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)

I SEMESTER(2017-18 onwards)

Sl. No.	Sub. Code	Nature	Subject Title	Hrs/ Week	Exam Hrs	CA	SE	Tot	Crd
1	17UACT11/ H11/ S11	Part-I	TAMIL/ HINDI/ SANSKRIT	6	3	25	75	100	3
2	17 UACE11	Part-II	ENGLISH	6	3	25	75	100	3
3	17 UCAC11	Part-III Core	Programming in C	4	3	25	75	100	4
4	17UCACP1	Part-III Core	Lab 1 : C Programming	5	3	40	60	100	3
5	17UCAA11	Part-III Allied	Discrete Mathematics	4	3	25	75	100	4
6	17UCAS11	Part-IV SBS	Scripting Language	3	3	25	75	100	3
7	14UACVE1	Part-IV	Value Education	2	3	25	75	100	2
			TOTAL	30					22

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held on 15-3-2017

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PART - III **CORE**	**Title :** **PROGRAMMING IN C**	**Subject Code : 17 UCAC11**
Semester : I	**HOURS : 4 hours / Week**	**CREDITS : 4**

OBJECTIVES:

Enable the students to understand the basic concept of C language

UNIT-I: Overview of C : History of C –Importance of C – Basic structure of C – Programming style – Constants, variables and Data types – Declaration of variables, storage class – defining symbolic constants – declaring a variable as constant , volatile – overflow and underflow of data. Operators and expressions : arithmetic, relational, logical, assignment operators – increment and decrement operators, conditional operators, bitwise operators, special operators – arithmetic expression – evaluation of expressions – precedence of arithmetic operators – type conversion in expression – operator precedence and associativity-mathematical functions – managing I/O operations : reading and writing a character – formatted input , output.

UNIT-II:

Decision making and branching: if statement, if…else statement – nesting if … else statement – Else if Ladder – Switch statement – the ?: operator – go to statement.

Control Statements : The While statement – do statement – the for statement – jumps in loops Arrays : one dimensional array – declaration, initialization – two dimensional array – multi dimensional array – dynamic arrays – initialization,

UNIT-III:

Strings: declaration, initialization of string variables – reading and writing string – arithmetic operation on strings-putting strings together – comparison – string handling function – table of strings – features of sting. User Defined functions : need – multi function program – elements of user defined program – definition – return values and their types – function calls, declaration, category- all types of arguments and return values – nesting of functions – recursion – passing arrays – string to functions – scope visibility and life time of variables – multi file programs.

UNIT-IV:

Structures and unions : defining a structure – declaring structure variable – accessing structure members – initialization – copying and comparing – operations on individual members – arrays of structures – arrays within structures – structures within structures – structures and functions – Unions – Size of structures – bit fields.

UNIT-V:

Pointers – accessing the address of a variable – declaring, initialization of pointer variables – accessing a variable through it pointer – chain of pointers – pointer expressions – pointer increment and scale factors – pointers and arrays – pointers and character strings – array of pointers – pointers as function arguments – function returning pointers – pointers to functions – pointers and structure. Files : defining, opening, closing a file. I/O operations on files – error handling during I/O operations – random access to file – command line arguments.

TEXT BOOK(S):

1. Programming in ANSC C ,E.Balagurusamy, 4th Edition, Tata McGraw Hill Publishing Company, 2005.

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

Unit I – Chap. 1 to 4 ; Unit II – Chap. 5 to 7 ; Unit III – Chap 8 and 9; Unit IV – Chap. 10

Unit V – Chap 11 and 12

REFERENCE BOOKS:

Programming with C (Schaum's outline series), Gotfried, Tata McGraw Hill, 2006

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PART - III **CORE**	**Title : Lab 1 :** **C PROGRAMMING**	**Subject Code : 17 UCACP1**
Semester : I	**HOURS : 5 hours / Week**	**CREDITS : 3**

OBJECTIVES:

Understand the concepts of programming technique and implementing thru C programming

[Two questions to be answered in the Summative practical examination
From 1 to 14 in the list, another one from 15 to 25 in the list]

Lab Cycle

1. To find sum of Digits of a number
2. To reverse given number and check if it is palindrome
3. To evaluate Sine Series
4. To generate the Armstrong Number
5. To find the nth Fibonacci Number
6. To check if a number is Primer Number of not
7. To Sort an Array
8. To count the occurrences of a number in a set
9. To check if a no is Adam Number
10. To reverse a given string and check if it is a palindrome
11. To find Factorial value, Fibonacci, GCD value using Recursion
12. To add and subtract two Matrices
13. To multiply two Matrices
14. To find row wise sum of matrix of order m x n
15. To solve Quadratic Equation – Switch
16. To perform binary search using Function
17. To calculate mean, variance and standard deviation using function
18. To prepare Pay Bill – Structure
19. To prepare Mark Sheet – Structure
20. To perform inventory calculation – Structure
21. To demonstrate the use of bitwise operators
22. To demonstrate the use of sizeof() operator
23. To prepare Mark Sheet – File
24. To prepare EB Bill – File
25 Graphics Programme – only two

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PART - III **ALLIED**	**Title : DISCRETE MATHEMATICS**	**Subject Code : 17 UCAA11**
Semester : I	**HOURS : 4 hours / Week**	**CREDITS : 4**

OBJECTIVES:
To understand set theory, mathematical logic from the foundation. Graphs are used data structures to develop the various concepts of computer science

UNIT-I:
Set theory: Introduction –sets –subsets- operation on sets-properties of set operation.Relation: Cartesian product of two sets-relation-equivalence relation- closure and warshall'salgorithm.

UNIT-II:
Function: function and operators-one to one function- onto function – special type of functions. Mathematical Induction: Technical of proof –Mathematical induction.

UNIT-III:
Matrix Algebra: Introduction-matrix operation- rank of matrixe and elementary operations- simultaneous equations- Eigen values and Eigen vectors.

UNIT-IV:
Logic: Introduction- connectives –truth table of the formula –tautology-tautological implications and equivalence of formula –Replacement process

UNIT-V:
Graph Theory:Basic concepts- matrix representation of graph –trees- spanning trees- shorts path problem.

TEXT BOOK(S):
Discrete Mathematics - Dr. M. Venkatraman, Dr. N.Sridharan& N. Chandrasekara. The National Publishing Company.

CHAPTERS and SECTIONS (For UNIT-I, II, III,IV and V)
Unit – I Chap. 1.1 to 1.20, 1.35 to 2.39; Unit – II – Chap 2.3 to 3.9, 3.21 to 4.7 ; Unit III – Chap. 6 5.37 to 6.44; Unit IV – Chap 9, 9.4 to 9.10, 9.23 to 9.39; Univ V – Chap 11 – 11.1 to 11.78

REFERENCE BOOKS:
Applied Discrete Structures for Computer Science, alanDoerr& Kenneth levasseur, AsianStudent Edition.

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BACHELOR OF COMPUTER APPLICATIONS (B.C.A)

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PART - IV **SBS**	**Title : SCRIPTING LANGUAGE**	**Subject Code : 17 UCAS11**
Semester : I	**HOURS : 3 hours / Week**	**CREDITS : 3**

OBJECTIVES:

Understand the concept of internet and its scripting languages using HTML/Java Script/VB Script

UNIT-I:

HTML: Body and text commands –Basic paragraph text tags – text styles – color values- hyperlinks – images – HTML interactions and enhancements.

UNIT-II:

List-Creating Table-Linking Document-Frames-Graphics to HTML Doc-Style sheet basic- Add style to document-Creating Style sheet Properties-Font-Text-List-Color and background color-Box-Display Properties.

UNIT-III:

Javascript and the Internet-Javascript Language Embedding javascript in HTML- Variables and Literals – Expressions and Operators – Control Statements and Functions-Dialog Box.

UNIT-IV:

Fundamentals of objects-Built in Objects and Functions- Netscape Objects – The Form Object – Windows and Frames - User Defined - Cookies.

UNIT-V:

VB Script-Security and vbscript – vbscript versus visual basic- Host environment-Placing vbscript code within an HTML document – variables – using operators – instrinct operators – intrinsic function. The Msgbox functions – input boxes – controlling the flow controls – passing arguments into procedure – intrinsic HTML – form controls – The button controls.

TEXT BOOK(S):

1. Bob Breedlove et al "WEB PROGRAMMING UNLEASHED"
2. Web Enabled Commerical Application Development Using HTML, DHTML, JavaScript, Perl, CGI – I. Bayross, BPB Publications, 2000 **(Unit 2 only)**

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

REFERENCE BOOKS:

Glee Harsah Cady and Pat MeGgregor "Mastering the Internet" BPB 1998
Snell,SamsTeachYourself Internet and Web Basic All in one(SAMS), Perasoneductions.

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BACHELOR OF COMPUTER APPLICATIONS (B.C.A)

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

II SEMESTER(2017-18 onwards)

Sl. No.	Sub. Code	Nature	Subject Title	Hrs/ Week	Exam Hrs	CA	SE	Tot	Crd
1	17UACT21 H21/ S21	Part-I	TAMIL/ HINDI/ SANSKRIT	6	3	25	75	100	3
2	17UACE21	Part-II	ENGLISH	6	3	25	75	100	3
3	17UCAC21	Part-III Core	Digital Computer Architecture	4	3	25	75	100	4
4	17UCACP2	Part-III Core	Lab 2 : Scripting Language	5	3	40	60	100	3
5	17UCAA21	Part-III Allied	Resouce Management Technique	4	3	25	75	100	4
6	17 UCAS21	Part-IV SBS	System Software	3	3	25	75	100	3
7	14 UACES1	Part-IV	Environmental Studies	2	3	25	75	100	2
			TOTAL	30					22

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PART - III **CORE**	**Title : DIGITAL COMPUTER ARCHITECTURE**	**Subject Code : 17 UCAC21**
Semester : II	**HOURS : 4 hours / Week**	**CREDITS : 4**

OBJECTIVES:

To learn about the basic principle of the system and the system architecture.

UNIT-I:

Gate Networks and Logic Design – Flip-Flops – R-S Flip Flop- D-Flip Flop-K-Flip-Flop-J-K-Master Slave flip-flops – Registers – Parallel-in-Parallel-out-Serial-in-Serial-out-Parallel-in-Serial-out-Serial-in-Parallel-out-Counter-Synchronous Counter-Asynchronous Counters-Adder Design.

UNIT-II:

Processing Unit-Fundamental Concepts: Register Transfers-Performing an Arithmetic or Logic operation-Fetching a Word from Memory-Storing a word in Memory. Execution of a complete Instruction-Multiple Bus Organization-Hardwired control-Micro programmed Control: Micro Instructions – Micro program Sequencing-Wide-Branch Addressing-Microinstructions with Next-Address Field-Pre fetching Microinstructions.

UNIT-III:

I/O Organization-Accessing I/O Devices - Interrupts: Interrupt hardware-Enabling/Disabling interrupts-Handling multiple Devices-Controlling Device Requests. DMA-Buses: Synchronous Bus-Asynchronous Bus-Interface Circuits: Parallel port-Serial port. Standard I/O interfaces: PCI Bus-SCSI Bus-USB.

UNIT-IV:

Memory-Basic Concepts-Semiconductor RAM Memories: Internal organization of Memory chips-Static Memories-Asynchronous/Synchronous DRAMs-Rambus Memory-ROM: PROM-EPROM-EEPROM-Flash Memory-Cache Memories: Mapping Functions-Virtual Memories-Memory Management Requirements.

UNIT-V:

Basic concepts of Pipelining: Role of Cache Memory-Pipeline performance-Data Hazards: Operand Forwarding-Handling Data Hazards in software-Size Effects-Instruction Hazards: Unconditional Branches-Conditional Branches and Branch Prediction-Superscalar Operation: Out-of-order Execution-Execution Completion-Dispatch Operation.

TEXT BOOK(S):

1. Digital Circuits & Design – S.Salivahanan, S.Arivazhagan – Vikas Publishing House Pvt.Ltd.,2002. (Unit 1 only)
2. Computer Organization – V.CarlHamachar, ZronkoG.Vranesic, Software O.Zaky-Tata McGraw Hill Publishers 4th Edition 1996. (Unit 2 to 5)

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

Unit 1 - Text Book 1 : Chap 3.3, 5.3, 5.4,7.3 to 7.6, 7.10, 8.2, 8.9,9.2

Unit 2 to 5 - Text Book 2

Unit 2 – Chap 7 full Unit 3: Chap 4.1, 4.2,4.4, 4.5 to 4.7

Unit 4 – Chap 5.1 to 5.5, 5.7,5.8 Unit 5: – Chap 8.1 to 8.3, 8.6

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PART - III **CORE**	**Title : LAB 2 : SCRIPTING LANGUAGE**	**Subject Code : 17 UCACP2**
Semester : II	**HOURS : 5 hours / Week**	**CREDITS : 3**

OBJECTIVES:
To learn and practice the basic HTML language thru various tags for web designing

Lab Cycle

1 Design a HTML file to demonstrate the various formatting tags.
2 Design a HTML file to create an Ordered list with numbering by lowercase roman numerals.
3 Design a HTML file to embed the image by image tag with its attribute.
4 Design a HTML file to create a class time-table using table tag.
5 Design a HTML file to insert a Framed Webpage.
6 Design a HTML file to create a Home page of your own using all HTML tags.
7 Design a HTML file to navigate from one website to another website.
8 Design a CSS file to demonstrate the use of FONT attribute.
9 Design a CSS file to align and transform the text.
10 Design a CSS file to demonstrate the border and margin attributes.
11 Write a VBScript code to simulate the digital clock, based on system time.
12 Write a VBScript code to change background color using buttons.
13 Write a VBScript code to Swap two numbers using function.
14 Write a Java Script code to simulate basic calculator.
15 Write a Java Script code to generate the prime numbers.
16 Write a Java Script code to demonstrate the native object "math" with any two functions.
17 Write a JSP application that validates the Login form.
18 Write a JSP application to retrieve the data using Post method.
19 Write a ASP application to display date & time using build-in-function.
20 Write a ASP application to redirect the request to any other page.

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BACHELOR OF COMPUTER APPLICATIONS (B.C.A)

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PART - III **ALLIED**	**Title : RESOURCE MANAGEMENT TECHNIQUE**	**Subject Code : 17 UCAA21**
Semester : II	**HOURS : 4 hours / Week**	**CREDITS : 4**

OBJECTIVES:

To solve application problems like travelling salesman problem, graphical method, least cost method, vogel's approximation method using various tech.

UNIT-I:

Development of OR – Definition of OR-Modeling in OR-general methods for solving OR models-Main characteristics and phases of OR study- Tools and techniques and methods-Scientific methods in OR-Scope of OR.

UNIT-II:

Linear programming problems-Mathematical formulation of L.P.P-Slack and Surplus variables-Graphical solution of L.P.P.

UNIT-III:

Simplex methods- Computational procedure-Artificial variables techniques two phase method-Duality in linear programming.

UNIT-IV:

Mathematical formulation of assignment problem-Method for solving the assignment problems. – Traveling Salesman Problem.

UNIT-V:

Mathematical formulation of transportation problem-Optimal solution of T.P-Methods for obtaining initial feasible solution-Optimal solution-degeneracy in T.P-Unbalanced T.P.

TEXT BOOK(S):

"Resource Management Technique (OR) – New revised edition by Prof. V.Sundaram , K.S.Ganapathysubramanian, K.Ganesan – by A.R.Publications

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

Unit I – Chap 1, 1.1 to 1.7; Unit -2 , Chap 2, 2.1 to 2.5, 31.1, 31.2 ; Unit II Chap. 3, 31.3, 31.4, 3.2, 3.2.1. Unit – IV, Chap 8, 8.2 8.3, 8.5 to 8.9 ; Unit – V Chap 7, 7.1.7.53

REFERENCE BOOKS:

Operational Research – S.D.Sharma – KedarNathRamnath& Co. – 1997.
Operational Research – Gupta, Man Mohan, Gandhi Swarup –Sultan Chand Publications.

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BACHELOR OF COMPUTER APPLICATIONS (B.C.A)

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PART - IV **SBS**	**Title : SYSTEM SOFTWARE**	**Subject Code : 17 UCAS21**
Semester : II	**HOURS : 3 hours / Week**	**CREDITS : 3**

OBJECTIVES:

To learn the major tasks of system software of a computer system and to focus the internal working of hardware & software of a system

UNIT-I:

Introduction - System Software and Machine Architecture –Simplified Instructional Computer: SIC Machine Architecture-SIC/XE Machine Architecture-SIC Programming Examples– Traditional(CISC)machines:VAX Architecture-Pentium Pro Architecture-RISC Machines : UltraSPARC Architecture-PowerPC Architecture-Cray T3E Architecture .

UNIT-II:

Assemblers: Basic assembler Functions:A Simple SIC Assembler-Assembler Algorithm and Data Structures. Machine-Dependent Assembler Features: Instruction Formats and Addressing Modes-Program Relocation.

UNIT-III:

Machine Independent Assemblers Features: Literals-Symbol-Defining Statements-Expressions-Program Blocks-Control Sections and Program Linking. Assembler Design Options: OnePass Assemblers-Multi-Pass Assemblers.

UNIT-IV:

Compilers: Basic Compiler Functions: Grammars-Lexical Analysis-Syntactic Analysis-Code Generation. Machine independent Compilerfeatures: Structured Variables-Machine-Independent Code Optimization-Block Structured Languages.

UNIT-V:

Other System Software: Database Management Systems: Basic Concept of a DBMS-Levels of Data Description-Use of a DBMS- Text Editors: Overview of the Editing Process-User Interface-Editor Structure –Interactive DebuggingSystems: Debugging Functions and Capabilities-Relationship with other parts of the system-User-Interface Criteria

TEXT BOOK(S):

System Software An Introduction to System Programming by Leland L. Beck, Addison –Wesley Publication, 2005

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

Unit 1 – Chap 1, Unit – 2 – Chap 2.1, 2.2 Unit-3 – Chap 2.1 to 2.4 Unit-4 – Chap 5.1, 5.3.1 to 5.3.2, 5.3.4 Unit 5 – Chap 7

REFERENCE BOOKS:

System Programming and Operating System, Dhamdhere,Tata McGraw Hill,

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