SOURASHTRA COLLEGE, MADURAI– 625004

(An Autonomous Institution Re-accredited with 'B' grade by NAAC)

BACHELOR OF COMPUTER APPLICATIONS (B.C.A)

(Syllabus under CBCS w.e.f. 2017 – 2018 onwards)

III SEMESTER(2016-17 Batch Only)

Sl. No.	Sub. Code	Nature	Subject Title	Hrs/ Week	Exam Hrs	CA	SE	Tot	Crd
1	14UACT31/ H31/S31	Part-I	TAMIL/ HINDI/ SANSKRIT	6	3	25	75	100	3
2	14UACE31	Part-II	ENGLISH	6	3	25	75	100	3

III SEMESTER(2017-18 onwards)

Sl. No.	Sub. Code	Nature	Subject Title	Hrs/ Week	Exam Hrs	CA	SE	Tot	Crd
1	17UACT31/ H31/S31	Part-I	TAMIL/ HINDI/ SANSKRIT	6	3	25	75	100	3
2	17UACE31	Part-II	ENGLISH	6	3	25	75	100	3

III SEMESTER(2016-17 batch and 2017-18 onwards)

Sl. No.	Sub. Code	Nature	Subject Title	Hrs/ Week	Exam Hrs	CA	SE	Tot	Crd
3	16UCAC31/ 17UCAC31	Part-III Core	Introduction to Object Oriented Programming with C++	4	3	25	75	100	4
4	16UCACP3/ 17UCACP3	Part-III Core	Lab 3 : Object Oriented Programming with C++	5	3	40	60	100	3
5	16UCAA31/ 17UCAA31	Part-III Allied	Computer Based Financial Accounting	4	3	25	75	100	4
6	16UCASP1/ 17 UCASP1	Part-IV SBS	Lab 4 : DBMS Lab	3	3	40	60	100	3
7	16UCAN31/ 17UCAN31	Part-IV NME	Introduction to Information Technology	2	3	25	75	100	2
			TOTAL	30					22

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BACHELOR OF COMPUTER APPLICATIONS (B.C.A)

(Syllabus under CBCS w.e.f. 2017 – 2018 onwards & 2016-17 Batch)

PART - III CORE	**Title : INTRODUCTION TO OBJECT ORIENTED PROGRAMMING WITH C++**	**Subject Code : 17 UCAC31/ 16 UCAC31**
Semester : III	**HOURS : 4 hours / Week**	**CREDITS : 4**

Objectives :

To understand the basic concepts of OOPS and to implement various functions.

UNIT-I: Software crisis – Software evolution – Basic concepts of object oriented programming- Benefits of OOP – Object oriented languages – Application of C++ - More C++ statements – Structure of C++ program- Creating the source file- Compiling and linking – Tokens –Keywords- Identifiers- Basic data types –User defined data types- Derived data types –symbolic constants – Type compatibility-Declaration of variables- Dynamic initialization of variables-Reference variables- operators in C++ - Manipulator- type cast operator- Expressions and implicit Conversions - Operator overloading – Control Structures – The main function- Function prototyping – Inline function- Function Overloading – Friends and Virtual functions.

UNIT-II: Specifying a class - Defining a member functions – marking an outside function Inline – Nesting of Member functions- Private member functions- Arrays within a class- Memory allocation for object - Static data members- static member function - arrays of objects- Objects as function arguments - Friendly functions–returning objects - const. member functions - pointers to members –
Constructors- Parameterized constructor multiple constructors in a class- Constructors with default arguments – dynamic initialization of objects- Copy constructor – Constructing two dimensional arrays – destructors.

UNIT-III: Defining operator overloading- Overloading unary operators – Overloading binary operators – Overloading binary operators using friends – Multiplication of Strings using operators – Rules for overloading operators – Types of conversion – Defining derived classes- Single Inheritance – Making private member inheritable – Multilevel inheritance – Multiple inheritance- Hierarchical inheritance- Hybrid inheritance – Virtual base classes- Constructors in derived classes- member classes- member classes: nesting of classes.

UNIT-IV: Pointer to objects this pointer- pointers to derived classes- virtual functions- Pure Virtual functions- C++ stream classes - Unformatted I/O Operation- Managing output with manipulators.

UNIT-V: Classes for file stream operations- Opening and closing a file – Detecting end of File- more about open() – File modes file pointers and their manipulation – sequential input and output operations- Command line arguments. Templates: Class templates- Function templates – Member function templates – Exception Handling – Syntax of Exception handling code

TEXT BOOK(S):

Object oriented programming with C++ - ByE. Balagurusamy, Tata McGraw Hill Publishing Company Ltd 6th edition.

CHAPTERS and SECTIONS (For UNIT-I, II, III,IV and V)Unit I – Chap 1 to 4 Unit II – Chap 5 & 6 Unit III – Chap 7 & 8 Unit IV – Chap 9,10 Unit V – Chap 11 to 13

Passed in the BOS Meeting held on 15-3-2017

Signature of Chairman / HOD

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BACHELOR OF COMPUTER APPLICATIONS (B.C.A)

(Syllabus under CBCS w.e.f. 2017 – 2018 onwards & 2016-17 Batch)

PART - III CORE	**Title : Lab 3 : OBJECT ORIENTED PROGRAMMING WITH C++**	**Subject Code : 17UCACP3/ 16UCACP3**
Semester : III	**HOURS : 5 hours / Week**	**CREDITS : 3**

Objectives :

To learn and practice the students to know the basic concepts of oops through C++ lang.

Lab Cycle

1. To perform Area calculation using Function overloading (min three functions).
2. To perform string manipulation using function overloading.
3. To demonstrate the concept of friend function.
4. To swap two values between two class objects using friend function.
5. To find minimum of two numbers between two class objects using friend function.
6. To overload unary minus operator which changes sign of given vector (3 elements).
7. To overload Binary + operator which adds two complex numbers.
8. Implementation of mathematical operations on strings { Overload two operators + and <=}
9. To demonstrate single inheritance of a public data member and a private data member
10. To process students mark list using multiple inheritance.
11. To process employee details using hierarchial inheritance.
12. To process inventory details using multilevel inheritance.
13. To process family details using hybrid inheritance
14. To illustrate the use of Virtual base class
15. To process electricity billing using binary file
16. To process mark listing using binary file
17. To implement Searching concept using C++
18. To implement Sorting concept using C++
19. To handle exceptions
20. To illustrate use of class templates
21. To illustrate use of function templates.

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BACHELOR OF COMPUTER APPLICATIONS (B.C.A)

(Syllabus under CBCS w.e.f. 2017 – 2018 onwards & 2016-17 Batch)

PART - III ALLIED	**Title : COMPUTER BASED FINANCIAL ACCOUNTING**	**Subject Code : 17UCAA31/ 16UCAA31**
Semester : III	**HOURS : 4 hours / Week**	**CREDITS : 4**

Objectives :

To learn the basic concept of accounting and concept of tally package.

UNIT-I:

Accounting –Principles, Convention-Journal-ledger- Trial Balance.

UNIT-II:

Preparation of Subsidiary books : sales book - purchase book - purchase return book – sales return book – bills receivable book – bills payable book – cash book.

UNIT-III:

Preparation of Trading, Profit and Loss Accounts, Balance Sheet of Individual only.

UNIT-IV:

Accounting ratios: return on investment - Net profit ratio - gross profit ratio – expense ratio - operating profit ratio – proprietary ratio - debt equity ratio – fixed assets ratio – current ratio – liquidity ratio.

UNIT-V:

Financial Accounting Package (Tally 6.3): Accounts masters-Vouchers entry – Reports printing – Tally Review (features)

TEXT BOOK(S):

1. Advanced Accountancy: R.L. Gupta &RadhaSwamy-Sulthanchand Pub. 2004 (Unit 1 to 3)
2. Management Accounting by Dr.Peer Mohamed, Dr. Shazuli Ibrahim, Pass Pub. (Unit 4)
3. "Implementing Tally 9" Comprehensive guide for Tally 9 & 8.1 by Nadhani

Allotment of marks for External Examination

Note : Theory 50%

Problems 50%

CHAPTERS and SECTIONS (For UNIT-I, II, III,IV and V)

Unit I & II (Text Book 1) : Page 1.2.1 to 1.2.16 , 1.6.1 to 1.6.34 ; Unit III (Text Book 1)Page 1.7.1 to 1.7.39; Unit – IV (Text Book 2) Page 3.01 to 3.23 ; Unit-V (Text Book 3) – Page 2-4.1 to 2-4.82. and 2-5.1 to 2-5.11 and 2-15.1 to 2-15.2

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PART - IV SBS	**Title : Lab 4 : DBMS LAB**	**Subject Code : 17UCASP1/ 16UCASP1**
Semester : III	**HOURS : 3 hours / Week**	**CREDITS : 3**

Objectives :

To enable the student to handle data thru database application like oracle and sql queries. Know about data definition and data manipulation and structured query language

DBMS LAB CYCLE

1.Data definition language programs.

2.Data manipulation language programs.

3.Data manipulation with arithmetic operations.

4.Data manipulation with logical operation.

5.Data manipulation with conditional or comparison operations

6.Data manipulation with Aggregate functions of number functions.

7.Data manipulation with group by operations.

8.Data manipulation with set operations.

9.Data manipulation with sub-queries operations.

10.Data manipulation with join query for two or more table.

11.Data manipulation with mathematical functions.

12.Data manipulation with character functions.

13.Data manipulation with date functions.

14.Data manipulation with special operations.

15.Data manipulation with STRING OPERATORS

16.PL/SQL program for calculating Area of circle.

17.PL/SQL program for generate Even Number.

18.PL/SQL program for generate Prime Number.

19.PL/SQL program for checking an Adam Number.

20.PL/SQL program for checking an Number palindrome or Not.

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PART - IV NME	**Title : INTRODUCTION TO INFORMATION TECHNOLOGY**	**Subject Code : 17UCAN31/ 16UCAN31**
Semester : III	**HOURS : 2 hours / Week**	**CREDITS : 2**

Objectives :

To introduce I.T in various platform – knowledge about input and output devices – application program – operating system and internet .

UNIT-I:

Introduction : Information systems – software and data – IT in Business and Industry – IT in the Home and at Play – IT in Education and Training – IT in Entertainment and the Arts – IT in Science , Engineering and Mathematics – Computers in Hiding.

UNIT-II:

The Computer system and Central Processing Unit : Types of Computers – Corporate and Department computers – Desktop and Personal computers – The Anatomy of computer – The Foundation of Modern Information Technology ; Binary numbers, Digital signals, Bits and Bytes – Central Processing unit – Memory.

UNIT-III:

Input and Output : I/O Devices – Keyboards – Inputting Text, Graphics – Pointing Devices – The foundation of Modern Outputs : Pixels and Resolutions, Fonts, Color – Display Screens – Printers. Secondary Storage : The foundation of modern storage ; How data is stored, Storage characteristics – Storage media : Floppy Disk, Hard disk, Drivers, Optical disk – Backing up of data.

UNIT-IV:

Software : Introduction – User Interface – Application programs – Operating systems : Introduction , Types, File management and Utilities – Major Software issues.

UNIT-V:

Internet and World Wide Web : Introduction – The Web – Getting connected to the Web – Browsing the Web – Locating information on the Web – Web multimedia.

TEXT BOOK(S):

Information Technology – The Breaking Wave By Dennis P.Curtain, Kim Foley, KunalSen, Cathlen Morin – Tata MCGraw Hill Publ.

CHAPTERS and SECTIONS (For UNIT-I, II, III,IV and V)

Unit I – Chap 2 (Except 2.1, 2.10,2.11) Unit II – Chap 3 (Except 3.7 to 3.9); Unit III – Chap 4 & 5 (Except 4.5,4.12 to 4.15 and 5.6, 5.8,5.9) ; Unit IV – Chap 6 (Except 6.8,6.10,6.11) ; Unit V – Chap 1 (Except 1.7)

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IV SEMESTER(2016-17 Batch Only)

Sl. No.	Sub. Code	Nature	Subject Title	Hrs/ Week	Exam Hrs	CA	SE	Tot	Crd
1	14UACT41/ H41/S41	Part-I	TAMIL/ HINDI/ SANSKRIT	6	3	25	75	100	3
2	14UACE41	Part-II	ENGLISH	6	3	25	75	100	3

IV SEMESTER(2017-18 onwards)

Sl. No.	Sub. Code	Nature	Subject Title	Hrs/ Week	Exam Hrs	CA	SE	Tot	Crd
1	17UACT41/ H41/S41	Part-I	TAMIL/ HINDI/ SANSKRIT	6	3	25	75	100	3
2	17UACE41	Part-II	ENGLISH	6	3	25	75	100	3

IV SEMESTER(2016-17 batch and 2017-18 onwards)

Sl. No.	Sub. Code	Nature	Subject Title	Hrs/ Week	Exam Hrs	CA	SE	Tot	Crd
3	17UCAC41	Part-III Core	Programming in Java	4	3	25	75	100	4
4	17UCACP4	Part-III Core	Lab 5 : Programming in Java	5	3	40	60	100	3
5	17UCAA41	Part-III Allied	Numerical Methods	4	3	25	75	100	4
6	17 UCASP2	Part-IV SBS	Lab 6 : Computer Graphics & Multimedia Lab	3	3	40	60	100	3
7	17UCAN41	Part-IV NME	Web Programming	2	3	25	75	100	2
8		Part-V	Extension Activities		3	25	75	100	1
			TOTAL	30					23

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PART - III CORE	**Title : Programming in Java**	**Subject Code : 17UCAC41/16UCAC41**
Semester : IV	**HOURS : 4 hours / Week**	**CREDITS : 4**

Objectives :

To learn how to develop the programming code for various applications by various concepts

UNIT-I: Fundamentals of Object-Oriented Programming : Introduction –OOP Paradigm – Basic concepts of OOP – Benefits of OOP – Applications of OOP - Java Evolution : Jave features –Differs from C and C++ - Java and Internet – Java Environment.

UNIT-II:Overview of Java Language : Introduction – Simple Java Program – Java Program Structure – Tokens – Statements – Implementation – JVM – Command Line Arguments - Constants, Variables and Data Types.

UNIT-III:Operators and Expressions – Decision Making and Branching – Decision Making and Looping : Introduction – The while Statement – The Do Statement – The For Statement – Classes, Objects and Methods: Introduction – Defining a Class – Fields Declaration – Methods Declaration - Creating Objects – Accessing Class Members – Constructors – Methods Overloading – Static Members – Nesting of Methods – Inheritance: Extending a class – Overriding Methods - Arrays, Strings: Introduction – One –dimensional Arrays – Creating an Array – Two-dimensional Arrays – Strings.

UNIT-IV:Managing Errors and Exception : Introduction – Types of Errors – Exceptions – Syntax of Exception Handling Code – Multiple Catch Statements – Using Finally Statement – Throwing Our Own Exceptions - Interfaces : Multiple Inheritance: Introduction – Defining Interfaces – Extending Interfaces – Implementing Interfaces - Packages : Putting Classes Together : Introduction – Java API Packages – Using System Packages – Naming Conventions – Creating Packages – Accessing a Package – Using a Package – Adding a class to a package .

UNIT-V:Multithreaded Programming : Introduction – Creating Threads – Extending the Thread Class – Stopping and Blocking a Thread – Life Cycle of a Thread – Using Thread Methods – Thread Exceptions – Thread priority – Synchronization – Implementing the Runnable Interface – Inter-thread Communication –Applet Programming : Introduction – How Applets Differ from Applications – Preparing to Write Applets – Building Applet Code – Applet Life Cycle - Creating an Executable Applet – Designing a Web Page – Applet Tag – Adding Applet to HTML File – Running the Applet - More About Applet Tag – Passing Parameters to Applets - Aligning the Display – More About HTML Tags – Displaying Numerical Values – Getting Input from the User - Event Handling - Summary Managing Input/Output Files in Java :Introduction – Concept of Streams – Stream Classes - Character Stream Classes – Using Streams - Creation of Files – Reading/Writing Characters – Reading/Writing Bytes

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TEXT BOOK(S):
Programming with Java – A primer – 4th Edition -E. Balagurusamy,Tata McGraw-Hill, New Delhi.

CHAPTERS and SECTIONS (For UNIT-I, II, III,IV and V)
Unit I – Chap 1,2 Unit II – Chap 3,4 Unit – III – Chap 5,6,7 ; Unit IV – Chap 13 ; Unit V – Chap 12,14,16

REFERENCE BOOKS:
The Complete Reference Java 2 , Patrick Naughton, Herbert Scheldt, Tata McGraw Hill, fifth edition, 2006.

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PART - III CORE	**Title : Lab 5: PROGRAMMING IN JAVA**	**Subject Code : 17UCACP4/ 16UCACP4**
Semester : IV	**HOURS : 5 hours / Week**	**CREDITS : 3**

Objectives : To develop various programming code for different applications using java concepts

Lab cycle

1. To perform addition of complex numbers using class and objects.
2. To perform multiplication of matrices using class and objects.
3. To perform volume calculation using method overloading
4. Using command line arguments, test if the given string is palindrome or not
5. Using multilevel inheritance process student marks
6. Implement multiple inheritance for payroll processing
7. Package Illustration
8. To Illustrate built-in exceptions(any four)
9. To illustrate user defined exceptions(at least four)
10. To create multiple threads
    a) Using thread class
    b) Using Runnable interface
11. String manipulation using string methods
12. File- byte stream
13. File – character stream
14. Applet – Graphical methods
15. Applet – threads
16. Implementing JDBC

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PART - III ALLIED	Title : NUMERICAL METHODS	Subject Code : 17 UCAA41/ 16 UCAA41
Semester : IV	HOURS : 4 hours / Week	CREDITS : 4

Objectives :

To solve various application problems like iteration method , newton raphson method, trapezoidal rule etc. in computers

UNIT-I:

Algebraic and Transcendental equations : Errors in Numerical computation – Iteration method – bisection method – Regular falsi method – Newton Raphson Method

UNIT-II:

Simulation equation : Gauss Elimination method – calculation of inverse of matrix – Gauss seidal method. Curve fitting method of least squares

UNIT-III:

Interpolation : Newton's interpolation formula – central differences interpolation formula – lagrange's interpolation formula – Inverse interpolation

UNIT-IV:

Numerical Differentiation : Newton's forward and back ward difference formula – Numerical Integration : Trapezoidal rule – simpson's rule. Eigen values and eigen vectors of a matrix

UNIT-V:

Numerical solution of differential Equation : Euler's method- Taylor's series method – Range kutta method

TEXT BOOK(S):

S. Arumugam and A.Thangapandiissac , A. Soma sundaram "Numerical methods" , Scitech publication Chennai 2002"

CHAPTERS and SECTIONS (For UNIT-I, II, III, IV and V)

Unit I – Chap 3 , 3.0 to 3.5 ; Unit – II – Chap 4, 4,3 and 4.5 , 4.8 ; Unit –III Chap 7, 7.1 to 7.3 and 7.6 ; Unit – IV Chap 8, 8.1, 8.2, 8.5, 5.0 to 5.2 ; Unit – V – Chap 10, 10.1 to 10. 4

REFERENCE BOOKS:

1) Numerical methods T.Veerajan and J.Ramchandran 2nd edition Tata MC raw Hill 2006.

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BACHELOR OF COMPUTER APPLICATIONS (B.C.A)

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PART - IV **SBS**	**Title : Lab 6 :** **COMPUTER GRAPHICS** **& MULTIMEDIA**	**Subject Code : 17 UCASP2/** **16 UCASP2**
Semester : IV	**HOURS : 3 hours / Week**	**CREDITS : 3**

Objectives :

To learn about the basic drawing concepts
To learn about different algorithm used in graphics system
To learn about Multimedia concept using various software

Computer Graphics

1. DDA Line Drawing Algorithm.
2. Bresenham's Line Drawing Algorithm.
3. Bresenham's Circle Drawing Algorithm.

MULTIMEDIA (Flash/Photoshop/Premier/3d Studio Max)

1. Creating a sample image
2. Editing existing image's brightness, mode color and add and edit layer style.
3. Stitch and edit two images into single image. Use selection tools Lasso tool, Clone stamp.
4. Study about time line concepts. Insert text, image. Use scaling rotation alignment.
5. Study Masking concepts. Use audio in the movie.
6. Add buttons, menus, actions to the movie.
7. Export movie .Use multiple scenes.
8. Insert text, image, sprite to the movie.
9. Add effects to the text (predefined and user defined)

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PART - IV NME	**Title : WEB PROGRAMMING**	**Subject Code : 17 UCAN41/ 16 UCAN41**
Semester : IV	**HOURS : 2 hours / Week**	**CREDITS : 2**

Objectives :
To understand the concept of web page designing using tags

UNIT-I:
Overview of HTML-structure of a html program-HEAD tag-BODY tag-paragraph tag-formatting tag- (Bold-underline-italic-strike thru-superscript-subscript)

UNIT-II:
LISTS-Ordered list and unordered list-marquee tag-break tag-ruler tag-foot tag-data definition tag.

UNIT-III:
TABLES-TABLE building tags and attributes of table-table tag-table header tag-table row tag-table data tag-row span-column span.

UNIT-IV:
LINKS-linking pages using anchor tag-attributes of anchor tag-image tag and its attributes-frame tag.

UNIT-V:
FORMS-Form tag-input tag-types-text,radio,button,check,password-sample webpage creation.

TEXT BOOK(S):

HTML COMPLETE-BPB publications-2nd edition

CHAPTERS and SECTIONS:
Unit I : Chap 3 Unit II: Page No. 817 to 821,718,719,735,736, 746 to 748, 757,837 to 839 and 915 to 917 Unit III : Chap 7 Unit IV : Chap 5, Chap 8(Page No. 266 to 277), Chap 4 (P.No. 129 to 140) Unit V : Chap 11

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BACHELOR OF COMPUTER APPLICATIONS (B.C.A)

(Syllabus under CBCS w.e.f. 2017 – 2018 onwards)

V SEMESTER(2016-17 batch and 2017-18 onwards)

Sl. No.	Sub. Code	Nature	Subject Title	Hrs/ Week	Exam Hrs	CA	SE	Tot	Crd
1	16UCAC51/ 17UCAC51	Part-III Core	Visual Programming	5	3	25	75	100	4
2	16UCACP5/ 17UCACP5	Part-III Core	Lab 7 : Visual Programming Lab	5	3	60	40	100	4
3	16UCAC52 / 17UCAC52	Part-III Core	Data Structure & Computer Algorithms	5	3	25	75	100	4
4	16UCACP6/ 17UCACP6	Part-III Core	Lab 8 : Data Structure & Computer Algorithms Lab	5	3	60	40	100	4
5	16UCAC53/ 17UCAC53	Part-III Core	Operating System	5	3	25	75	100	4
6	16UCAE51/ 17UCAE51	Part-III Elective	Multimedia and Its Applications*	5	3	25	75	100	5
	16UCAE52/ 17UCAE52		Mobile Computing*						
7	16USSS51	Self Study	Soft Skills					100	0
			TOTAL	30					25

***One elective paper has to be chosen out of two electives**

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PART - III CORE	**Title : VISUAL PROGRAMMING**	**Subject Code : 17UCAC51/ 16UCAC51**
Semester : V	**HOURS : 5 hours / Week**	**CREDITS : 4**

Objectives :

To learn the programming using visual basic concept and integrated development environment

UNIT-I:Starting a new project- the properties of window-Common form properties-Scale properties –color properties-Making a form responsive-Printing a visual-representation of a form – typos-creating stand alone windows programs-the toolbox-Creating controls- the name (control name)property-Properties of common buttons-simple event procedures for command buttons-access keys-Image controls- Text Boxes-labels-Navigating between controls- Message- boxes-The grid –The ASCII-representation of forms.

UNIT-II:Statements in Visual Basic –Variables-Setting properties with code-Data types-Working with variables-more on strings- More on numbers- constants-Input boxes-Displaying information on a form-The format function-Picture boxes-Rich text Boxes-The Printer Object-Determination loops-indeterminate loops-Making decisions –Select case- Nested IF-Then's- The Go To String functions- Numeric functions- Date & Time functions- financial-functions.

UNIT-III:Function procedures-sub procedures-advanced uses of procedures and functions-Using the object Browser to navigate among your subprograms-List: One-dimensional arrays-Arrays with more than one dimension-Using Lists and array with functions and procedures-The new array-based string-records(User-Defined types).

UNIT-IV:The with statements-Enums-Control arrays-List and Combo Boxes-The Flex grid control-code Modules: Global Procedures-The Do Events Function and sub main Accessing windows function-Error Trapping, Creating and Object in visual Basic-Building your own classes.

UNIT-V: Fundamentals of graphics –Screen scales- The line and shape controls-Graphics via code-Lines and Boxes-Circles, Ellipses and Pie charts. The mouse event procedures-Dragging and dropping operations-File commands-Sequential files- Random access files-Binary files- File system controls-The File system objects-The clipboard-Running another window program from within.

TEXT BOOK(S):

"VISUAL BASIC 6 from the GROUND UP", Gray Cornell, Tata McGraw Hill Edition 1999.
CHAPTERS and SECTIONS (For UNIT-I, II, III,IV and V)
Unit I – Chap 3,4 Unit II – Chap 5 to 8 Unit III – Chap 9,10 Unit IV – Chap 11,13 Unit – V Chap 16, to 20

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BACHELOR OF COMPUTER APPLICATIONS (B.C.A)

(Syllabus under CBCS w.e.f. 2017 – 2018 onwards & 2016-17 Batch)

PART - III CORE	**Title : Lab 7 : VISUAL PROGRAMMING LAB**	**Subject Code : 17UCACP5/ 16UCACP5**
Semester : V	**HOURS : 5 hours / Week**	**CREDITS : 4**

Objectives :

To develop programming code for various applications using various tools in VB – handing event management – sub procedures and function procedures

LAB CYCLE

1. Program to design a digital Clock
2. Object type questionnaire.
3. Program to vary color palette.
4. Program to show picture animation.
5. Program to create a file open dialogue to load a picture.
6. Program to design a arithmetic calculator.
7. Program to create a mouse down event program
8. Menu Creation with simple file and edit operation.
9. Sequential file reading and writing.
10. Process students' Mark list using data control
11. Process library maintenance using data control
12. Process telephone billing using data control
13. Process stock inventory using data control
14. Program using DAO to create a simple Address Book
15. Program using DAO to create simple Hotel Reservation form software with examples transactions such as reservation, check in and logout.
16. Develop a system for Library Management using ADO.
17. Develop simple Student Information System using ADO connections.
18. Program for supermarket billing using sequential File.
19. Program for stock Maintenance System using Random Access File.
20. Design a Data Report for Students marks details.
21. Design a Data Report for Employee Pay Bill.
22. Program using ADO for managing Telephone Directory.

Passed in the BOS Meeting held on 15-3-2017

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SOURASHTRA COLLEGE, MADURAI– 625004

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BACHELOR OF COMPUTER APPLICATIONS (B.C.A)

(Syllabus under CBCS w.e.f. 2017 – 2018 onwards & 2016-17 Batch)

PART - III CORE	**Title : DATA STRUCTURES & COMPUTER ALGORITHMS**	**Subject Code : 17UCAC52/ 16UCAC52**
Semester : V	**HOURS : 5 hours / Week**	**CREDITS : 4**

OBJECTIVES:

To implement variety of basic data structure and understand the different solution.

UNIT-I:**Introduction and Overview :** Introduction – Basic terminology; Elementary Data Organization-Data Structures – Data Structure operations **Arrays and Records :** Introduction – Linear arrays-Representation of Linear arrays in Memory –Traversing Linear Arrays – Inserting and Deleting- Sorting : Bubble sort-Searching : Linear search –Binary Search –Multidimensional arrays.

UNIT-II:**Linked Lists:** Introduction- Linked Lists –Representation of Linked Lists in Memory – Traversing a Linked List- Searching a Linked List- Memory Allocation; Garbage Collection-Insertion into a Linked List- Deletion from a Linked List- Header Linked Lists

Stacks and Queues : Introduction –Stacks- Array Representation of Stacks-Linked Representation of Stacks-Arithmetic Expressions: Polish Notation-Quick sort, Application of Stacks

UNIT-III:Trees: Introduction- Binary Trees – Representing Binary Trees in memory - Traversing Binary Trees- Traversal Algorithms using stacks –Header Nodes : Threads-Binary Search Trees- Searching and Inserting in Binary Search Tree

UNIT-IV:Sorting and Searching : Introduction – Sorting – Insertion sort – Selection Sort – Merging – Merge Sort – Radix Sort

Graphs and their applications : Introduction – Graph Theory Terminology – Traversing a Graph

UNIT-V:**Divide and conquer:** The general method-finding the maximum and minimum-Greedy method: The general method-Knapsack Problem-Minimum spanning tree-single source shortest paths.

Dynamic Programming: The general method-Multistage graphs-all pairs shortest paths-Optimal binary search trees-the travelling salesman problem

TEXT BOOK(S):

1. Data Structures – Seymour Lipschutz- Schaum's outlines, The McGraw-Hill (Unit I to Unit IV)
2. Fundamentals of Computer algorithms-Ellis Horowitz, Sartajsahni,Galgottia Publications Pvt. Ltd. New Delhi. (Unit – V)

CHAPTERS and SECTIONS (For UNIT-I, II, III,IV and V)

Unit I – Chap 1. 1.1 to 1.4 , 4.1 to 4.9 ; Unit –II Chap: 5.1 to 5.9, 6.1 to 6.6 ; Unit 3- Chap. 7.1 to 7.8; Unit 4 Chap 9.1. to 9.7, 8.1, 8.2, 8.7

Unit V : Chap 3 – 3.1, 3.4,4.1,4.3,4.6, 4.9,5.1 to 5.3, 5.5 and 5.9

REFERENCE BOOKS:

Data structure and Algorithm Analysis in C-Mark Allen Weiss-Second edition-Addison Wesley publishing company 1997.

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BACHELOR OF COMPUTER APPLICATIONS (B.C.A)

(Syllabus under CBCS w.e.f. 2017 – 2018 onwards & 2016-17 Batch)

PART - III CORE	**Title : Lab 8: DATA STRUCTURES & COMPUTER ALGORITHMS**	**Subject Code : 17 UCACP6/ 16 UCACP6**
Semester : V	**HOURS : 5 hours / Week**	**CREDITS : 4**

OBJECTIVES:

Implementation of Data Structures Concept using C++ Language

Lab Cycle

1. Write a c++ program to perform stack operation using arrays.
2. Write a c++ program to perform stack operation using pointers.
3. Write a c++ program to perform queue op eration using arrays.
4. Write a c++ program to perform queue operation using pointers.
5. Write a c++ program to implement singly linked list.
6. Write a c++ program to implement doubly linked list.
7. Write a c++ program to perform linear search.
8. Write a c++ program to perform binary search.
9. Write a c++ program to perform insertion sort.
10. Write a c++ program to perform selection sort.
11. Write a c++ program to perform shell sort .
12. Write a c++ program to perform quick sort.
13. Write a c++ program to perform bubblesort .
14. Write a c++ program to perform merge sort.
15. Write a c++ program to convert infix to postfix expression.

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BACHELOR OF COMPUTER APPLICATIONS (B.C.A)

(Syllabus under CBCS w.e.f. 2017 – 2018 onwards & 2016-17 Batch)

PART - III CORE	Title : OPERATING SYSTEM	Subject Code : 17 UCAC53/ 16 UCAC53
Semester : V	HOURS : 5 hours / Week	CREDITS : 4

OBJECTIVES:

To learn various interface functions between hardware and system and to know various system like files and memory system in computer

UNIT-I:Introduction –Definition-Mainframe. Multiprocessor. Distributed, Clustered, Real-time, Handheld systems-I/O and storage structure –Hardware protected-Network structure –System Components-System Services. Calls, Programs, structure- System Design, Implementation and generation.

UNIT-II:Process Management: Process concepts,Scheduling, operations-operating processes-Inter-process communication in Client-Server systems-Multithreading models and issues –Windows 2000 and Java threads-CPU scheduling criteria and algorithms –Multi-processor and Real-time scheduling-Algorithm Evaluation –Process scheduling in Windows 2000.

UNIT-III:Process Synchronization –Critical-section problem-Synchronization Hardware-Semaphores –Classic problems- Critical Regions-monitor-synchronization in windows 2000-Deadlock characterization, Prevention, Avoidance and Detection-Recovery from Deadlock.

UNIT-IV:Storage management: Swapping –Contiguous memory allocation-Paging-Segmentation-Segmentation with paging-Demand paging-Process creation –Page replacement-Allocation of Frames-Thrashing-Implementation of Virtual memory in Windows NT-File Concepts and Access methods-directory Structure & implementation-Allocation methods-Free space management.

UNIT-V:I/O Systems and Case Study: Disk structure, Scheduling and Management-Swap Space Management –Case Study: Windows 2000.

TEXT BOOK(S):

Operating system Concepts-SilbertschartzA.Galvin P.B., Gagne G-Sixth Edition, 2002, John Wiley & sons.

CHAPTERS and SECTIONS (For UNIT-I, II, III,IV and V)

Unit I – Chap 1,2,3 (Except 1.3,2.1,3.6) Unit II – Chap 4,5,6 Unit III – Chap 7,8 (Except 7.1,7.9, 8.1,8.3) Unit IV – Chap 9,10 Unit V – Chap 14 (14.1 to 14.4)

REFERENCE BOOKS:

Operating system Concepts and Design, Milan Milankovic,Tata McGraw Hill, 1997.

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BACHELOR OF COMPUTER APPLICATIONS (B.C.A)

(Syllabus under CBCS w.e.f. 2017 – 2018 onwards & 2016-17 Batch)

PART - III ELECTIVE	**Title : MULTIMEDIA AND ITS APPLICATIONS**	**Subject Code : 17UCAE51/ 16UCAE51**
Semester : V	**HOURS : 5 hours / Week**	**CREDITS : 5**

Objectives :

To learn many graphical applications and animation by implementing the graphical and multimedia software

UNIT-I:

Introduction-Branch overlapping Aspects of Multimedia Content –Global Structure - Multimedia Literature. Multimedia- Media and Data Streams- Medium.

UNIT-II:

Sound/Audio: Basic Sound Concepts-Music- Speech, Images and Graphics: Basic Concepts:-Computer Image Processing- Video and Animation: Basic Concepts – Television – Computer Based Animation.

UNIT-III:

Data Compression: Storage Space –Coding Requirements –JPEG- MPEG-DVI, Optical Storage Media; Computer Technology –Multimedia Operating System.

UNIT-IV:

Networking System: Layers, Protocols and Services, Networks, Metropolitan Area Networks, WAN, Multimedia Communication System.

UNIT-V:

User Interfaces, Synchronization, Abstraction for Programming: Abstraction Levels-Libraries-System Software-Toolkit-Higher Programming Languages. Multimedia Application: Introduction - Media Population – Media Communication –Trends.

TEXT BOOK(S):

1.Ralf Steinmetz &KlaraNahrstedt – "Multimedia Computing, Communication & Applications", Pearson Education.

CHAPTERS and SECTIONS :Unit I : Chap 1.1 to 1.4, 2.1 Unit II: Chap. 3.1 to 3.3, 4.1 to 4.2 and 5.1 to 5.3 Unit III: Chap 6.1 to 6.2, 6.5,6.7,6.8 and Chap 9. Unit IV : Chap. 101. To 10.2, 10.4 to 10.5 and Chap 11. Unit V : Chap. 14,15, 16.1 to 16.5, 17.1,17.2,17.5 and 17.8

REFERENCE BOOKS:

1. Fred t, Hofstetter – " Multimedia Literacy" – 3rd edition TMH.

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BACHELOR OF COMPUTER APPLICATIONS (B.C.A)

(Syllabus under CBCS w.e.f. 2017 – 2018 onwards & 2016-17 Batch)

PART - III Elective	**Title : MOBILE COMPUTING**	**Subject Code : 17UCAE52/ 16UCAE52**
Semester : V	**HOURS : 5 hours / Week**	**CREDITS : 5**

Objectives :
To learn about the various mobile devices, internet protocols and formats, embedded control, voice and connectivity

UNIT-I:

Information Access Devices –Handheld Computers –Palm OS –Based Devices-Windows CE –Based Handheld Computers –EPOC Based Handheld Computers –Sub notebooks –Phones –Cellular Phones –Data transmission capabilities –Smart Phones –Screen phones

UNIT-II:

Smart Identification-Smart cards –smart labels –smart Tokens –**Embedded Controls-**Smart sensors and Actuators –Smart Appliances-Appliances and home networking –Automotive computing

UNIT-III:

Internet Protocols and Formats –HTTP- HTML-XML-Xforms-**Mobile Internet**-WAP 1.1 Architecture –Wireless Application Environment 1.1 –WAP 2.0 Architecture –i-node

UNIT-IV:

Voice –Voice Technology Trends –Voice on the web –Standardization.

UNIT-V:

Connectivity-Wireless Wide Area Networks –Short Range Wireless Communication

TEXT BOOK(S):

Principles of Mobile Computing –UweHansmann, LotherMerk, Martin S.Nicklous, Thomas Stober –Springer –Second Edition -2003

CHAPTERS and SECTIONS:

UNIT-I : Chap. 2.1 to 2.10 Unit II : Chap 3.1 to 3.3 and 4.1 to 4. Unit III: Chap 10.1 to 10.4, 11.1 to 11.4 Unit IV : Chap 12.1 to 12.3 Univ V : Chap 14.1 to 14.2

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BACHELOR OF COMPUTER APPLICATIONS (B.C.A)

(Syllabus under CBCS w.e.f. 2017 – 2018 onwards)

VI SEMESTER(2016-17 batch and 2017-18 onwards)

Sl. No.	Sub. Code	Nature	Subject Title	Hrs/ Week	Exam Hrs	CA	SE	Tot	Crd
1	16UCAC61/ 17UCAC61	Part-III Core	Software Engineering	5	3	25	75	100	4
2	16UCAC62/ 17UCAC62	Part-III Core	Computer Networks	5	3	25	75	100	4
3	16UCAC63/ 17UCAC63	Part-III Core	Principles of Information Security	5	3	25	75	100	4
4	16UCACP7/ 17UCACP7	Part-III Core	Lab 9 : Dot Net Programming Lab (VB/ASP)	5	3	60	40	100	4
5	16UCAE61/ 17UCAE61	Part-III Elective	Data Mining*	5	3	25	75	100	5
	16UCAE62/ 17UCAE62		Unix & Shell Programming*						
6	16UCAEV1/ 17UCAEV1	Part-III Elective	Project Work & Viva-Voce	5	3	25	75	100	5
7	16UGKB61	Self Study	General Knowledge					100	0
			TOTAL	30					26

***One elective paper has to be chosen out of two electives**

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BACHELOR OF COMPUTER APPLICATIONS (B.C.A)

(Syllabus under CBCS w.e.f. 2017 – 2018 onwards & 2016-17 Batch)

PART - III CORE	Title : Software Engineering	Subject Code :17 UCAC61/ 16 UCAC61
Semester : VI	HOURS : 5 hours / Week	CREDITS : 4

OBJECTIVES:

To understand the basic concept of software development environment with various models and techniques and gaining knowledge about maintenance activity

UNIT-I:

Introduction to software Engineering Some definition- Some size factors-Quality and productivity factors-Managerial issue.

Planning a software Project : Defining the problem –Developing a solution strategy –planning the development process-Planning an organizational structure –other planning activities

UNIT-II:

Software cost Estimation: Software –Cost Factors –Software cost estimation techniques – Staffing level estimation –estimating software maintenance costs.

UNIT-III:

Software requirements definition: The software requirements specification – Formal specification techniques - Formal languages and processors for requirements specification (Except RSL/REVS).

UNIT-IV:

Software Design : Fundamental Design Concepts –Modules and modularizing Criteria –Design Techniques –Detailed Design Consideration –Real time and Distributed System design –Test Plan –Mile Stones walk through and inspection –Design guide lines

UNIT-V:

Verification and validation techniques: Quality assurance –Static Analysis –Symbolic Execution - Unit Testing and Debugging -System testing –Formal verification.

Software Maintenance : Enhancing maintainability during development –Managerial aspects of software maintenance –Configuration management –source code metrics-other maintenance tools and techniques.

TEXT BOOK(S):

Software Engineering Concepts , Richard E. Fairly. Tata McGraw -Hill book Company, 2005.

CHAPTERS and SECTIONS (For UNIT-I, II, III,IV and V)

Unit I – Chap. 1 and 2 Unit – 2 Chap 3; Unit – 3 Chap 4; Unit IV – Chap 5; Unit V-Chap. 8 & 9

REFERENCE BOOKS:

Software Engineering, Jawadekar, Tata McGraw-Hill book Company,2004

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BACHELOR OF COMPUTER APPLICATIONS (B.C.A)

(Syllabus under CBCS w.e.f. 2017 – 2018 onwards & 2016-17 Batch)

PART - III CORE	**Title : COMPUTER NETWORKS**	**Subject Code :17UCAC62/ 16UCAC62**
Semester : VI	**HOURS : 5 hours / Week**	**CREDITS : 4**

OBJECTIVES:

Study about the computer networks, applications, topology, layers, sharing, types of networks, DNS, E-Mail

UNIT-I:

Introduction : Uses of computer Networks –Network Hardware –Network Software – Reference Models –Example Networks.

UNIT-II:

The Physical Layer: Guided Transmission Media –Wireless Transmission-Communication Satellites –Mobile telephone System.

UNIT-III:

The Data Link Layer : Data Link Layer Design Issue –Error Detection and Correction – Elementary Data Link Protocols –Sliding Window Protocols-The Channel Allocation Problem – Multiple Access Protocols –ALOHA, CSMA, Collision free protocols.

UNIT-IV:

The Network Layer: Network Layer Design Issues-Routing Algorithms –Shortest path, Flooding , Hierarchical and Broadcast. The Transport Layer: The Transport Service Elements of Transport Protocols.

UNIT-V:

The Application Layer : DNS- The Domain Name System –Electronic Mail –The World Wide Web – Multimedia.

TEXT BOOK(S):

Computer Networks by Andrew S. Tanenbaum 4th Edition, Prentice Hall of India ,2006.

CHAPTERS and SECTIONS (For UNIT-I, II, III,IV and V)

Unit I – Chap 1.1 to 1.5 Unit –II – Chap 2.1 to 2.4 & 2.7 Unit III – Chap 3.1 to 3.4 & 4.1,4.2.1 to 4.2.3 Unit IV – Chap 5.1, 5.2.2, 5.2.3, 5.2.6, 5.2.7, 7.6.1 & 6.2 Unit – V – Chap 7.1 to 7. 3

REFERENCE BOOKS:

Data Communications and Networking, Forouzan, Tata McGraw Hill,2003.
Data and Computer Communications, William Stallings, Pearson education,7th edition, 2003

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BACHELOR OF COMPUTER APPLICATIONS (B.C.A)

(Syllabus under CBCS w.e.f. 2017 – 2018 onwards & 2016-17 Batch)

PART - III CORE	**Title : PRINCIPLES OF INFORMATION SECURITY**	**Subject Code :17UCAC63/16UCAC63**
Semester : VI	**HOURS : 5 hours / Week**	**CREDITS : 4**

OBJECTIVES:

To learn the requirements of information security for the safe utilization and storage of information in a system

UNIT-I:

Information Security:

History of Information Security – What is Security – Components of Information System - Security System Development Life Cycle – Security Professionals and the Organization – Communities of Interest – Information Security Is it an Art or Science.

UNIT-II:

Why Security is Needed :

Business Needs First **– Threats:** Deliberate Software Attacks : Virus,Worms,Trojan Horses – Deviations in Quality of Services – Forces of Natures – Human Error or Failure – Thefts – Technical Hardware Failure or Errors – Technical Software Failure or Errors. **Attacks:** Malicious Code , Hoaxes , Backdoors , Password Check , Denial of Service , Spoofing , Spam , Mail bombing , Timing Attack.

UNIT-III:

Managing IT Risk:

Overview of Risk Management – **Risk Identification** : Plan and Organize the Process , Asset Identification and Inventory , Information Asset Valuation – **Risk Control Strategies:** Defend , Transfer ,Mitigate , Accept , Terminate – **Selecting Risk Control Strategy:** Feasibility Studies , Cost Benefit Analysis (CBA), Evaluation,Assessment and Maintenance of Risk Control

UNIT-IV:

Plan for Security: Information Security , Planning and Governance – Information Security Policy , Standards and Practices : Definition,EISP , ISSP – Security Education , Training and Awareness Program – Continuity Strategies : Business Impact Analysis , Incident Response Planning.**Security Technology : Access Control –** Identification, Authentication , Authorization , Accountability

UNIT-V:

Security Technology : Firewalls – Firewall Processing Modes , Firewall Categorized by Generation , Firewall Categorized by Structure , Remote Access , VPN **Scanning And Analysis Tools :Port** Scanner , Firewall Analysis Tools , Operating SystemDetection Tools , Vulnerability Scanners , Packet Sniffers - **Biometric Access Tools .**

TEXT BOOK(S):

Principles of Information Security – Michael E.Whitman and Herbert J.Mattord 4th Edition.

CHAPTERS and SECTIONS (For UNIT-I, II, III,IV and V)

Unit – I – Chap 1 P. No. 3 to 11 , 16 to 19 26 to 32 ; Unit –II – Chap 2, Page No. 39 to 48, 54 to 57, 63 to 69, 72 – timing attack only; Unit – III – Chap 4 – P.No. 117 to 132, 144 to 153 ; Unit IV – Chap 5,6 P.No. 168 to 178,203 to 221, 238 to 242 ; Unit V – Chap 6,7 P.No.242 to 255, 270 to 277, 318 to 326, 331 to 333

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BACHELOR OF COMPUTER APPLICATIONS (B.C.A)

(Syllabus under CBCS w.e.f. 2017 – 2018 onwards & 2016-17 Batch)

PART - III CORE	**Title : Lab 9 : Dot Net Programming Lab (VB/ASP)**	**Subject Code :17UCACP7 /16UCACP7**
Semester VI	**HOURS : 5 hours / Week**	**CREDITS : 4**

OBJECTIVES:

To implement basic program in .net framework like console & windows application

LAB CYCLE

CONSOLE APPLICATION

1. Calculating Sales and Commission.
2. Preparation of EB-Bill
3. Structure using Multiple Records.
4. SORTING Numbers in an given array
5. FUNCTION OVERLOADING using Switch Case

WINDOWS APPLICATION

6. Using ComboBox Displaying Shapes.
7. Calculation of Simple Interest and Compound Interest
8. Creation of Class Checking ARMSTRONG & REVERSE a Number.
9. Displaying Directories Using TREEVIEW
10. Dialog Control (Open,Save,Color,Font)
11. Factorial, +ve –vezero,Sum of series using Status and Progress Bar.
12. Using INHERITANCE calculating Net Salary
13. STRING Manipulation.

DATABASE CONNECTIVITY

14. Retrieving Record using DATAGRID
15. Displaying Record Using ComboxBox, ListBox and DataGrid.
16. Searching and Retrieving Record.
17. Updating a record using LISTVIEW
18. Payroll Processing by using EXCEL as Backend
19. Marksheet Processing application using ACCESS as Backend

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BACHELOR OF COMPUTER APPLICATIONS (B.C.A)

(Syllabus under CBCS w.e.f. 2017 – 2018 onwards & 2016-17 Batch)

PART - III ELECTIVE	**Title : DATA MINING**	**Subject Code :17UCAE61/ 16UCAE61**
Semester : VI	**HOURS : 5 hours / Week**	**CREDITS : 5**

OBJECTIVES:

To understand concept of data ware housing, data mining, clustering techniques,neural networks and web mining

UNIT-I:

Data Warehousing –Introduction –Definition –Multidimensional Data Model –OLAP operations-Warehouse Schema –Architecture-Metadata-OLAP Engine- Backend Process.

UNIT-II:

Data Mining –Definition –Comparison with other fields-Techniques –Issues- Application Areas **Association Rules-**Methods-A Priori algorithm –Partition Algorithm –Pincer Search Algorithm-Border Algorithm –Generalized association rule –Item constraints.

UNIT-III:

Clustering Techniques –Paradigms –Algorithms –CLARA-CLARANS-Hierarchical clustering –DBSCAN-Categorical Clustering Algorithms-STIRR **Decision Trees –**Tree construction principle –Best split-Splitting indices –criteria – algorithms –CART –ID3.

UNIT-IV:

Other Techniques – Neural Network – Genetic Algorithm – Rough Sets –Support vector machines.

UNIT-V:

Web Mining –Introduction –Web content mining –web structure mining –web usage mining –text mining –hierarchy of categories- text clustering.

TEXT BOOK(S):

Data Mining techniques – Arun K Pujari –Universities Press -2001

CHAPTERS and SECTIONS Unit : Chap 2 (Except 2.8,2.1) . Unit II: Chap 3 (Except 3.11), Chap. 4 4.1 to 4.6 4.13,4.14,4.15 Unit III: Chap 5. (Except 5.9,5.10,5.13 to 5.15) Chap 6 – 6.1 to 6.9. Unit IV : Chap 8 8.2,8.6,8.7,7.1 to 7.3 Univ V : Chap 9(Except 9.7 and 9.8)

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BACHELOR OF COMPUTER APPLICATIONS (B.C.A)

(Syllabus under CBCS w.e.f. 2017 – 2018 onwards & 2016-17 Batch)

PART - III ELECTIVE	Title : UNIX & SHELL PROGRAMMING	Subject Code :17UCAE62/ 16UCAE62
Semester : VI	HOURS : 5 hours / Week	CREDITS : 5

OBJECTIVES:

Understand and learn the concept of Unix operating system

UNIT-I:Introduction –**UNIX for beginners** :Getting started-Day-to-day use:files and common commands-More about files:directories-The shell-The rest of the UNIX system-**The file system**:The basics of files-What's in a file?-Directories and filenames-Permissions-Inodes-The Directory hierarchy-Devices.

UNIT-II:**Using the shell**:Command line structure-Metacharacters-creating new commands-command arguments and parameters-Program output as arguments-Shell variables-More on I/O redirection-Looping in shell programs-bundle:putting it all together-Why a programmable shell?-**Filters:**Thegrep family-Other filters-The stream editor sed-The awk pattern scanning and processing language-Good files and good filters.

UNIT-III:**Shell Programming :** Customizing the cal command-which command is which?-while and until loops:watching for things-Traps:catching interrupts-Replacing a file:overwrite-zap:killing processes by name-The pick command:blanks vs. arguments-The news command:community service messages-get and put:tracking file changes-A look back-**Programming with standard I/O:**Standard input and output:vis-Programarguments:vis version 2-File access: vis version 3-A screen-at-a-time printer:p-Anexample:pick-On bugs and debugging-An example:zap-An interactive file comparison program:idiff-Accessing the environment.

UNIT-IV:**UNIX System Calls**-Low-level I/O-File system: directories-File system:inodes-Processes-Signals and interrupts

UNIT-V:**Program Development –**A four-function calculator-Variables and error recovery-Arbitrary variable names;built-in functions-Compilation into a machine-Control flow and relational operators-Functions and procedures;input/output-Performance evaluation-A look back-**Document Preparation**-The ms macro package-The troff level-The tbl and eqn preprocessors-The manual page-Other document preparation tools.

TEXT BOOK(S):

The UNIX Programming Environment –Brian Kernighan, Rob Pike –Pearson Education -2003.

CHAPTERS and SECTIONS :

Unit I : Chap 1 and 2 Unit II : Chap-3 and 4 Unit III: Chap-5 and Chap-6 Unit IV- Chap-7.
Unit – V : Chap 8 and 9

REFERENCE BOOKS:

Introducing UNIX System V- Rachel Morgan, Henry McGilton-McGrawHill International Editions.

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BACHELOR OF COMPUTER APPLICATIONS (B.C.A)

(Syllabus under CBCS w.e.f. 2017 – 2018 onwards & 2016-17 Batch)

PART-III ELECTIVE	**Title : PROJECT WORK & VIVA-VOCE**	**Subject Code : 17UCAEV1/ 16UCAEV1**
Semester : VI	**HOURS : 5 hours / Week**	**CREDITS : 5**

Objectives:

- To give exposure on software development and maintenance
- To train students, a systematic way of Report writing
- To practice students for project presentation

1. A maximum of two students can join to do the project work
2. Students must undertake the project work under the guidance of a faculty member
3. Progressive reports have to be submitted to the guide periodically
4. The internal test marks is 40 and is divided into the following components.

    (i) Two Presentations - 2 X 10 = 20 marks

    (ii) Progressive Reports - 10 marks

    (iii) Internal Viva-voce - 10 marks

5. The external examination will be jointly conducted by both the Internal and external examiners
6. The students must submit 3 copies (2 copies for 2 students + 1 copy for the Dept.) of their Project Report two weeks before the external examination.
7. The maximum marks for the external examination is 60 and it may be divided into the following components.

    (i) Project Report - 20 marks

    (ii) Project Presentation - 20 marks

    (iii) Project viva-voce - 20 marks

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