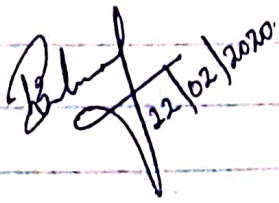
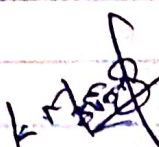


NALLAMUTHU GOUNDER MAHALINGAM COLLEGE (AUTONOMOUS)-POLLACHI

222	BCA	Relational Database Management System and Oracle	20UBC307	2020
223	BCA	Graphics Lab	20UBC312	2020
224	BCA	Web Technology	20UBC413	2020
225	BCA	ASP.Net Lab	20UBC416	2020
226	BCA	Mobile Phone Services	20UBC5S1	2020
227	BCA	Internet of Things	20UBC5S2	2020
228	BCA	Desktop Publishing Lab	20UBC5S3	2020
229	BCA	Networks	20UBC5E1	2020
230	BCA	Information Security	20UBC624	2020
231	B.Com	Financial Accounting	20UCO101	2020
232	B.Com	Principles of Management	20UCO102	2020
233	B.Com	Human Resource Management	20UCO410	2020
234	B.Com	Fundamentals of Marketing	20UCO4NA	2020
235	B.Com (CA)	Office Automation and Web Designing	20UCC102	2020
236	B.Com (CA)	Principles of Management	20UCC4A4	2020
237	B.Com (CA)	Business Law	20UCC412	2020
238	B.Com (CA)	Customer Relationship Management	20UCC3N1	2020
239	B.Com (CA)	Stock Market Operations	20UCC5E1	2020
240	B.Com (CA)	Practical Marketing	20UCC5S1	2020
241	B.Com (CA)	Auditing and Corporate Governance	20UCC621	2020
242	B.Com (CA)	Entrepreneurial Development	20UCC6E3	2020
243	B.Com (CA)	Commerce and Computer Application Practical	20UCC6S3	2020
244	B.Com (E-Commerce)	Principles of Accounting	20UEC101	2020
245	B.Com (E-Commerce)	Business Communication	20UEC204	2020
246	B.Com (E-Commerce)	Advanced Accounting	20UEC309	2020
247	B.Com (E-Commerce)	Financial Markets and Institutions	20UEC411	2020

BOS HIGHLIGHT



Sl. No	MEMBERS	SIGNATURE
1.	Dr. K. Haridas (CHAIRMAN) Head of the Department	 Chairman - Head of the Department Board of Studies UG Department of Computer Applications Nallamuthu Gounder Mahalingam College (Autonomous) Pollachi - 642 001, Tamilnadu.
2.	Dr. E. Chandra Professor & Head Department of Computer Science Bharathiar University, Coimbalore. (UNIVERSITY NOMINEE)	 University Nominee Board of Studies UG Department of Computer Applications Nallamuthu Gounder Mahalingam College (Autonomous) Pollachi - 642 001, Tamilnadu.
3.	Dr. S. Britto Rameshkumar Assistant Professor Department of Computer Science St. Joseph's College (Autonomous), Trichy. (SUBJECT EXPERT)	 Subject Expert Board of Studies UG Department of Computer Applications Nallamuthu Gounder Mahalingam College (Autonomous) Pollachi - 642 001, Tamilnadu.
4.	Mr. SIVARAM . A Technical Associate Cognizant Technology Solutions Coimbalore. (INDUSTRY EXPERT)	 Industry Expert Board of Studies UG Department of Computer Applications Nallamuthu Gounder Mahalingam College (Autonomous) Pollachi - 642 001, Tamilnadu.
5.	Dr. M. Kasthuri Asst. Professor in Computer Applications Bishop Heber College, Trichy. (ACADEMIC AUDITOR)	 Academic Auditor Board of Studies UG Department of Computer Applications Nallamuthu Gounder Mahalingam College (Autonomous) Pollachi - 642 001, Tamilnadu.
6.	Mr. Balamurugan. P P.G. Assistant B.V.M School Pollachi.	 22/02/2020
7.	Ms. K. MOUNA KEERTHANA Operations Executive Infosys Pvt Ltd, Chennai. (STUDENT ALUMINI)	 22/02/2020

MINUTES

The Board of Studies of the U.G. Department of Computer Applications met on 22.2.2020 at 10.30 A.m under the Chairmanship of Dr. K. Haridas, Head, U.G. Department of Comp. Applications. The board discussed on the proposed Scheme for U.G. Program for the students admitted in 2020-21 (I, II, III, IV, V, VI Semesters).

The board hereby resolves to approve the proposed scheme for the batch 2020-21.

- * A minimum of 2 Value Added courses will be offered by each dept for the benefit of the students. Each Course holds 2 Credits.
- * Advanced Learner Course will be offered to the students by each dept. The Courses are Optional & Self Study. Credits will be given for this Course. All the Programmes will include Project / Internship / Fieldwork in their curriculum in every academic year.
- * The Moderation for the End of Semester Exam will be given only for External marks.
- * The Chairman Meeting during the Valuation Period will be conducted before 30 min of the Valuation. The Valuation Panel members must include members who should have a min 10 years of experience. Experts may be included in the BoS as per UGC norms having 10 years of experience in the relevant field.
- * The Continuous Internal Assessment (CIA) components for the Academic Year 2021-21 are as follows:
External - 70 Marks Internal - 30 Marks.
- * To enroll all students in MOOC in any one of these portals SWAYAM, COURSERA and edX. A student should complete at least two courses during the program - during 3 1/2 years as the case may be.

- * Based on the Feedback of University Nominee, Fundamentals of Digital Computer is renamed as Digital Computer Fundamentals in Semester I.
- * RDBMS & Visual Programming both theory and Lab replaced as RDBMS because of the recommendation of Subject Expert in Semester III.
- * DTP Lab is replaced by Graphics Lab in Semester III.
- * Based on the recommendation of Industry Expert, Web Development is renamed as Web Technology which consists of 3 Units in ASP.NET & 2 Units in Php Programming in Semester IV.
- * Based on the recommendation of University Nominee, All the five phases should be included in S/W Engineering in Semester IV.
- * Based on the recommendation of Academic Auditor, Web Development Lab is replaced by Asp.NET Lab in Semester IV.
- * Based on the recommendation of Subject Expert, Script & HTML is renamed as Web Designing Lab and Open Source Software Lab is renamed as Photo Effects Lab in Semester IV and 2-D Animation Lab is renamed as Animation Lab.

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* Based on the Recommendation of University Nominee, In
SKILL BASED Elective,

* Software Analysis and Design is replaced by Mobile Service

* E-Commerce is replaced by IOT.

* Distributed Operating System is replaced by Desktop Publishing
Lab in Semester V.

* 30% of the Modification has been done in Networks based on
the Industry Expert's Feedback.

* Based on the feedback from Student Alumni, In
SKILL BASED Elective,

* Software Industry Domains is renamed as Corporate Systems

* Softskills is renamed as Personality Development Skills in
Semester VI.

* 30% of the Modification has been done in Information Security
based on the Industry Expert's Recommendation.

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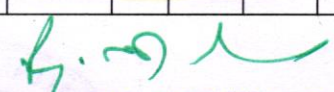
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U.G DEPARTMENT OF COMPUTER APPLICATIONS

**UNDER CBCS PATTERN GUIDED BY UNIVERSITY AND TANSCH
(FOR THOSE WHO ADMITTED FROM THE ACADEMIC YEAR 2020-2023 BATCH AND ONWARDS)**

Part	Subject Code	Subject	Ins.Hour s Per Week	Exam				Credit
				Hours	CIA	ESE	Total	
SEMESTER I								
I	20 UTL 101	TAMIL - I	6	3	30	70	100	3
	20 UHN 101	HINDI - I						
II	20 UEN 101	ENGLISH - I	6	3	30	70	100	3
III	20 UBC 101	CORE I: PROGRAMMING IN C	4	3	30	70	100	4
	20 UBC 102	CORE II: DIGITAL COMPUTER FUNDAMENTALS	4	3	30	70	100	4
	20 UBC 1A1	ALLIED I: MATHEMATICS I - COMPUTER ORIENTED NUMERICAL AND STATISTICAL METHODS	4	3	30	70	100	4
	20 UBC 103	LAB - I : PROGRAMMING IN C	4	3	20	30	50	2
IV	20 UHR 101	HUMAN RIGHTS	1	2	-	50	50	2
	20 HEC 101	HUMAN EXCELLENCE-PERSONAL VALUES & SKY YOGA PRACTICE-I	1	2	25	25	50	1
V	Extension Activity - List Attached - Annexure I		-					
TOTAL			30	-	195	455	650	23
SEMESTER II								
I	20 UTL 202	TAMIL - II	6	3	30	70	100	3
	20 UHN 202	HINDI - II						
II	20 UEN 202	ENGLISH - II	5	3	30	70	100	3
III	20 UBC 204	CORE III: OBJECT ORIENTED PROGRAMMING WITH 'C++'	4	3	30	70	100	4
	20 UBC 205	CORE IV: DATA STRUCTURES	4	3	30	70	100	4
	20 UBC 2A2	ALLIED II: MATHEMATICS II - MATHEMATICAL FOUNDATION OF COMPUTER APPLICATIONS	4	3	30	70	100	4
	20 UBC 206	LAB - II : PROGRAMMING IN C++	4	3	20	30	50	2
IV	20 EVS 201	ENVIRONMENTAL STUDIES	2	2	-	50	50	2
	20 HEC 202	HUMAN EXCELLENCE - FAMILY VALUES & SKY YOGA PRACTICE - II	1	2	25	25	50	1
V	Extension Activity - List Attached - Annexure I		-					
TOTAL			30	-	195	455	650	23
SEMESTER III								
	20 UBC 307	CORE V: RELATIONAL DATABASE MANAGEMENT SYSTEM AND ORACLE	5	3	30	70	100	4




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III	20 UBC 308	CORE VI: OPERATING SYSTEMS	5	3	30	70	100	4
	20 UBC 309	CORE VII: ORGANIZATIONAL BEHAVIOUR	4	3	30	70	100	3
	20 UBC 3A3	ALLIED III: ACCOUNTANCY FOR DECISION MAKING	5	3	30	70	100	4
	20 UBC 310	LAB - III : RELATIONAL DATABASE MANAGEMENT SYSTEM AND ORACLE	4	3	20	30	50	2
	20 UBC 311	LAB - IV: OPERATING SYSTEMS	4	3	20	30	50	2
	20 UBC 312	LAB - V: GRAPHICS	1	2	20	30	50	1
IV	20 HEC 303	HUMAN EXCELLENCE - PROFESSIONAL VALUES & SKY YOGA PRACTICE - III	1	2	25	25	50	1
	20 UBC 3N1 20 UBC 3N2	NON- MAJOR ELECTIVE I - WEB DESIGNING LAB NON- MAJOR ELECTIVE I -DESKTOP PUBLISHING LAB	1	2	-	50	50	2
V	Extension Activity - List Attached - Annexure I		-					
TOTAL			30	-	205	445	650	23
SEMESTER IV								
III	20 UBC 413	CORE VIII: WEB TECHNOLOGY	5	3	30	70	100	4
	20 UBC 414	CORE IX: COMPUTER SYSTEM ARCHITECTURE	5	3	30	70	100	4
	20 UBC 415	CORE X: SOFTWARE ENGINEERING	4	3	30	70	100	3
	20 UBC 4A4	ALLIED IV: MATHEMATICS III - COMPUTER BASED OPTIMIZATION TECHNIQUES	5	3	30	70	100	4
	20 UBC 416	LAB - VI: ASP.NET	4	3	20	30	50	2
	20 UBC 417	LAB - VII: PHP PROGRAMMING	4	3	20	30	50	2
	20 UBC 418	LAB - VIII: WEB DESIGNING	1	2	20	30	50	1
IV	20 HEC 404	HUMAN EXCELLENCE - SOCIAL VALUES & SKY YOGA PRACTICE - IV	1	2	25	25	50	1
	20 UBC 4N3 20 UBC 4N4	NON-MAJOR ELECTIVE II - PHOTO EFFECTS LAB NON MAJOR ELECTIVE II - ANIMATION LAB	1	2	-	50	50	2
V	Extension Activity - List Attached - Annexure I		-	-	-	50	50	1
TOTAL			30	-	205	495	700	24
SEMESTER V								
Part	Subject Code	Subject	Ins.Hours Per Week	Exam				Credit
				Hours	CIA	ESE	Total	
SEMESTER V								
III	20 UBC 519	CORE XI: JAVA PROGRAMMING	4	3	30	70	100	3
	20 UBC 520	CORE XII: SOFTWARE TESTING	4	3	30	70	100	3
	20 UBC 5E1 20 UBC 5E2	ELECTIVE I - NETWORKS.	5	3	30	70	100	5
	20 UBC 5E3 20 UBC 5E4	ELECTIVE II	5	3	30	70	100	5
	20 UBC 521	LAB -IX: JAVA PROGRAMMING	5	3	20	30	50	2
	20 UBC 522	LAB - X: SOFTWARE TESTING	5	3	20	30	50	2



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IV	20 HEC 505	HUMAN EXCELLENCE - NATIONAL VALUES & SKY YOGA PRACTICE - V	1	2	25	25	50	1
	20 GKL 501	GENERAL KNOWLEDGE AND GENERAL AWARENESS	SS	2	-	50	50	2
	20 UBC 5S1 20 UBC 5S2 20 UBC 5S3	SKILL BASED MAJOR ELECTIVE I : MOBILE PHONE SERVICES INTERNET OF THINGS DESKTOP PUBLISHING LAB	1	2	-	50	50	2
TOTAL			30	-	185	465	650	25
SEMESTER VI								
III	20 UBC 623	CORE XIII: PYTHON PROGRAMMING	5	3	30	70	100	4
	20 UBC 624	CORE XIV: INFORMATION SECURITY	4	3	30	70	100	3
	20 UBC 625	CORE XV: MOBILE APPLICATION DEVELOPMENT	4	3	30	70	100	3
	20 UBC 6E5 20 UBC 6E6	ELECTIVE-III	5	3	30	70	100	5
	20 UBC 626	LAB -XI: PYTHON PROGRAMMING	5	3	20	30	50	2
	20 UBC 627	LAB - XII: MOBILE APPLICATION DEVELOPMENT	5	3	20	30	50	2
IV	20 HEC 606	HUMAN EXCELLENCE - GLOBAL VALUES & SKY YOGA PRACTICE - VI	1	2	25	25	50	1
	20 UBC 6S4 20 UBC 6S5 20 UBC 6S6	SKILL BASED MAJOR ELECTIVE II : CORPORATE SYSTEMS MULTIMEDIA AND ANIMATION PERSONALITY DEVELOPMENT SKILLS	1	2	-	50	50	2
	TOTAL			30	-	185	415	600
TOTAL			180	-	1170	2730	3900	140

ADD-ON COURSE: Mini Project	-		-	20	80	100	2
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*Note: List of Part - V subjects attached

LIST OF MAJOR ELECTIVE PAPERS

ELECTIVE -I	20 UBC 5E1 - NETWORKS
	20 UBC 5E2 - GRID COMPUTING
ELECTIVE -II	20 UBC 5E3 - STORAGE MANAGEMENT
	20 UBC 5E4 - CURRENT TRENDS AND TECHNOLOGIES
ELECTIVE - III	20 UBC 6E5 - DATA MINING AND WAREHOUSING
	20 UBC 6E6 - CLOUD COMPUTING



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Programme Code:	BCA	Programme Title:	Bachelor of Computer Applications	
Course Code:	20 UBC 307	Title	Batch:	2020-2023
Hrs/Week:	5	RELATIONAL DATABASE MANAGEMENT SYSTEM AND ORACLE	Semester	III
			Credits	04

Course Objective

To present an introduction to database management systems, with an emphasis on how to organize, maintain and retrieve - efficiently, and effectively - information from a DBMS to improve the programming skill through ORACLE to solve practical problems in variety of disciplines.

Course Outcomes (CO)

K1	CO1	To remember the data base system for the decision-support level of organizations
K2	CO2	To understand and carefully apply the system concepts using ORACLE techniques
K3	CO3	To implement and evaluate a computer-based system, process, component or program to meet desired needs
K4	CO4	To estimate students how to retrieve, display and format data from any data source in numerous reporting styles and publish the output to any destination for different applications.

Units	Content	Hrs
Unit I	Introduction - Database System - Applications - Database System Vs File Systems - View of Data- Data Models - Database Language - Database Users And Administrators - Transactions Management - Database System Structure - Application Architecture, - Entity-Relationship Model - Basic Concepts - Constraints Keys - Design Issues - ER Diagram - Weak Entity Sets - Extended ER Features - Design of ER Database Scheme - Reduction of ER Scheme to Tables	13
Unit II	Relationship Model - Structure of Relational Database - The Relational Algebra - Extended Relational Algebra Operation - Modification of Database - Views - The Tuple Relational Calculus - The Domain Relational Calculus.	13

	Integrity and Security – Domain Constraints – Referential Integrity – Assertion – Triggers – <i>Security and Authentication</i> – Authorisation in SQL – Encryption and Authentication.	
Unit III	Relational Database Design – First Normal Form – Pitfalls in Relational Database Design – Functional Dependencies – Decomposition – Desirable Properties of Decomposition – BCNF (Boyce Code Normal Form) – Third Normal Form – Fourth Normal Form – <i>More Normal Form</i> .	13
Unit IV	ORACLE: Introduction – CODD's Rule – Tools of ORACLE – Introduction to SQL – <i>Benefits of SQL</i> – Data Types – DDL – DML – DCL – TCL – Data Constraints. ORACLE SQL Functions – Single Row Functions: Date, Number, Miscellaneous, Conversions, Character Functions – Group Functions – SQL Operators: Arithmetic, Comparison and Logical Operators – Set Operators – Joins – Sub Queries – Views.	13
Unit V	PL/SQL : Introduction – Advantages of PL/SQL – Architecture of PL/SQL – Introduction to PL/SQL Block – Data Types – Control Structures – <i>Concepts of Error Handling</i> – Cursor – Procedure – Functions – Triggers – Types of Triggers. SQL * Forms – Basic Concepts – Components of ORACLE FORM – SQL * - Forms System Variables – Creating a Form – Generating and Running a Form – Reports.	13
Total Contact Hrs		65

The topics given in **Italics** are noted as Self-Study topics.

Seminar, Assignment, Case Study

Books for Study

1. Silberschatz, Korth, Sudarshan, "Database System Concept", 5th Edition, McGraw – Hill International Edition (Unit I,II & III)
2. Ivan Bayross – "ORACLE – 7 The Complete Reference", BPB Publications. (Unit IV & V)

Books for Reference

1. Bipin C.Desai – "An Introduction to Database System" – Asian Student Edition – Galgotia Publications.
2. C.J.Date – "An Introduction to Database System" – Seventh Edition, Pearson Education.

Mapping

PSO CO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	H	H	M	H	H
CO2	H	H	H	H	H
CO3	H	H	M	H	M
CO4	H	M	H	H	H

H-High; M-Medium; L-Low

Course Designed by	Verified by HOD	Checked by	Approved by
Name and Signature	Name and Signature	CDC	COE
Name: S. Dilip Kumar Signature: S. Dilip Kumar	Name: Dr.K.HARIDAS Signature: Dr.K.HARIDAS	Name: Mr.K.SRINIVASAN Signature: Mr.K.SRINIVASAN	Name: Dr.R.MUTHUKUMARAN Signature: Dr.R.MUTHUKUMARAN

K. SRINIVASAN, M.C.A.,
Co-ordinator
Curriculum Development Cell (CDC)
NGM College (Autonomous)
Pollachi - 642 001.

Dr. R.MUTHUKUMARAN
Controller of Examinations
NGM College (Autonomous)
POLLACHI - 642 001.

Programme Code:	BCA	Programme Title:	Bachelor of Computer Applications	
Course Code:	20 UBC 312	Title	Batch:	2020-2023
Hrs/Week:	1	LAB -V: GRAPHICS	Semester	III
			Credits	01

Course Objective

To understand the need of developing graphics application and to learn multimedia animation tools such as Photoshop, Flash and Graphics in C programming.

Course Outcomes (CO)

K3	CO1	To remember the Graphics Programming concepts
K4	CO2	To understand the basic concept and Develop design drawings that demonstrate computer graphics and design skills
K5	CO3	To create interactive graphics applications using one or more graphics application programming interfaces.

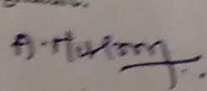
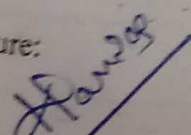
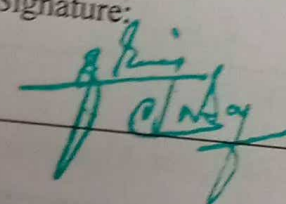
GRAPHICS USING C

1. Digital Differential Analyzer Algorithm
2. Bresenham's Line Drawing Algorithm
3. Midpoint Circle Generation Algorithm
4. Ellipse Generation Algorithm
5. Creating various types of texts and fonts
6. Creating two dimensional objects
7. Two Dimensional Transformations
8. Scaling
9. Rotation
10. Reflection along x-axis:

Mapping

CO \ PSO	PSO1	PSO2	PSO3	PSO4
CO1	M	L	M	
CO2	H	H	L	H
CO3	H	H	H	H
				M

H-High; M-Medium; L-Low

Course Designed by	Verified by HOD	Checked by	Approved by
Name and Signature	Name and Signature	CDC	
Name: A. MURUGANANDHAN	Name: Dr. K. HARIDAS	Name: Mr. K. SRINIVASAN	Name: Dr. R. MUTHU
Signature: 	Signature: 	Signature: 	Signature:

K. SRINIVASAN, M.C.A.
Co-ordinator
Curriculum Development Cell (CDC)
NGM College (Autonomous)
Pollachi - 642 001.

Dr. R. MUTHU
Controller
NGM College
POLLACHI

Programme Code:	BCA	Programme Title:	Bachelor of Computer Applications	
Course Code:	20 UBC 413	Title	Batch:	2020-2023
Hrs/Week:	5	WEB TECHNOLOGY	Semester	IV
			Credits	04

Course Objective

To gain knowledge about the methodologies behind ASP.Net and helps the students to develop Dot Net based application using ADO.NET and SQL.

Course Outcomes (CO)

K1	CO1	To collect the basic structure of .net and main features of IDE.
K2	CO2	To understand the .net framework and describe some of the major enhancement to the new version of visual studio.
K3	CO3	To apply a web development platform, this provides software infrastructure and build up robust web applications for PC, as well as mobile devices.
K4	CO4	To analyze the applications using Microsoft windows forms and ADO .Net.

Units	Content	Hrs
Unit I	Overview of .NET – Advantages of .NET over the other languages, overview of .NET binaries, Intermediate Language, metadata, .NET Namespaces, Common Language runtime, common type system, common Language Specification Introducing ASP .NET – ASP.NET namespaces - Creating and deploying ASP .NET applications – Web forms – Basic Web controls – working with events – Rich web controls: AdRotator Control, Calendar Control – Custom web controls – Validation controls	13
Unit II	Web Development and ASP.NET- Web applications and Web servers, HTML form Development, Client side Scripting, GET and POST, ASP.NET application, Caching in	13

	ASP .NET – ASP .NET security – Localizing ASP .NET applications.
Unit III	Introduction to ADO.NET- ADO Vs ADO.NET - Building Data Table, Data View, Data Set, Data Relations, ADO.NET managed Providers, OleDb Managed Provider – OleDb Data Adapter Type.
Unit IV	Server Side Scripting: Difference between Client side and Server side scripting languages. Introduction to PHP – variables - Control statements – Loops – Operator and Expression - Arrays - String handling - PHP forms, Functions in PHP, Regular expression and pattern matching.
Unit V	Database programming: PHP with Mysql - Tables to Display Data - Insertion , deletion and updating data – XML - State management in web applications – Cookies - Application and session state – Securing PHP. Case Study: User authentication and management.
	Total Contact Hrs

- The topics given in **Italics** are noted as Self-Study topics.

Seminar, Assignment, Case Study

Books for Study

1. Vikram Vaswani, "PHP: a Beginner's Guide", McGraw Hill Professional, 1st Edition

Books for Reference

1. Mridula Parihar, et. al., ASP .NET Bible, Wiley Dreamtech India Pvt. Ltd., 2002
2. Mark Birbeck, stev Livingstone, Stephen F. Mohr , Jonathan Pinnock , Steven Livingstone, Professional XML, 2nd Edition, Wrox Publications, 2000
3. Alex Homer et. al., Professional ASP .NET 1.1, Wiley Dreamtech India Pvt. Ltd., 2004

Programme Code:	BCA	Programme Title:	Bachelor of Computer Applications	
Course Code:	20 UBC 416	Title	Batch:	2020-2023
Hrs/Week:	4	LAB- VI:ASP.Net	Semester	IV
			Credits	02

Course Objective

To introduce to .Net IDE Component Framework and learn Programming concepts in .Net Framework and create website using ASP.Net Controls.

Course Outcomes (CO)

K3	CO1	Create user interactive web pages using ASP.Net.
K4	CO2	Create simple data binding applications using ADO.Net connectivity.
K5	CO3	Performing Database operations for Windows Form and web applications.

1. Create a windows form with the following controls Textbox, Radio button, Check box, Command Button
2. Write a program for Menu option.
3. Create a program to connect with database and manipulate the records in the database using ADO .NET
4. Create a program to implement the concepts of OOPS for creating class with inheritance.
5. Create a program to perform input validation using procedure.
6. Write a program to open a file and using I/O operations write contents into a file and read the contents from the file.
7. Create a window form using HTML controls.
8. Create a program to perform validation using validation controls.
9. Create a program in ASP .NET to connect with the database using ADODB connectivity and manipulate the records.

Programme Code:	BCA	Programme Title:	Bachelor of Computer Applications	
Course Code:	20 UBC 5S1	Title	Batch:	2020-2023
Hrs/Week:	1	MOBILE PHONE SERVICES	Semester	V
			Credits	02

Course Objective

To learn and repair Mobile phones as a self-employment occupation to start a mobile phone repair services concern and Entrepreneur.

Course Outcomes (CO)

K1	CO1	To understand the use and features of Mobile Technology and Devices.
K2	CO2	To analyze various hardware of Mobile phones and its usages.
K3	CO3	To keep in mind the precautionary measure when servicing the mobile devices.
K4	CO4	To get the idea to apply a Software problems like device bricks, rooting issues etc.

Units	Content	Hrs
Unit I	Basics of mobile communication - Scope and Opportunities for Mobile Repairing business - Identify business opportunities - Types of Mobile Phones and Technologies - Latest Trends.	3
Unit II	Mobile phone parts - Motherboard - Integrated Circuit - BGA and SMD chips - Screen - Microphone - Sensors - Cables.	2
Unit III	Mobile repair Equipments - Handling - DC Power Supply - Multimeter - soldering iron - Battery Booster - PCB Holder - Microscope.	2
Unit IV	Hardware Repair - Repairing procedure - Cleaning - Assembling & disassembling - Change of different ICs - Soldering & DE soldering procedures.	3
Unit V	Software Repair - Flashing - Driver Software - Mobile Software - Software Installation methods - Fault finding & Troubleshooting - Mobile Bricking - Antivirus Installation.	3
	Total Contact Hrs	13

The topics given in **Italics** are noted as Self-Study topics.

Seminar, Assignment, Case Study

Books for Study

1. Sanjib Pandit "Advance Mobile Repairing: Multicolour Circuits, Service Diagrams & BPB Publications, 2010.

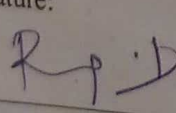
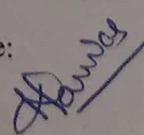
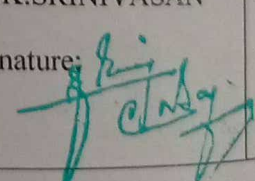
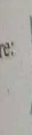
Books for Reference

1. Mobile Repairing Jumper Book All In One, GT Publications, 2016.

Mapping

CO \ PSO	PSO1	PSO2	PSO3	PSO4
CO1	H	H	H	M
CO2	H	M	H	M
CO3	H	M	H	M
CO4	H	H	M	M

H-High; M-Medium; L-Low

Course Designed by	Verified by HOD	Checked by	Approved
Name and Signature	Name and Signature	CDC	CDC
Name: D. POOBATHY	Name: Dr.K.HARIDAS	Name: Mr.K.SRINIVASAN	Name: Dr.R.MUTHU
Signature: 	Signature: 	Signature: 	Signature: 

K. SRINIVASAN, M.C.A.,
Co-ordinator
Curriculum Development Cell (CDC)
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Dr. R. MUTHU
Controller of
NGM College
Pollachi

Programme Code:	BCA	Programme Title:	Bachelor of Computer Applications	
Course Code:	20 UBC 5S2	Title	Batch:	2020-2023
Hrs/Week:	1	INTERNET OF THINGS	Semester	V
			Credits	02

Course Objective

On successful completion of students will understand the fundamentals of Internet of Things, IoT Protocols, built a small low cost embedded system using Raspberry Pi and to apply the concept of Internet of Things in the real world scenario.

Course Outcomes (CO)

K1	CO1	To remember web services to access/control IoT devices
K2	CO2	To understand the portable IoT using Raspberry Pi
K3	CO3	To deploy use of IoT application and connect to the cloud
K4	CO4	To analyze various protocols for IoT

Units	Content	Hrs
Unit I	Introduction to IoT: Internet of Things – Physical Design – Logical Design – <i>IoT Enabling Technologies</i> – IoT Levels & Deployment Templates – Domain Specific IoTs.	3
Unit II	IoT Architecture: <i>M2M high-level ETSI Architecture</i> – IETF Architecture for IoT. IoT Platform Design Methodology :Introduction-Design Methodology-IoT System Management.	3
Unit III	IoT Reference model – Domain model -information model - functional model –communication model - IoT Reference Architecture- <i>IoT Protocols</i> .	3
Unit IV	Building IoT with RASPBERRY Pi : IoT Systems – Logical Design using Python – IoT Physical Devices and Endpoints – IoT Device – Building blocks – Raspberry Pi – <i>Programming Raspberry Pi with Python</i> .	2
Unit V	Case studies: IoT Design-Home Automation, Cities, Environment, Agriculture, <i>Productivity Applications</i> .	2
	Total Contact Hrs	13

The topics given in *Italics* are noted as Self-Study topics.

Seminar, Assignment, Case Study

Books for Study

1. Arshdeep Bahga , Vijay Madisetti , "Internet of Things –A hands –on Approach", Universal Press 2015.

Books for Reference

1. Dieter Uckelmann , Mark Harrison, Michahelles, Florian(Eds), "Architecting the Internet of Things", Springer, 2011.
2. Honbo Zhou , "The Internet of Things in the cloud: A Middleware Perspective", CRC Press, 2012.
3. Jan Holler, Vlasios Tsiatsis, Catherine Mulligan, Stamatis, Karnouskos Stefan Avesand, David Boyle , "From Machine – to- Machine to the Internet of Things – Introduction to the Age of Intelligence", Elsevier 2014.
4. Olivier Hersent, David Boswarthick, Omar Elloumi – "The Internet of things – Key applications and Protocols", Wiley 2012.

Mapping

PSO	PSO1	PSO2	PSO3	PSO4	PSO5
CO					
CO1	H	H	M	H	
CO2	H	M	M	H	
CO3	M	H	H	H	
CO4	M	H	H	M	

H-High; M-Medium; L-Low

Course Designed by	Verified by HOD	Checked by	Approved by
Name and Signature	Name and Signature	CDC	COE
Name: <i>S. Deep Kumar</i>	Name: Dr.K.HARIDAS	Name: Mr.K.SRINIVASAN	Name: Dr.R.MUTHUKUMAR
Signature: <i>S. Deep Kumar</i>	Signature: <i>Haridas</i>	Signature: <i>K. Srinivasan</i>	Signature: <i>R. Muthukumar</i>

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Dr. R. MUTHUKUMAR
Control
NGM
P.

Programme Code:	BCA	Programme Title:	Bachelor of Computer Applications	
Course Code:	20 UBC 5S3	Title	Batch:	2020-2023
Hrs/Week:	1	DESKTOP PUBLISHING LAB	Semester	V
			Credits	02

Course Objective

To provide a deep knowledge in various image processing effects.

Course Outcomes (CO)

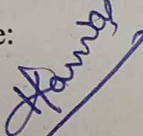
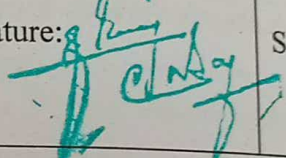
K3	CO1	To remember the basic technical tools.
K4	CO2	To get the idea for handling tools and applying various effects.
K5	CO3	To access various formats in this platform for editing.

1. Design the Wedding Invitation using the associated tools in Photoshop.
2. Apply special art effects for the image using various options from the Filter Gallery.
3. Design the Banner.
4. Implement the Usage of different modes in a Single Image.
5. Design the College Profile.
6. Work with different images to implement Sharpen tool and Smudge Tool
7. Design the Calendar.
8. Edit the image using Blur tool.
9. Design the Visiting Card.
- 10 Edit the image using Burn and Sponge tool.
11. Edit the image using Clone tool.

Mapping

CO \ PSO	PSO1	PSO2	PSO3	PSO4	PSO5
CO		H	H	H	
CO1	M				H
CO2	M	M	H	H	H
CO3	H	H	H	M	H

H-High; M-Medium; L-Low

Course Designed by	Verified by HOD	Checked by	Approved by
Name and Signature	Name and Signature	CDC	COE
Name: <i>Dr. R. Malathi Ravindran.</i> Signature: <i>R. Malathi N.</i>	Name: Dr.K.HARIDAS Signature: 	Name: Mr.K.SRINIVASAN Signature: 	Name: Dr.R.MUTHUKUMAR Signature: 

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Dr. R. MUTHUKUMAR
 Controller of Examinations
 NGM College (Autonomous)
 POLLACHI - 642 001.

Programme Code:	BCA	Programme Title:	Bachelor of Computer Applications	
Course Code:	20 UBC 624	Title	Batch:	2020-2023
Hrs/Week:	4	INFORMATION SECURITY	Semester	VI
			Credits	3

Course Objective

To select appropriate techniques to tackle and solve problems in the discipline of information security management. To know why security and its management are important for any modern organization.

Course Outcomes (CO)

K1	CO1	To recollect the familiarity with prevalent network and distributed system attacks, defenses against them, and forensics to investigate the aftermath.
K2	CO2	To understand the information assurance as practiced in computer operating systems, distributed systems, networks and representative applications
K3	CO3	To implement the basic understanding of cryptography, how it has evolved, and some key encryption techniques used today
K4	CO4	To analyze the security policies (such as authentication, integrity and confidentiality), as well as protocols to implement such policies in the form of message exchanges.

Units	Content	Hrs
Unit I	Introduction to Computer Security: Basic Concepts – Security Trends – OSI Security Architecture – Security Attacks – Security Services – Security Mechanisms – Threat models – Common Security Goals – Memory protection – Block Ciphers, Stream Ciphers – Security Evaluation.	11
Unit II	Cryptography: Cryptographic Protocols – Encryption – Message Authentication Code – DES – Hash Functions – Symmetric Key Algorithms: DES, AES – Public key	10

	Algorithms: RSA, DES = Secure channels.	
Unit III	Network Security: Intruders = Intrusion Detection = Password Management = <i>Malevolent Software</i> = Viruses and Related Threats = Countermeasures = Distributed Denial of Service Attacks = Firewalls = Design Principles = Trusted Systems.	16
Unit IV	Software Security: Secure software engineering = Hackers, Crackers, and Attackers = Security Failures = Technical Trends affecting Software Security = Defensive programming and its Techniques = Buffer overruns and other implementation flaws.	16
Unit V	Cyber security: Classification of Cybercrimes = Case Studies: Privacy = Mobile code = Security and the Law = The legal perspective = Indian perspective, Global perspective = Cyber Stalking and Obscenity in Internet = <i>Electronic Voting</i> .	11
	Total Contact Hrs	52

- The topics given in **Italics** are noted as Self-Study topics.

Seminar, Assignment, Case Study

Books for Study

1. William Stallings, "Cryptography and Network Security", 4th Edition, Prentice Hall, 2008 (Unit 1, 2 & 3).
2. Bruce Schneier, "Applied Cryptography – Protocols, Algorithms and Source code in C", 2nd Edition, Wiley India Pvt Ltd (Unit 2).
3. Debby Russell and Sr. G.T. Gangemi, "Computer Security Basics (Paperback)", 2nd Edition, O'Reilly Media, 2006 (Unit 4).
4. Nina Godbole, Sunit Belapure, "Cyber Security – Understanding Cyber Crimes, Computer Forensics and Legal Perspectives", Wiley India Pvt Ltd (Unit 5).

Books for Reference