E.M.G. YADAVA WOMEN'S COLLEGE, MADURAI – 625 014.

(*An Autonomous Institution – Affiliated to Madurai Kamaraj University*)

Re-accredited **(3rd Cycle)** with Grade **A+** & **CGPA 3.51** by NAAC

DEPARTMENT OF INFORMATION TECHNOLOGY

CBCS 39 , , ! " 53

BACHELOR OF SCIENCE

PROGRAMME CODE - I

COURSE STRUCTURE

(w.e.f. 2017 – 2018 onwards)

Annexure - 10

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DEPARTMENT OF INFORMATION TECHNOLOGY-UG

COURSE STRUCTURE - SEMESTER WISE

(w.e.f. 2017 – 2018 Batch onwards)

Sem	Part	Sub. Code	Title of the paper	Teaching hrs (per week)	Duration of Exam (hrs)	Marks allotted			Credits
						C.A	S.E	Total	
1	I	171T1	Part I - Tamil	6	3	25	75	100	3
	II	172E1	Part II - English	6	3	25	75	100	3
	III	17I11	Core 1 - Programming in C	4	3	25	75	100	4
	III	17I1P	Core Lab 2 - Programming in C Lab	5	3	40	60	100	3
	III	17AI1	Allied I – Discrete Mathematics	5	3	25	75	100	5
	IV	17SEI1P	Skill Based I – HTML and Office Automation Lab	2	2	40	60	100	2
	IV	17NMI1	NME: Windows Tools and Applications	2	2	25	75	100	2
2	I	171T2	Part I - Tamil	6	3	25	75	100	3
	II	172E2	Part II - English	6	3	25	75	100	3
	III	17I21	Core 3 – Object Oriented Programming with C++	4	3	25	75	100	4
	III	17I2P	Core Lab 4 - Object Oriented Programming with C++ Lab	5	3	40	60	100	3
	III	17AI2	Allied II – Resource Management Techniques	5	3	25	75	100	5
	IV	17SEI2P	Skill Based II – Desktop Publishing Lab	2	2	40	60	100	2
	IV	17NMI2	NME: Introduction to Internet	2	2	25	75	100	2
3	I	171T3	Part I - Tamil	6	3	25	75	100	3
	II	172E3	Part II - English	6	3	25	75	100	3
	III	17I31	Core 5 – RDBMS	4	3	25	75	100	3
	III	17I32	Core 6 – Data Structure and Algorithms	4	3	25	75	100	4
	III	17I3P	Core Lab 7 – VB and RDBMS Lab	3	3	40	60	100	3
	III	17AI3	Allied III - Numerical Methods	5	3	25	75	100	5
	IV	17SEI3P	Skill Based III – Multimedia Lab	2	2	-	-	100	2

4	I	171T4	Part I - Tamil	6	3	25	75	100	3
	II	172E4	Part II - English	6	3	25	75	100	3
	III	17I41	Core 8 – Operating System & System Software	4	3	25	75	100	4
	III	17I4P	Core Lab 9 – Unix and Linux Programming Lab	3	3	40	60	100	3
	III	17I42	Core 10 – Computer Graphics	4	3	25	75	100	3
	III	17AI4	Allied IV - Financial and Cost Accounting	5	3	25	75	100	5
	IV	17SEI4P	Skill Based IV – Tally Lab	2	2	-	-	100	2
5	III	17I51	Core 11 - Programming in Java	5	3	25	75	100	4
	III	17I52	Core 12 – Digital Principles and Computer Organization	5	3	25	75	100	4
	III	17I53	Core 13 – Computer Networks	5	3	25	75	100	4
	III	17I5P	Core Lab 14 – Programming in Java Lab	6	3	40	60	100	3
	III		**Elective I**	5	3	25	75	100	5
	IV	17SEI5P	Skill Based V – PHP and MySQL Lab	2	2	-	-	100	2
	IV	174EV5	Environmental Studies	2	2	-	-	100	2
6	III	17I61	Core 15 – Software Engineering	5	3	25	75	100	4
	III	17I62	Core 16 – Data Mining and Warehousing	5	3	25	75	100	4
	III	17I6P	Core Lab 17 – Web Technology Lab	6	3	40	60	100	3
	III		**Elective II**	5	3	25	75	100	5
	III	17IPR6	**Elective III (Project)**	5	3	20	80	100	5
	IV	17SEI61	Skill Based VI - Quantitative Aptitude	2	2	-	-	100	2
	IV	174VE6	Value Education	2	2	-	-	100	2
	V	175NS4/ 175PE4	N.S.S / Physical Education	-	2	-	-	-	1
			Total	180					140

Elective I

Semester - V (Choose any one)

1. Client Server Computing - 17IE5A
2. System Analysis and Design -17IE5B

Elective II

Semester - VI (Choose any one)

1. Mobile Computing -17IE6A
2. Cloud Computing -17IE6B

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(w.e.f. 2017 – 2018 onwards)

Title of the Paper : Programming in C
Semester : I **Contact Hours : 4**
Subject Code : 17I11 **Credits : 4**

Objectives:

1. To impart adequate knowledge on the need of programming languages and problem solving techniques.
2. To develop programming skills using the fundamentals and basics of C Language.
3. To enable effective usage of arrays, structures, functions, pointers and to implement the memory management concepts.

Unit-I: Overview of C:

History of C – Basic Structure of C Programs – Character Set – Keywords and Identifiers – Constants – Variables – Data Types – Declaration – Operators and Expressions –Reading a Character – Writing a Character – Formatted Input – Formatted Output.

Unit-II: Decision Making Branching and Looping:

IF statement –If…Else statement – Nesting of IF…Else – ELSE IF ladder – Switch statement – Conditional operator – Go to statement – While statement – Do statement – For statement – Jumps in Loops. **Arrays:** Declaration and Initialization One dimensional – Declaration and Initialization Two dimensional – Multidimensional arrays – Dynamic Array.

Unit-III: Character Array and String:

Declaring and Initializing String Variables – Reading and Writing String Arithmetic Operations – String Handling Functions – Table of strings. **User-defined Function:** Need and Elements of Function – Defining a Function – Return Values and

Their types – Function call and declaration – Categories of Function – Nesting of Function – Recursion – Passing Arrays to function – Passing Strings to function.

Unit- IV: Structures and Unions: Defining a Structure – Declaring, Accessing and Initializing of Structures – Copying, Comparing and Operations of Structure Variable – Arrays of Structure – Arrays within Structure – Structures within Structures – Structure and Function – Unions – Size of Structure.

Unit- V: Pointers: Introduction – Accessing, Declaring, Initializing of Pointer Variables – Accessing a Variable through its Pointer - Chain Pointer – Pointer Expression – Increment scale factor – Array and character Strings – Array of Pointers – Function arguments and Returning Pointers – Pointers to Function and Structure – Trouble with Pointers. **Files:** Defining Opening and Closing a file – I/O Operations on File – Error Handling – Random Access – Command Line Arguments.

Text Book:

1. Balagurusamy E., *Programming in ANSI C,* Tata McGraw Hill Publication, New Delhi, 6th Edition, 2007.

Chapters:

Unit I	:	Chapter 1, 2, 3, 4.
Unit II	:	Chapter 5, 6, 7.
Unit III	:	Chapter 8, 9.
Unit IV	:	Chapter 10.
Unit V	:	Chapter 11, 12.

Reference Books:

1. Anandhi Sheshasaayee & Sheshasaayee.G, *The Programming Language C,* Margham Publications, Chennai, 2nd Edition, 2005.
2. Byron S.Gottfried, Ph.D, *Theory and problems of Programming in C II,* TataMcGraw Hill Publishing Company Limited, New Delhi, 2nd Edition, 1998.
3. Byron Gottfried, *Programming with C, Schaum's Outline series,* New York, 3rd Edition, 2010.
4. Mullish Cooper, *The Spirit of 'C',*Jaico Publishing House, Mumbai, II Edition, 2001.
5. Ramaswamy S. & RadhaGanesan P., *Programming in C,* Scitech publications, Chennai & Hyderabad, 1st Edition, 2004.

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(w.e.f. 2017 – 2018 onwards)

Title of the Paper : Programming in C Lab
Semester : I **Contact Hours: 5**
Subject Code : 17I1P **Credits : 3**

1. Perform Arithmetic Operations.
2. Check leap year or not.
3. Print the vowel characters.
4. Convert decimal number into binary number.
5. Sum of Natural numbers.
6. Print the Pascal triangle.
7. Generate the Prime number.
8. Reverse the string using recursive.
9. Find the factorial value using recursive.
10. Print the Fibonacci series up to 100.
11. Arrange the numbers in ascending order.
12. Transpose of a given matrix.
13. Addition of two matrices.
14. Compare two strings.
15. Concatenation of strings.
16. Team wise player display using Structure.
17. Student marks processing using Union.
18. Arithmetic operations using Pointer.
19. Employee salary bill processing using File.
20. Inventory program using File.

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(w.e.f. 2017 – 2018 onwards)

Title of the Paper	**: Discrete Mathematics**		
Semester	**: I**	**Contact Hours**	**: 5**
Subject Code	**: 17AI1**	**Credits**	**: 5**

Objectives:

1. Simplify and evaluate basic logic statements including compound statements, implications, inverses, converses, and the properties of logic.
2. Identify and apply basic concepts of set theory, arithmetic, logic, proof techniques, binary relations, graphs and trees.
3. Apply the knowledge and skills obtained to investigate and solve a variety of discrete mathematical problems.

Unit-I:

Set Theory: Introduction – Sets – Notation and Description of sets – Subsets – Venn – Euler Diagrams – Operation on sets – Properties of set operations – Verification of basic laws and algebra by Venn diagram.

Unit-II:

Relations : Relations – Representation of a relation – Operations on relations – equivalence relation – Closures & Warshalls Algorithm – Partitions and Equivalence Classes.

Unit –III:

Logic: Introduction – IF statements – Connectives – Truth table of a formula – Tautology - Tautolological implications and Equivalence of formulae – Quantifiers.

Unit-IV:

Recurrence relations and Generating functions: Recurrence relation – an introduction – Polynomial and their evaluations – Recurrence relations – Solutions of finite order homogeneous (linear) relations – Solutions of non-

homogeneous(linear) relations – Solutions of non-homogeneous relations – Generating functions (For all the theorems consider the statements without proofs).

Unit-V:

Graph Theory: Basic concepts – Matrix representations of graphs – Trees – Spanning tree – shortest path problem.

Text Book

1. Venkataraman M.K., Sridharan N. & Chandrasekaran Z., D*iscrete Mathematics*, National Publishing Company, Chennai, India, Third Edition, Jan 2011.

   Unit I : Chapter 1.1 to 1.8

   Unit II: Chapter 2 (2.2 to 2.6)

   Unit III: Chapter 9 (9.1 to 9.3, 9.6 to 9.8, 9.15)

   Unit IV: Chapter 5 (5.1 to 5.6)

   Unit V : Chapter11 (11.1 to 11.5)

Reference Books:

1. Edgar G. Goodaire, Michael & Parmenter M., *Discrete Mathematics with Graph Theory*, PHI Learning Private Limited, New Delhi, Third Edition, 2011.
2. Kolman, Busby & Ross, *Discrete Mathematical Structures*, PHI Learning Private Limited, New Delhi, Sixth Edition, 2009.
3. Liu C. L. & Mohapatra D. P., *Elements of Discrete Mathematics*, Tata Mcgraw Hill Education Private Limited, New Delhi, Fifth Reprint, 2010.
4. Semyour Lipschutz / Marc Lipson – *Discrete Mathematics* - Tata Magraw Hill Education private Limited – New Delhi, India, II Edition, 2006.
5. Sen M.K., Chakraborty B.C., *Introduction to Discrete Mathematics,* Books and Allied (P) Ltd., Kolkata, India, III Edition, 2008.

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(w.e.f. 2017 – 2018 onwards)

SKILL BASED ELECTIVE - I

Title of the Paper : HTML and Office Automation Lab
Semester : I
Subject Code : 17SEI1P
Contact Hours: 2
Credits : 2

HTML:

1. a. Write HTML code to develop a web page having the background in red and body My First Page" in any other color.

   b. Create a HTML document giving details of your name, age, telephone, address, roll no. using align tag.

   c. Write HTML code to design a page containing a text in a paragraph give suitable heading style.

   d. Design a page having background color given text color red and using all the attributes of font tab.

2 .a. Write HTML code to create a WebPage that contains an Image at its center.

b .Create a web Page using href tag having the attribute alink, vlink.

c. Write a HTML code to create a web page of pink color and display moving message in red color.

3. a. Create a web page, showing an ordered list of name of your five friends.

b. Create a HTML document containing a nested list showing the content page of any book c. Create a web page, showing an unordered list of name of fruits

4. Write HTML code to create a web page that displays your class time table.

5. Create a web page with Table using Frame concept.

6. Design an application form using all input types.

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MS Word:

1. Open a word document to prepare your "RESUME" by performing the following operations.

   Formatting the test, alignment and font style.

   Page setup(margin, alignment, page height and width).
2. Create a word document to prepare an application form for college.
3. Create a student mark sheet using table, find out the total and average marks and display the result.
4. Design an invitation of your course inauguration function using different fonts, font sizes, bullets and word art/ clip art.
5. Mail merge
   i) Prepare a business letter for more than one company using mail merge.
   ii) Prepare an invitation and to be sent to specify address in the data source.

MS Excel

6. Create a suitable worksheet with necessary information and use data sort to display the results. Also use data filters to answer at least five different criteria.
7. Create a suitable worksheet with necessary information and make out a suitable chart showing gridlines, legends and titles for axes.
8. Prepare salary bill in a worksheet showing Basic pay, DA, HRA, Gross salary, PF, Tax and Net Salary using suitable Excel functions.
9. Create, display and interact with the data using pivot tables and pivot charts of Excel features.

MS PowerPoint

10. Create a presentation to explain various aspects of your college using auto play
11. Create a presentation to explain the sales performance of a company over a period of five years. Include slides covering the profile of the company, year wise sales and graph with gridlines, legends and title for axes. Use clipart and animation features.

12. Create a presentation from various design templates
13. Prepare a presentation using auto content wizard and your content to auto content wizard.
14. Create a presentation with the audio and video effect.

MS Access

15. Create a "Student details" table for storing marks of N students. The fields of the table are: Reg.no., name, mark1, mark2, mark3 , assignment mark, seminar mark. Set the following constrains in the table.
    i) Set primary key in the Reg.no. field
    ii) Assignment marks should be of maximum 5
    iii) Seminar marks should be of maximum 10
16. Create a query for calculating total and average marks in the student table
17. Create a "Book Details" table with the fields book name, author name, price, name of the publisher, year of publication. Prepare the following queries by using this table:
    i) use "like" function to filter the author names beginning with the letter 'A'
    ii) list those books which are published after the year 2010.
    iii) Make a new table with the fields author name and book name.

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(w.e.f. 2017 – 2018 onwards)

Non Major Elective - I

Title of the Paper : Windows Tools and Applications
Semester : I
Subject Code : 17NMI1
Contact Hours: 2
Credits : 2

Objectives:

1. To acquire knowledge about the Microsoft application software.
2. To prepare Documentations in word and slides in PowerPoint presentations.
3. Know how to use the Objects of toolbar to insert text, WordArt, and Clip Art into a publication.

Unit-I: MS - Word:

About MS-Word 2000 – **File Menu:** New – Open – Close – Save – Save as a Web page – Page setup – Print – **Edit Menu:** Editing Text – Selecting Text – Undo Typing – Redo Typing – Cut – Deleting text – Copy – Paste – Paste as Hyperlink – Select all – Find and Replace – **View Menu:** Normal View – Web Layout – Print Layout – Ruler – Document map – Header and Footer – Full Screen – **Insert Menu:** Break – Page Number – Date & Time – Auto Text – Field – Symbol – Footnote & End note – Caption – Cross-reference – Index & Tables – Picture – Textbox –Hyperlink.

Unit-II: MS-Word:

Format menu: Font – Paragraph – Bullets & Numbering – Borders & Shading – Theme – Frames Auto Format – Style – **Tool Menu:** Spelling & Grammar – Language – Word Count – Auto Summarize – Track Changes – Merge Documents – Protect Documents – Online Collaboration – Mail Merge – **Table Menu:** Draw Table – Insert Table – Delete – Select – Merge Cells – Split Cells – Split Table – Table Auto Format.

Unit-III: MS-EXCEL:

About Excel : Starting Excel – Navigating Worksheets – Opening a New Work Book – Entering Data, Text, Numbers , Dates & Times, Formulas – Entering labels and data – Excel Functions – Creating text, Numbers & date Series – Undo & redo – Saving Workbooks – Editing Worksheet – clearing a cell – Copying data – Moving Data – Inserting rows, columns and cell ranges – Deleting rows, columns and cell ranges – Headers and Footers – Find and Replace – **Formatting Worksheets:** Numeric Formatting – Custom Formatting – Date & Time Formats – Alignment – Wrap Text – Merge Cells – Orientation – Font – Borders – Patterns – Changing row Height – Sheet – **Charts:** Creating a chart – Save & Print a Chart – Save & Printing Worksheets.

Unit-IV: Microsoft PowerPoint:

About Power Point: Starting Power Point – Creating a presentation using Auto content Wizard – Creating a Design template – Creating a Blank presentation – Opening an existing presentation – Saving and Closing presentation – Existing Power Point – View, Insert & Edit in Presentation: Using Master – Inserting and Deleting Slides – Viewing a presentation – Entering, Editing, Inserting, Deleting, Moving and Copying text – Inserting text in bulleted list text place holders – **Formatting in Presentations:** Changing the case of the text – Check Spell – Formatting text – Alignment – Line Spacing – Back ground – Colors & Lines – Header and Footer.

Unit –V: Microsoft PowerPoint:

Inserting Pictures: Inserting Clip art Pictures – Auto shaped feature to add object – Adding movies & sounds – Organization Chart – Word Art – Inserting Table, Chart and Object – **Slid Show in Presentations:** Presentation with group of Slide – View Show – Rehearse Timings – Record Narration – Setup Show for Self-running presentation – Preset & Custom Animation – Slide Transition – Hide Slide – Action Buttons – Custom Shows – Printing a presentation.

Text Book:

1. Nellai Kannan C., *MS Office,* Nels Publications, Chennai, 5th Edition, 2012.

Chapters:

Unit I : Chapter 1 – 4 (Word)
Unit II : Chapter 5 – 7 (Word)
Unit III : Chapter 1 – 3 (Excel)
Unit IV : Chapter 1 – 2 (PowerPoint)
Unit V : Chapter 4 – 5 (PowerPoint)

Reference Books:

1. Dinesh Maidasani, *MS Office 2000*, Firewall Media, New Delhi,1st Edition, 2003.
2. Nellai Kannan C., *MS Office*, Nellai Kannan Publication, Chennai, 5th Edition, 2012.
3. Ramesh Benjamin, *Ms Office*, Vikas Publishing House Pvt. Ltd., Chennai, 2nd Edition, 2005.
4. Sanjay Saxena, *MS Office 2000*, Vikas Publishing House Pvt. Ltd., Chennai, 4th Edition, 2009.
5. Stephen Cope Stake, *Excel 2003*, Dreamtech Press, NewDelhi, 2nd Edition, 2004.
6. Paul McFedries, *MS Office 2000*, Kanak Enterprises Pressup, New Delhi, 2nd Edition, 2007.

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(w.e.f. 2017 – 2018 onwards)

Title of the Paper : Object Oriented Programming with C++
Semester : II **Contact Hours: 4**
Subject Code : 17I21 **Credits : 4**

Objectives:

1. Arm the students with the basic programming concepts.
2. Introduce different techniques pertaining problem solving skills.
3. Arm the students with the necessary constructs of C++ programming and to emphasis on guided practical sessions.

Unit -I:

Software Crisis – Software Evolution – Basic Concepts of Object-Oriented Programming – Benefits of OOP – Object-Oriented Languages - Applications of OOP – Application of C++ - Structure of a C++ Program – 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++ - Manipulators – Type cast operator – Expressions and their types-Implicit conversions – Control structures – The main function – Function prototyping – inline functions – Function overloading.

Unit -II:

Specifying a class – Defining member functions – Making an outside function inline – Nesting of member functions – Private member functions – Array within a class – Memory allocation for objects – Static data members – Static member functions – Array of objects - Objects as function arguments – Friendly functions – Returning objects – Constant member functions – Constructors – Parameterized constructor – Multiple constructors in a class – Constructors with default arguments – Dynamic initialization of

objects – Copy constructor – Destructors.

Unit -III:

Defining operator overloading – Overloading unary operators – Overloading binary operators – Overloading binary operators using friend function – Rules for overloading operators - Defining derived classes – Single inheritance – Making a private member inheritable – Multilevel inheritance – Multiple inheritance – Hierarchical inheritance – Hybrid inheritance - Virtual base classes – Constructors in derived class – 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 operations – Managing output with manipulators.

Unit -V:

Classes of file stream operations – Opening and Closing files – Detecting end of file – More about open() function – File modes, File pointers and their manipulation – Sequential input and output operations – Command-line arguments- Templates: class templates and function templates.

Text Book:

1. Balagurusamy E., *Object Oriented Programming with C++***,** McGraw Hill Education (India) Private Limited, New Delhi, Sixth Edition*,* 2013.

   Unit I – Chapter 1 (Except 1.3, 1.4),
   Chapter 2 (Only 2.6),
   Chapter 3 (Except 3.20, 3.21, 3.22), Chapter 4

   Unit II – Chapter 5 (Except 5.18, 5.19),
   Chapter 6 (Except 6.8, 6.9, 6.10)

   Unit III – Chapter 7 , 8

   Unit IV – Chapter 9, 10

   Unit V – Chapter 11 (Except 11.8),
   Chapter 12 (Only 12.2, 12.3 and 12.4)

Reference Books:

1. Ashok Kamthane N., *Object Oriented Programming with Ansi& Turbo C++,* Pearson Education, New Delhi, First Edition, 2003.
2. Easwara Kumar K.S.,*Object Oriented Data Structure using C++,* Vikad Publishing House Private Limited, New Delhi, First Edition, 2000.
3. John R.Hubbard, *Programming with C++,* Tata McGraw Hill Publishing Company Private Limited, New Delhi, Second Edition, 2007.
4. PoornachandraSarang, *Object-Oriented Programming with C++,* PHI Learning Private Limited, New Delhi, 2nd Edition, 2009.
5. RadhaGanesan P., *Programming with C++,* Scitech Publication Private Limited, Chennai, First Edition, 2002.

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(w.e.f. 2017 – 2018 onwards)

Title of the Paper : Object Oriented Programming with C++ Lab
Semester : II Contact Hours : 5
Subject Code : 17I2P Credits : 3

1. Program for solving m power n using default arguments.
2. Swapping of two values using functions.
3. Maximum of two numbers using Friend function.
4. Inline function.
5. Program for Constructor.
6. Program for Single Inheritance.
7. Program for Multiple inheritance.
8. Program for Multilevel Inheritance.
9. Abstract Class, Virtual Base Class
10. Demonstrating the use of **"this"** pointer.
11. Number manipulation using operator overloading.
12. Program for Polymorphism and virtual functions.
13. Program for Type conversion.
14. Program for I/O manipulators.
15. Designing our own manipulator.
16. Processing mark list using binary file.
17. Count number of objects in a file.
18. Demonstrating the use of Command-line arguments.

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(w.e.f. 2017 – 2018 onwards)

Title of the Paper	**: Resource Management Techniques**		
Semester	**: II**	**Contact Hours**	**: 5**
Subject Code	**: 17AI2**	**Credits**	**: 5**

Objectives:

1. The objective of the course is to notify students with the application of operations research to business and industry
2. To expose them to various tools, techniques and methods available for decision making.
3. Understand the mathematical tools that are needed to solve optimization problems.

Unit-I: Operation Research: The nature and meaning of OR-Management Applications of OR- General methods for solving OR models - Main characteristics of OR-Main Phases of OR - Scope of OR-Role of Computers in OR.

Unit-II: Linear Programming and its Applications: Formulation of LP Problems – Graphical Solution of properly behaved LP Problem – General Formulation of LPP-Slack and Surplus Variables.

Unit–III: Simplex Method : Computational Procedure of Simplex Method - Artificial Variable Technique - Two phase method – Big-M-Method.

Unit-IV: Transportation Problems: Mathematical Formulation – Initial Basic Feasible Solution to Transportation Problem - Methods for initial Basic Feasible Solution.

Unit-V: Assignment Models: Mathematical Formulation of Assignment Problem – Hungarian Method for Assignment Problem- Assignment Algorithm- A rule to draw minimum number of Lines- Unbalanced assignment Problem- The Maximal assignment Problem- Restriction on Assignment Problem.

Text Book:

1. Sharma S.D, *Operations Research,* Kedar nath Ram nath & Co, India, Sixteenth Edition, 2012.

Chapters:

Unit I : Chapter 2.2,2.3,2.7,2.9,2.10,2.11,2.15.

Unit II : Chapter 3.1,3.20,3.31.

Unit III : Chapter 5.23,5.33,5.37.

Unit IV : Chapter 15.1,15.7,15.43.

Unit V : Chapter 16.1,16.3,16.6,16.18,16.22,16.27.

Reference Books:

1. Hamdy A.Taha, *Operations Research An Introduction,* PHI Learning Private Limited, New Delhi, Eighth Edition, 2008.
2. KandiSwapur, Gupta P.K. & Man Mohan, *Operations Research,* Sultan Chand & Sons, New Delhi, Fifteenth Thoroughly Revised Edition, 2011.
3. Kapoor V.K., *Operations Research,* Sultan Chan & Sons, New Delhi, 17th Edition, 2003.
4. Man Mohan, *Problems in Operation Research,* Sultan Publishers, New Delhi, 10th Edition, 2004.
5. Natarajan A.M., Balasubramani P. & Tamilarasi A., *Operations Research,* Baba BarkhaNath Printers, India, Third Impression, 2008.
6. NitaH.Shah, Ravi M.Goal, HardikSoni, *Operations Research,* PHI Learning Private Limited, New Delhi, Third Edition, 2009.

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SKILL BASED ELECTIVE - II

Title of the Paper : Desktop Publishing Lab
Semester : II **Contact Hours : 2**
Subject Code : 17SEI2P **Credits : 2**

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1. **Use Adobe PageMaker** for
   a. Creating and opening publications, use of toolbox, palettes, text and graphics, templates, saving publications – create a notice for an exhibition
   b. Tutorial positioning ruler guides, typing text, formatting graphics, creating columns, creating styles, changing typestyle and alignment, rotating and moving text and graphics, tabs, creating leaders, positioning and resizing logos. – create a tabulated invoice for a company
2. Constructing a publication with the following features: set-up pages, edit master pages, choosing measurement system and setup ruler, alignment, layout, page-numbers, rearrange pages, apply header/footer, import text, thread text blocks, balance columns, edit story, use frames and layers, lock objects, wrap text around graphics, crop graphics.
3. **Use CorelDraw** for
   a. Creating a drawing, set rulers, grid, guidelines, and view document.
   b. Drawing, moving, shaping objects, lines and curves, dimension line, working with style and templates
   c. Grouping/ungrouping, locking/unlocking objects, using layers, aligning and editing objects – pattern/texture fills, editing/applying end shapes, splitting/erasing portions, positioning, moving, stretching, and rotating objects
   d. Formatting text and paragraph, creating and adding blends, envelopes, extrusions, 3D special effects, different formats and layouts, previewing, sizing and printing a job.

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Non Major Elective - II

Title of the Paper	**: Introduction to Internet**		
Semester	**: II**	**Contact Hours**	**: 2**
Subject Code	**: 17NMI2**	**Credits**	**: 2**

Objectives:

1. Describe the important features of the Web and Web browser software.
2. Evaluate e-mail software and Web-based e-mail services.
3. Use search engines and directories effectively.

Unit-I: Internet:

Introduction – What is Internet – How does Internet Work – Special about the Internet – History of Internet – **World Wide Web:** Introduction – Internet and Web – How the Web Works – History of WWW.

Unit-II: Web Browsers and Web Browsing:

Web Browsers – Types of Browsers – Web Browsing – **Searching the Web:** Information Sources – Finding Information on the Internet – Searching the Web – Web Directory – Search Engine.

Unit-III: Internet Addressing:

Introduction – IP Address – Domain Names – Domain Name System – Uniform Resource Locator .

Unit-IV: Internet Protocols:

Introduction – Transmission Control Protocol / Internet Protocol – File Transfer Protocol – Hypertext Transfer Protocol – Telnet - Gopher

Unit-V: Electronic Mail:

Introduction – E-Mail Works – Mailing Basics – How private is the E-mail – Spamming – E-Mail Advantages & Disadvantages – E-Mail Safety Tips – Smileys

(Emoticons) – Free E-mail Providers – **Websites and Web Pages:** Introduction – Web Design – **Overview of Web Technologies:** Introduction – HTML.

Text Book:

1. Alexis Leon & Mathews Leon, *Internet for Every One*, Vikas Publishing House Private Limited, New Delhi, 15th Anniversary Edition, 2012.

Chapters:

Unit I	:	Chapter 1, 4
Unit II	:	Chapter 5, 6
Unit III	:	Chapter 8
Unit IV	:	Chapter 9
Unit V	:	Chapter 10, 11(11.1, 11.2), 12(12.1, 12.2)

Reference Books:

1. Alexis Leon & Mathews Leon, *The Internet for Everyone,* LXL Consultancy Service PVT. Ltd., Chennai, Reprint, 2004.
2. Christian Crumlish, *The Internet,* Manish Jain for BPB Publications, New Delhi, 1999.
3. Douglas Comer. E, *The Internet,* Addison Weslay Longman PVT. Ltd., New Delhi, 3rd Edition, 2001.
4. Harley Hahn, *The Internet Complete Reference,* Tata McGraw Hill Publishing Company Ltd, New Delhi, 2nd Edition, Seventh Reprint 2000.
5. Margaret Levine Young, *The Complete Reference for Internet,* Tata McGraw Hill Publishing Company Ltd, New Delhi, 2nd Edition, 2000.

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Title of the Paper : RDBMS
Semester : III
Sub Code : 17I31

Contact Hours: 4
Credits : 3

Objectives:

1. To understand and use data manipulation language to query, update, and manage a database.
2. To develop an understanding of essential RDBMS concepts such as database security, integrity, and concurrency.
3. To design and build a simple database system using E-R Model.

Unit - I:

Introduction: Purpose of Database System – View of Data – Database languages – Relational Databases – Database Design – Object-Based and Semi structured Database – Data Storage and Querying – Transaction Management –Data Mining and Analysis – Database Architecture – Database Users and Administrators – History of Database System.

Unit - II:

Relational Model: Structure of Relational Databases – Fundamental Relational -Algebra Operations – Additional Relational-Algebra Operations – Extended Relational-Algebra Operations – Null Values – Modification of Database. **SQL:** Background – Data Definition – Basic Structure of SQL queries – Set Operations – Aggregate Functions – Null Values – Nested Subqueries – Complex queries – Views.

Unit - III:

Database Design and The E - R Model: Overview of the Design Process – The Entity-Relationship Model – Constraints – Entity-Relationship Diagrams – Entity-Relationship Design Issues – Weak Entity sets – Extended E-R Features.

Unit - IV:

Relational Database Design: Features of Good Relational Designs – Atomic Domains and First Normal Form – Decomposition Using Functional Dependencies – Functional-Dependency Theory – Decomposition using Multivalued Dependencies.

Unit - V:

Storage and File Structure: Overview of Physical Storage media – Magnetic Disks – RAID – Tertiary Storage – Storage Access – File Organization – Organization of Records in Files – Data-Dictionary Storage.

Text Book:

1. Abraham Silberschtz, Henry F.Korth & S.Sudarshan, *Database System Concepts*, McGraw-Hill International Edition, Fifth Edition, 2006.

Chapters:

Unit I	:	Chapter 1
Unit II	:	Chapters 2, 3 (3.1 to 3.9)
Unit III	:	Chapter 6 (6.1 to 6.7)
Unit IV	:	Chapter 7 (7.1 to 7.4, 7.6)
Unit V	:	Chapter 11

Reference Books:

1. Date.C.J, *An Introduction to Database Systems*, Pearson Education Publication, New Delhi, Seventh Edition, 2003.
2. GoganVarshney, D*ataBase Management Systems*, Global Vision Publishing House, New Delhi, First Edition, 2010.
3. Ivan Bayross, *DataBase Concepts and System*, SPB Publications, Chennai, Third Edition, 2009.
4. Jeffrey Hoffer A., MaryPrescott B. & Fred McFadden R., *Modern DataBase Management*, Dorling Kindersley Private Limited, New Delhi, Seventh Edition, 2003.
5. Ramakrishnan & Gehrke, *Database Management System*, McGraw Hill, New York, Third Edition, 2003.

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(w.e.f. 2017 – 2018 Batch onwards)

Title of the Paper : Data Structure and Algorithms

Semester : III **Contact Hours: 4**

Subject Code : 17I32 **Credits : 4**

Objectives:

1. To study the systematic way of solving problems and various methods of organizing large amounts of data.
2. To design and implementation of advanced data structures such as Linear Lists, Stacks, Queues, Binary Trees and Graphs.
3. Student will be able to handle operations like Searching, Insertion, Deletion, Traversing mechanism on various data structures.

UNIT- I:

Basic Concepts: Overview : System Life Cycle - Object Oriented Design – Data Abstraction and Encapsulation - Basics of C++ - Algorithm Specification. **Arrays:** Abstract Data Types and the C++ Class - The Array as an Abstract Data Type - Representation of Arrays.

UNIT-II:

Stacks & Queues: Templates in C++ - The Stack Abstract Data Type - The Queue Abstract Data Type - Subtyping and Inheritance in C++. **Linked Lists:** Singly linked lists and Chains - Representing Chains in C++ - The Template Class Chain - **C**ircular Lists - Linked Stacks & Queues.

UNIT-III:

Trees: Introduction - Binary Trees - Binary Tree Traversal and Tree Iterations - Threaded Binary Trees - Heaps - Binary Search Trees- Selection Trees – Forests.

UNIT-IV:

Graphs: The Graph Abstract Data Type – Elementary Graph Operation – Minimum Cost Spanning Tree – Shortest Paths and Transitive Clousure - Activity Networks.

UNIT-V:

Sorting: Motivation – Insertion Sort – Quick Sort – Fast method to Sort - Merge Sort – Heap Sort – Sorting on Several Keys – List and Table Sorts.

Text Book:

1. Elis Horowitz, Sartaj Sahni & Dinesh Mehta, *Fundamentals of Data structures in C++*, Universities Press (India) Private Limited, Hyderabad, Second Edition, Reprint 2013.

Chapters:

UNIT I	-	Chapters 1 (1.1 - 1.5), 2 (2.1, 2.2, 2.5)
UNIT II	-	Chapters 3 (3.1 – 3.4), 4 (4.1 -4.4), 4.6
UNIT III	-	Chapter 5 (5.1 – 5.3, 5.5 - 5.9)
UNIT IV	-	Chapter 6
UNIT V	-	Chapter 7 (7.1 – 7.8)

Reference Books:

1. Aaron M. Tenenbaum, Moshe J. Augenstein & Yedidyah Langsam, *Data Structure using C & C++*, Prentice Hall of India Private Limited, New Delhi, Second Edition, 2005.
2. Ashok N.Kamthane, *Object Oriented Programming with Ansi & Turbo C++*, Pearson Education, New Delhi, First Edition, 2003.
3. Easwara Kumar K.S., *Object Oriented Data Structure using C++,* Vikad Publishing House Private Limited, New Delhi, First Edition, 2000.
4. Ellis Horowitz, Sartaj Sahni & Dinesh Metha, *Fundamentals of Data Structures in C++* , Universities Press (India) Private Limited, Hyderabad, Second Edition, 2007.
5. Mark Allen Weiss, *Data Structures and Algorithms Analysis in C*, Pearson Education Inc. and Dorling Kindersley Publishing Inc., New Delhi, Second Edition, 2010.

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Title of the Paper : VB and RDBMS Lab
Semester : III **Contact Hours: 3**
Subject Code : 17I3P **Credits : 3**

VB PROGRAMS:

1. String Manipulation & Date function.
2. Design a Calculator.
3. Number Puzzle.
4. File, Directory, Drive list boxes to load a text.
5. Text Editor using Rich Text Box.
6. Common Dialog Control.
7. Animate a Picture.
8. Display a Popup Menu.
9. Connection of Student Database using DAO.
10. Connection of Employee Database using ADO.

QUERIES:

1. Data Definition Language
2. Data Manipulation Language
3. Simple Queries
4. Built-in-Queries
5. Constraints (Primary Key, Foreign Key)

PL/SQL

1. Reverse a Given Number.
2. Odd Number Generation.
3. Multiplication Table.
4. Predefined Exception Handling.
5. User Defined Exception.
6. Cursor (Implicit/ Explicit).
7. Trigger (Updation/ Deletion).
8. Factorial Using Procedures.

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Title of the Paper : Numerical Methods
Semester : III **Contact Hours: 5**
Subject Code : 17AI3 **Credits : 5**

Objectives:

1. This course is an introduction of numerical methods for solving mathematical problems.
2. This will help you choose and apply the appropriate numerical techniques for problem, interpret and assess accuracy results.
3. It covers the concepts of numerical methods to solve the non-linear equations, interpolation, differentiation and integration.

Unit – I:

Algebraic and Transcendental Equations: Iterative method of successive approximation-Sufficient condition for convergence of iterations-Bisection method-Newton Raphson method-Regulafalsi method (No derivation of formula required).

Unit - II:

Simultaneous Equations: Back substitution- Gauss elimination method- Gauss seidel iteration method-Comparison of direct and iterative method- Calculation of inverse Gauss Jordan Method. (Problems only).

Unit - III:

Interpolation: Newton's forward and backward interpolation formulae- Interpolation with unequal intervals – Divided differences -Lagrange's interpolation formula-Inverse interpolation**.**(Problems only).

Unit - IV:

Numerical differentiation and Integration : Newton's Forward and Backward difference formulae-Numerical integration: Trapezoidal rule-Simpson's 1/3 rule-Simpson's 3/8 rule. (Problems only).

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Unit - V:

Numerical Solution of Ordinary Differential Equation: Taylor's Series method- Improved Euler's Methods – Modified Euler's Method - Runge Kutta Method - Milnes Predictor Corrector Method. (Problems only).

Text Book:

1. Dr.Singaravelu A., *Numerical Methods,* Meenakshi Agency, Chennai, Eleventh Edition, Reprint 2008.

Chapters:

Unit I	:	Chapter 1.2, 1.3, 1.13, 1.16, 1.41.
Unit II	:	Chapter 1.55, 1.58, 1.66, 1.72, 1.78, 1.94.
Unit III	:	Chapter 2.3, 2.4, 2.24, 2.35, 2.98, 2.123.
Unit IV	:	Chapter 3.1, 3.2, 3.23.
Unit V	:	Chapter 4.2, 4.22, 4.23 ,4.37, 4.63, 4.66

Reference Books:

1. Arumugam.S, Thangapandi Issac.A, Soma Sundaram.A, *Numerical Methods*, SCITECH Publications, Chennai, Second Edition, 2009.
2. Jain.M.K, Iyengar.S.R.K, *Numerical Methods*, New age International Publishers, New Delhi, Second Edition, 2009.
3. Kandasamy D.P, Dr.Thilagavathy K. & Dr.Gunavathi K., *Numerical Method*, S.Chand & Sons Company Limited, New Delhi, First Edition, 2010.
4. Rajaramen V., *Computer Oriented Numerical Methods,* Prentice Hall of India Pvt. Ltd., New Delhi, Third Edition, 2005.
5. Veerarajan T. & Rama Chandran T., *Numerical Methods With programs in C & C++*, Tata McGraw Hill Publishing Company Limited, New Delhi, First Edition, 2005.

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SKILL BASED ELECTIVE - III

Title of the Paper : Multimedia Lab
Semester : III
Subject Code : 17SEI3P

Contact Hours: 2
Credits : 2

ADOBE PHOTOSHOP PROGRAMS

1. Basic tools used in Photoshop.
2. Design an image by applying mirror effect.
3. Design an image by applying Text and Transform Tool.
4. Design an image by using patch or healing brush tool to remove damaged parts of an image.
5. Design an image by applying Color Balance to change the color of an image.
6. Design an image by using Clone Stamp Tool, Smudge Tool.
7. Design an image by applying Blur Filter.
8. Design an image by applying Lighting effect Filter.
9. Design an image by applying Blending options to make a text effect.
10. Design an image by applying rainbow effect.
11. Design an image by applying text masking effect.
12. Design a college id card using any tools.
13. Design a banner for your college with images and text.

FLASH PROGRAME

1. Basic tools used in Flash.
2. Develop a Flash application using motion tween.
3. Develop a Flash application using shape tween.
4. Develop a Flash application for ball bouncing using motion guide path.
5. Develop a Flash application for masking effect.
6. Develop a Flash application using layer based animation.
7. Develop a Flash application to represent the growing moon
8. Write action script to play and stop an animation.
9. Write action script to find the biggest of three numbers.
10. Write action script to find the factorial of a number.

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Title of the Paper	**: Operating System & System Software**	
Semester	**: IV**	**Contact Hours: 4**
Sub Code	**: 17I41**	**Credits : 4**

Objectives:

1. Identify the primary functions of an Operating System and System Software.
2. To gain knowledge on distributed operating system concepts that includes architecture, Mutual exclusion and deadlock detection algorithms.
3. Student will understand the role played by system software such as Machine Architecture, Assemblers, Loaders and Linkers.

Unit-I:

Introduction: What is an Operating System – Mainframe Systems – Desktop Systems – Multiprocessor Systems – Distributed Operating Systems. **Process Management:** Process Concept – Process Scheduling – Operations on Processes – Cooperating Processes – Inter process Communication - Scheduling Algorithms.

Unit-II:

CPU Scheduling: Basic Concepts-Scheduling Criteria-Scheduling Algorithms. **Deadlocks:** System model – Deadlock Characterization – Methods for handling Deadlocks – Deadlock Prevention – Deadlock Avoidance – Deadlock Detection – Recovery from Deadlock.

Unit-III:

Memory Management: Background – Swapping – Contiguous Memory Allocation – Paging Segmentation - Segmentation with Paging. **File-System Interface**: File Concepts – Access Methods – Directory Structure.

Unit-IV:

Background: Introduction to System Software and Machine Architecture - The Simplified Instructional Computer (SIC). **Assemblers**: Basic assembler functions - Machine - Dependent and machine independent assembler features - Assembler design options.

Unit-V:

Loaders and Linkers: Basic Loader Functions – Machine- Dependent Loader Features – Machine Independent Loader Features – Loader Design Options.

Text books:

1. Silberschatz, Galvin & Gagne, *Operating System Concepts*, John Wiley & Sons, Inc., New Delhi, Sixth Edition, 2013.
2. Leland L.Beck, *System Software An Introduction to System Programming*, Addision Wesely, New Delhi, Third Edition, 2009.

Chapters:

Unit I	-	Chapters 1, 4 (Text Book 1)
Unit II	-	Chapters 6 (6.1, 6.2, 6.3), 8 (Text Book 1)
Unit III	-	Chapter 9, 11 (11.1 – 11.3) (Text Book 1)
Unit IV	-	Chapters 1(1.1 – 1.3), 2 (2.1-2.4) (Text Book 2)
Unit V	-	Chapter 3(3.1 – 3.4) (Text Book 2)

Reference Books:

1. Achyut S Godbole, *Operating System,* Tata McGraw Hill, New Delhi, Fourteenth Edition, 2003.
2. H.M.Deital, *Operating System*, Pearson Education, New Delhi, Eleventh Edition, 2003.
3. Milonmilenkovic, *Operating System*, Tata McGraw-Hill, New Delhi, Second Edition, 1997.
4. Dhamdhere.D.M, *System programming and operating system,* Tata McGraw Hill, New Delhi, Second Revised Edition, 2006.
5. Donova, *System Programming*, Tata McGraw Hill, New Delhi, Second Revised Edition, 2006.

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Title of the Paper : Unix and Linux Programming Lab
Semester : IV
Subject Code : 17I4P

Contact Hours: 3
Credits : 3

UNIX AWK PROGRAMS

1. Add two numbers
2. Factorial of a given number
3. Print Roman Values
4. Check the Perfect number
5. Multiplication Table
6. Swapping the Number
7. Sorting of Names
8. Program to check the Palindrome
9. Function Program
10. Calculate the Electricity Charges

LINUX PROGRAMS

1. Execution of various file/directory handling commands.
2. Simple shell script for basic arithmetic and logical calculations.
3. Shell scripts to perform various operations on given strings.
4. Shell scripts to explore system variables such as PATH, HOME etc.
5. Shell scripts to check and list attributes of processes.
6. Write awk script that uses all of its features.
7. Use seed instruction to process /etc/password file.
8. Write a shell script to display list of users currently logged in.
9. Write a shell script to delete all the temporary files.
10. Write a shell script to search an element from an array using binary searching.

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(w.e.f. 2017 – 2018 Batch onwards)

Title of the Paper : Computer Graphics
Semester : IV
Subject Code : 17I42

Contact Hours: 4
Credits : 3

Objectives:

1. This course will focus on the theoretical aspects and implementation of computer graphics.
2. Have to learn the concept of Transformation of an object such as Translation, Rotation and Scaling.
3. The students will be able to understand the Graphics primitives and Two Dimensional Object Creation & Manipulation Techniques.

Unit – I:

A Survey of Computer Graphics: Computer Aided Design – Presentation Graphics – Computer Art – Entertainment – Education and Training – Visualization – Image Processing – GUI. **Overview of Graphics Systems:** Video Display Devices- Raster Scan System – Random Scan System – Graphics Monitors and Workstations – Input Devices – Hard Copy Devices – Graphics Software.

Unit - II:

Output Primitives: Points and Lines – Line Drawing Algorithms – Loading the Frame Buffer – Line function – Circle Generating Algorithms – Ellipse Generating Algorithms – Other Curves – Parallel Curve Algorithms – Curve Functions - Pixel Addressing – Filled Area Primitives –Fill Area Functions – Cell Array - Character Generation.

Unit - III:

Attributes of Output Primitives: Line Attributes – Curve Attributes – Color and Grayscale Levels – Area Fill Attributes – Character Attributes – Bundled Attributes – Inquiry Functions – Antialiasing.

Unit – IV:

Two Dimensional Geometric Transformation: Basic Transformations- Matrix representations and Homogeneous Coordinates - Composite Transformations - Other Transformations – Transformations between coordinate systems – Affine Transformations – Transformation Functions – Raster Methods for Transformations.

Unit - V:

Two Dimensional Viewing: The Viewing Pipeline - Viewing Coordinate Reference Frame - Window to viewport Coordinate Transformation - Two Dimensional Viewing Functions- Clipping Operations – Point Clipping – Line Clipping (Cohen-Sutherland, Liang-Barshy, Nicholl-Lee-Nicholl Line Clipping) – Polygon Clipping – Curve Clipping – Text Clipping – Exterior Clipping.

Text Book:

1. Donald Hearn & Pauline Baker M., *Computer Graphic C Version,* Pearson Education, New Delhi, Second Edition, 2012.

Chapters:

Unit I	-	Chapters 1, 2
Unit II	-	Chapter 3
Unit III	-	Chapter 4
Unit IV	-	Chapter 5
Unit V	-	Chapter 6

Reference Books:

1. Johnson, *Computer Graphics and application,* PHI publications, New Delhi, Third Edition, 2001.
2. Malay K. Pakhira, *Computer Graphics, Multimedia and Animation* , Prentice Hall Of India Pvt. Ltd., New Delhi, Second Edition, 2008.
3. Mukherjee D. P., *Fundamentals Of Computer Graphics And Multimedia*, Prentice Hall Of India Pvt. Ltd., New Delhi , First Edition, 1999.
4. Steven Harrigton, *Computer Graphics,* Tata McGraw Hill publications, New Delhi, Second Edition, 2005.
5. Wikipedia, *Computer Graphics,* Tata McGraw Hill publications, New Delhi, Third Edition, 2007.

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Title of the Paper	**: Financial and Cost Accounting**	
Semester	**: IV**	**Contact Hours: 5**
Subject Code	**: 17AI4**	**Credits : 5**

Objectives:

1. Develop and understand the nature and purpose of financial statements in relationship to decision making.
2. Develop the ability to use the fundamental accounting equation to analyze the effect of business transactions on an organization's accounting records and financial statements.
3. To be able to interpret cost accounting statements and cost calculation using accounting methods.

Unit –I:

Double Entry System: Introduction – Meaning of Accounting – Accounting Terms – Principle of Double Entry - Advantages of Double Entry System – Rules. **Journal & Ledger:** Preparation of Journal & Ledger – Relation between Journal and Ledger - Trial Balance.

Unit –II:

Final Accounts: Financial Statements and their Nature –Trading Account -Advantages of Trading Account – Profit and Loss Account – Balance Sheet - Distinction between Trading , Profit and Loss account and Balance Sheet – Adjustments in Final Accounts - Difference between Trial Balance and Balance Sheet.

Unit-III:

Introduction: Cost Accounting – Objectives – Functions of Cost Accounting - Difference between Financial accounting and Cost Accounting.

Cost – Methods, Types, Classification: Methods of Cost – Types of Cost - Classification – Elements of Cost – Production Account – Preparation of Cost Sheet.

Unit –IV:

Material Inventory Control: Store Keeping – Functions of Store Keeper – Store Lay out – Types of Stores – Centralized and Decentralized – Central Store with Sub-stores - Fixation of Stock Levels - Economic Order Quantity (EOQ) - ABC Analysis – Inventory System: Preparation of Bin card and Stores Ledger Account. **Material Issues Control:** Issue Procedure – Pricing of Materials: Actual Price Method (FIFO, LIFO), Average Price Method (Simple Average and Weighted Average).

Unit-V:

Labour Cost : Introduction –Control of Labour Cost – Methods of Time Booking – Merits and Demerits – Idle Time -Control on over time and idle Time – Labour Turnover. **Labour Cost – Cost Accounting:** Methods of Remuneration –Time rate at Ordinary levels, Time rate at High wage levels, Guaranteed Time Rates - Differential Piece Rate – Premium Bonus Schemes (Incentive systems): The Halsey Premium Plan, The Halsey-weir Scheme , Rowan Scheme.

Text Books:

1. Nagarajan K. ,Vinayagam N. & Mani P., *Principles of Accountancy,* Eurasia Publishing House Pvt. Ltd., Ramnagar, New Delhi, Fourth Edition, Reprint 2009.
2. Pillai R.S.N. & V.Bagavathi, *Cost Accounting,* S. Chand & Company Pvt. Ltd., Ram Nagar, New Delhi, Revised Edition, 2014.

Chapters:

Unit I - Chapters 1, 2 (Text Book 1)
Unit II - Chapter 6 (Text Book 1)
Unit III - Chapters 1, 2 (Text Book 2)
Unit IV - Chapters 4, 5 (Text Book 2)
Unit V - Chapters 7, 8 (Text Book 2)

Reference Books:

1. Gupta R.L & Radhaswamy M., C*ost Accounting,* Sultan Chand & Sons Educational Publishers, New Delhi, Thirteenth Revised Edition, 2007.
2. Iyengar C. & Jain S.P., *Financial Accounting,* Narang Kalyani Publishers, Ludhiana, Eighth edition, 2007.

3. Reddy T.S., Murth A., *Financial Accounting,* Marcham Publication, Chennai, Fourth Edition, 2003.

4. Saxena V.K. & Vashist C.V., *Cost Accounting*, New Delhi, Seventh Edition, 2005.

5. Sultan, C*ost Accouting,* Sultan Chand & Sons Educational Publishers, New Delhi, Eighth Edition, 2003.

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DEPARTMENT OF INFORMATION TECHNOLOGY-UG

(w.e.f. 2017 – 2018 Batch onwards)

SKILL BASED ELECTIVE - IV

Title of the Paper : Tally Lab
Semester : IV
Subject Code : 17SEI4P

Contact Hours: 2
Credits : 2

TALLY PROGRRAMS:

1. Creation of Company
2. F11- Features
3. F12-Features
4. Creation of Ledger
5. Accounting Voucher Creation
6. Profit & Loss A/C
7. Balance Sheet
8. Stock Creation
9. Bill wise details
10. Creation of Cost Centre and Cost category

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(w.e.f. 2017 – 2018 Batch onwards)

Title of the Paper : Programming in Java
Semester : V
Subject Code : 17I51

Contact Hours: 5
Credits : 4

Objectives:

1. To introduce the features of object oriented programming languages using Java.
2. To provide an introduction to Java and enable the student to create simple Web based applications using Java Applets.
3. To have a basic idea about Graphics programming using Java.

Unit-I:

Fundamentals of Object-Oriented Programming: Introduction – Object-oriented Paradigm – Basic concepts of OOP – Benefits of OOP – Applications of OOP.

Java Evolution: Java History – Java Features – Java Differs from C & C++ - Java and Internet – Java Environment.

Overview of Java L anguage: Introduction – Simple Java Program – More of Java – Application with two classes – Java Program structure – Java Tokens – Java statements – Implementing a Java Program – Java Virtual Machine – Command Line Arguments.

Constants, Variables and Data Ty pes: Introduction – Constants – Variables – Data Types – Declaration of variables – Giving values to variables – Scope of variables – Symbolic constants – Type casting – Getting values of variables – Standard default values.

Unit-II :

Operators and Expressions: Introduction – Arithmetic operators – Relational operators – Logical operators – Assignment operators – Increment and Decrement

operators – Conditional operators – Bitwise operators – Special operators – Arithmetic Expressions – Evaluation of Expressions – Precedence of Arithmetic operators – Type conversions in Expressions – Mathematical Functions.

Decision Making and Branching: Introduction – Decision making with IF statement – The Switch statement – The ?: operator - **Decision Making and Looping:** The While Statement – The do statement – The for statement – Jumps in loops – Labeled Loops- **Arrays, Strings and Vectors:** Introduction-One Dimensional Arrays-Creating an Array- Two Dimensional Arrays-Strings-Vectors-Wrapper Classes-Enumerated Types

Unit-III:

Classes, Objects and Methods: Introduction Defining a class- Fields Declaring-methods Declaration –Creating Objects- Accessing Class Members- Constructors-method Overloading-Static Members-Nesting of Methods—Inheritance: Extending a Class- Overriding methods-Final Variables and Methods-Final classes-Finalizer Methods-Abstract Method and Classes-Methods with Varargs-Visibility Control

Interfaces: Multiple Inheritances: Defining Interfaces – Extending interfaces – Implementing Interfaces – Accessing Interface Variables.

Unit-IV:

Packages: Java API Packages – Using System Packages – Naming Conventions – Creating packages – Accessing a Package – Using a Package – Adding a class to a Package.

Multithreaded Programming: 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.

Unit-V:

Managing Errors and Exceptions: Introduction – Types of Errors – Exceptions – Syntax of Exception Handling Code – Multiple catch statements – Using Finally statement – Throwing our own Exception – Using Exception for Debugging.

Applet Programming: Introduction – Applets Vs Applications – Building Applet code – Applet Life Cycle – Designing a Web page – Applet Tag –Adding applet to Html file –Passing parameters to Applets – Displaying Numerical values – Getting Input from the User.

Graphics Programming: introduction – The Graphics Class – lines and Rectangles – Circles and Ellipses – Drawing Arcs – Drawing polygons – Line Graphs – Using Control oops in applets – Drawing bar Charts.

Text Book:

1. Balagurusamy E., *Programming with Java A Primer,* Tata McGraw Hill Publishing Company Limited, New Delhi, Fifth Edition (First reprint), 2015.

Chapters:

Unit I	:	Chapters 1,2,3 & 4
Unit II	:	Chapters 5,6,7 & 9
Unit III	:	Chapters 8 &10
Unit IV	:	Chapters 11 & 12
Unit V	:	Chapters13, 14 & 15

Reference Books:

1) David Holmes, James Gosling & Ken Arnold, *The Java Programming Language,* Addison Wesley Longman (Singapore) Pvt. Ltd., Indian Branch, New Delhi, Third Edition, 2000.

2) Dr.Muthu C., *Programming with Java,* Vijay Nicole Imprints Private Limited., Chennai, Second Edition, 2010.

3) Patrick Naughton, *The Java Handbook,* Tata McGraw-Hill Publishing Company Ltd., New Delhi, Twenty Third Reprint, 2007.

4) Somasundaram K., *Advanced Programming in Java 2,* Jaico Publishing House, Mumbai, First Edition, 2008.

5) Xavier C., *Programming with Java 2,*Scitech Publications (India) Pvt. Ltd., Chennai, Fourth Reprint, 2005.

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(w.e.f. 2017 – 2018 Batch onwards)

Title of the Paper	**: Digital Principles and Computer Organization**	
Semester	**: V**	**Contact Hours: 5**
Sub Code	**: 17I52**	**Credits : 4**

Objectives:

1. To apply the principles of Boolean algebra to manipulate and minimize logic expressions.
2. To use K-maps to minimize and optimize two-level logic functions.
3. To study the basic organization and architecture of digital computers (CPU, Memory, I/O).

Unit – I:

Digital Logic: The Basic Gates - NOT, OR, AND - Universal Logic Gates - NOR, NAND - **Combinational logic Circuits**: Boolean Laws and Theorem - Sum – of - Product Method - Truth Table to Karnaugh Map – Pairs, Quads and Octets – Karnaugh Simplifications – Don't - care conditions – Product - of - Sums Method – Product - of - Sums Simplification. **Data Processing Circuits:** Multiplexers – DeMultiplexers.

Unit – II:

Number Systems and Codes: Binary Number System–Binary – to - decimal Conversion– Decimal – to - binary Conversion – Octal Numbers - Hexadecimal Numbers – The ASCII code – The Excess 3 code – The Gray Code.

Arithmetic Circuits: Binary Addition – Binary Subtraction – 2's Complement Representation – 2's Complement Arithmetic - Arithmetic Building Blocks. **Flip-**

Flops: RS Flip-Flops – Edge-triggered RS Flip Flops – Edge-triggered D Flip-Flops – Edge-triggered JK Flip-Flops – JK Master Slave Flip-Flops.

Unit – III:

Machine Instructions and Programs: Memory Locations and Addresses: Byte Addressability - Big-Endian and Little-Endian Assignments - Word Alignment - Accessing Numbers, Characters and Character Strings. Memory Operations - Instruction and Instruction Sequencing: Register Transfer Notation - Assembly Language Notation -Basic Instruction Types - Instruction Execution and Straight Line Sequencing -Branching-Condition Codes. Addressing Modes: Implementation of variables and constants – Indirection and pointers – Indexing and Arrays – Relative Addressing – Additional Modes.

Unit –IV:

Input / Output Organization: Accessing I/O Devices – Interrupts: Interrupt Hardware - Enabling and Disabling Interrupts - Handling Multiple Devices - Controlling Device Requests – Exceptions - Use of Interrupts in Operating Systems - Direct Memory Access: Bus Arbitration – Buses : Synchronous Bus - Asynchronous Bus - Interface Circuits: Parallel port - Serial Port.

Unit – V:

The Memory System: Some Basic Concepts - Semiconductor RAM Memories: Internal Organization of Memory Chips - Static Memories – Asynchronous DRAMS - Synchronous DRAMS – Read Only Memories: ROM – PROM – EPROM – EEPROM - Speed, Size and Cost - Cache Memories: Mapping Functions - Replacement Algorithms - Virtual Memories.

Basic Processing Unit: Some 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.

Text Books:

1. Donald P Leach, Albert Paul Malvino & Goutam Saha, *Digital Principles and Applications*, Mc Graw Hill Publications, 7th Edition, 2015.

Chapters:

Unit I : Chapters 2(2.1, 2.2), 3(3.1- 3.8), 4(4.1,4.2)

Unit II : Chapters 5(5.1-5.8), 6(6.1,6.2,6.5-6.7), 8(8.1,8.3-8.5,8.8)

2. Carl Hamacher, Zvonko Vranesic & Safwat Zaky, *Computer Oraganization*, Mc Graw Hill Publications, 5th Edition, 2002.

Chapters:

Unit III : Chapters 2 (2.2-2.5)

Unit IV : Chapters 4 (4.1, 4.2, 4.4-4.6)

Unit V : Chapters 5(5.1,5. 2(5.2.1-5.2.4),5.3(5.3.1-5.3.4),5.4,5.5(5.5.1-5.5.2), 5.7, 7(7.1-7.2)

Reference Books :

1) Floyd & Jain, *Digital Fundamentals*, Pearson Education, New Delhi, Eighth Edition, 2009.

2) Godse A.P., *Digital Principles and System Design*, Technical Publications, Pune, First Edition, 2009.

3) John Hennessy L. & David Patterson A, *Computer Organization and Design,* Morgan Kaufmann Publishers, India, Third Edition, 2007.

4) John Hennessy L., David Patterson A, *Computer Architecture,* Morgan Kaufmann Publishers, India, Fourth Edition, 2007.

5) William Stallings, *Computer Organization & Architecture*, Prentice Hall of India New Delhi, Seventh Edition, 2008.

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(w.e.f. 2017 – 2018 Batch onwards)

Title of the Paper : Computer Networks
Semester : V
Sub Code : 17I53

Contact Hours: 5
Credits : 4

Objectives:

1. Identify the different types of network topologies and protocols.
2. Enumerate the layers of the OSI model and TCP/IP.
3. Understand and building the skills of sub netting and routing mechanisms.
4. Familiarity with the basic protocols of computer networks and how they can be used to assist in network design.

Unit-I:

Introduction: Uses of Computer Networks - Network Hardware - Network Software - Reference Models: The OSI Reference Model - The TCP/IP Reference Model – A Comparison of the OSI and TCP/IP Reference Models.

Unit-II:

The Physical Layer: Guided Transmission Media - Wireless Transmission - Communication Satellites. The Data Link Layer: Data link layer design Issues - Error Detection and Correction.

Unit-III:

The Medium Access Control: The Channel Allocation Problem - Multiple Access Protocols - Ethernet - Data Link Layer Switching.

Unit-IV:

The Network Layer: Network Layer Design Issues - Routing Algorithms - Congestion Control Algorithms - Internetworking.

Unit-V:

The Transport Layer: The Transport Service - Elements of Transport Protocols. The Application Layer: DNS - The Domain Name System - Electronic Mail.

Text Book:

Andrew S.Tanenbaum, David J.Wetherall, *Computer Networks,* Pearson Education, New Delhi, 5th Edition, 2013.

Chapters:

Unit 1 - Chapter 1 (1.1-1.3, 1.4.1, 1.4.2, 1.4.4)

Unit 2 - Chapters 2 & 3 (2.2 - 2.4, 3.1, 3.2)

Unit 3 - Chapter 4 (4.1 - 4.3, 4.8)

Unit 4 - Chapter 5 (5.1 - 5.3, 5.5)

Unit 5 - Chapters 6 & 7 (6.1, 6.2, 7.1, 7.2)

Reference Books:

1. Behrouz A.Forouzan, *Data Communications and Networking,* Tata McGraw Hill Publications, New Delhi, 22nd Reprint, 2011.

2. Brijendra Singh, *Data communications and Computer Networks,* PHI Learning Private Limited, New Delhi, 2nd Edition, 2009.

3. Barry Dumas.M, Morris Schwartz, *Principles of Computer Networks and Communications,* Pearson Education, New Delhi, IV edition, 2006.

4. Fred Halsall, *Data Communications, Computer Networks and Open Systems,* Pearson Education, New Delhi, IV edition, 2003.

5. William Stallings, *Data and Computer Communications,* Pearson Education, New Delhi, 7th Edition, 2004.

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(w.e.f. 2017 – 2018 Batch onwards)

Title of the Paper	**: Programming in Java Lab**	
Semester	**: V**	**Contact Hours: 6**
Subject Code	: **17I5P**	**Credits: 3**

Java Programs:

1. Arrays and Control Flow Statements.
2. Constructor
3. Runtime Exception and I/O Exception.
4. String Handling
5. Multithreading.
6. Single Inheritance.
7. Multiple Inheritance Using Interfaces.
8. Package Implementation.
9. Merging of two Files.
10. Client/Server Program.
11. GUI Components (List box, Check box, Menus, etc.,).
12. Event Handling (Mouse Event / Key Event)
13. Image Animation.
14. Login Authentication using Applet.
15. Marquee of Text using Java Applet.
16. Java Bean (Text Area, Draw a Circle)
17. Java Database Connectivity (Table Creation, Insertion, Selection)

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(w.e.f. 2017 – 2018 Batch onwards)

Title of the Paper : Client Server Computing
Semester : V **Contact Hours: 5**
Sub Code : 17IE5A **Credits : 5**

Objectives:

1. Conceptualize the basics of Client Server Computing.
2. Identify the different types of Client and Server Operating Systems.
3. Familiarity with the Testing and Diagnostic Tools of Server Operating System.

Unit-I:

Introduction to Client/server computing: Overview of Client/Server Computing: Client Server Computing - Benefits of Client/Server Computing. **Evolution of Client/Server Computing:** Hardware Trends - Software Trends. **Overview of Client/Server Applications:** Components of Client/Server Applications - Classes of Client/Server Applications - Categories of Client/Server Applications.

Unit-II:

Understanding Clint/Server Computing: Dispelling the Myths - Obstacles-Upfront and Hidden - Open Systems and Standards – Standards - Setting Organizations - Factors for Success. **The Client: Client Hardware and Software:** Client Components - Client Operating Systems - What is GUI - X Window Vs Windowing - Database Access - Application Logic. **Client Software Products:** GUI Environments - Converting 3270/5250 Screens - Database Access Tools.

Unit-III:

Client Requirements: GUI Design Standards - GUI Design Standards - Open GUI Standards - Interface Independence - Testing Interface - Development Aids. **The Server:** Server Hardware – Benchmarks - Categories of Servers - Features of Server Machines - Classes of Server Machines. **Server Environment:** Eight Layers of Software

- Network Management Environment - Network Computing Environment – Extensions - Network Operating System - Loadable Modules.

Unit-IV:

Server Operating Systems: OS/2 2.0 - Windows New Technology – UNIX - Based Operating Systems. **Server Requirements:** Platform Independence - Transaction Processing - Connectivity - Intelligent Database - Stored Procedures – Triggers - Load Leveling – Optimizer - Testing and Diagnostic Tools – Reliability - Backup and Recovery Mechanisms.

Unit-V:

Server Data Management and A ccess Tools: Data Manager Features - Data Management Software - Database Gateways. **Overview of Networking:** Layers, Interfaces, and Protocols-Standard Architecture - Network Characteristics - Network Management Standards - LAN Characteristics.

Text Book:

Dawna Travis Dewire, *Client/Server Computing,* McGraw Hill International Edition, New Delhi, First Edition, 2003.

Chapters:

Unit I	-	Chapters 1, 2 & 3
Unit II	-	Chapters 4, 5 & 6
Unit III	-	Chapters 7, 8 & 9
Unit IV	-	Chapters 10, 11
Unit V	-	Chapters 12, 13

Reference Books:

1. Bernard H.Boar, *Implementation client server computing,* McGraw Hill, New Delhi, First Edition, 1993.
2. Bruce R.Elbert, Boddy Martyna, *Client Server Computing,* Artech publisher, New Delhi, First Edition, 1994.
3. Patrick N.Smith, Steven L.Guengerich, *Client/Server Computing,* PHI Learing Private Limited, New Delhi, Second Edition, 2011.
4. William Marion, *Client/Server Strategies,* McGraw-Hill Professional, New Delhi, First Edition, 1994.
5. Ligon, Thomas Ligon, *Client server Communications Services,* McGraw-Hill Professional, NewDelhi, First Edition, 1997.

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Title of the Paper	**: System Analysis and Design**	
Semester	**: V**	**Contact Hours: 5**
Sub Code	**: 17IE5B**	**Credits : 5**

Objectives:

1. This course introduces established and evolving methodologies for the analysis, design, and development of an information system.
2. Emphasis is placed on system characteristics, managing projects, prototyping and systems development life cycle phases.
3. Upon completion, students should be able to analyze a problem and design an appropriate solution using a combination of tools and techniques.

Unit-I:

The Systems Concept – Characteristics of System – Elements of a System – Types of Systems – System Models – System Development Life Cycle (SDLC).

Unit-II:

The System Analyst Definition – Role of the Analyst – Analyst/User Interface – Analyst in the MIS Organization – The Bases for Planning in Systems Analysis – Initial Investigation.

Unit-III:

Information Gathering Introduction –Information Gathering Tools – The Tools of Structured Analysis – System Performance Definition – Feasibility Study.

Unit-IV:

The Process of Design –Design Methodologies – Major Development Activities – Audit considerations – Input/Output and Forms Design.

Unit-V:

System Testing – The Test Plan –Quality Assurance – Role of the Data Processing Auditor – Post Implementation Review – Software Maintenance.

Text Book:

Elias M.Awad, *Systems Analysis and Design*, Tata McGraw Hill , NewDelhi, Reprint 2010.

Chapters:

Unit I - Chapters 1, 2

Unit II - Chapters 3, 4

Unit III - Chapters 5,6,7

Unit IV - Chapters 9,10

Unit V - Chapters 12,13

Reference books:

1. Awad.M, *System Analysis and Design ,* Galgotia Publishers, New Delhi, First Edition, 2006.
2. Gary B.Shelly, Thomas J.Cashman, HarryJ.Rosenblatt, *Systems Analysis And Design*, Thomas Course Technology , Sixth Edition , New Delhi , 2006.
3. ISRD Group , *Structured System Analysis and Design*, Tata McGraw Hill, New Delhi, Seventh reprint , 2012.
4. Kock, *Systems Analysis & Design Fundamentals*, Saga Publications India Pvt.Ltd., New Delhi, First Edition , 2005.
5. Rajesh Nalk & Swapna Kishor, *System Analysis & Business Applications*, Wheeler Publishing, Second Edition , 2001.

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(w.e.f. 2017 – 2018 Batch onwards)

SKILL BASED ELECTIVE - V

Title of the Paper : PHP and MySQL Lab
Semester : V
Sub Code : 17SEI5P

Contact Hours: 2
Credits : 2

PHP Programs:

1. Sum of Digits
2. Even Odd Program using Script and Form in PHP
3. Factorial Program using Script, Form and Recursion in PHP
4. Armstrong number using Script and Form in PHP
5. Palindrome Number using Script and Form in PHP
6. Fibonacci Series using Script and Recursive Function
7. Reversing Number using Script and String function in PHP
8. Area of Triangle using Script and Form
9. Leap Year Program using Script and Form
10. To print the alphabets in a triangle or in a pyramid form using
    - range() with for loop
    - chr() with for loop
    - range() with foreach loop
11. Number Triangle
12. Parameterized Function
13. Call By Value and Call By Reference
14. PHP Form Handling using Get Form and POST Form
15. PHP File Handling

PHP MySQL Connection:

16. PHP MySQL Create Database

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17. PHP MySQL Create Table
18. PHP MySQL Insert Record
19. PHP MySQL Update Record
20. PHP MySQL Delete Record
21. PHP MySQL Select Query
22. PHP MySQL Order By

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(w.e.f. 2017 – 2018 Batch onwards)

Title of the Paper : Software Engineering
Semester : VI
Subject Code : 17I61

Contact Hours: 5
Credits : 4

Objectives:

1. To establish and evolving methodologies for the analysis, design and development of a Software.
2. To Estimate the cost factors for the development of a software product.
3. To Comprehend the Managerial Aspects of Software Maintenance.

Unit–I:

Introduction to Software Engineering: Some Definitions - Some Size factors - Quality and productivity factors - Managerial Issues. 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 - Languages and Processors for Requirements Specifications.

Unit-IV:

Software Design: Fundamental Design Concepts - Modules and Modularization Criteria - Design Notations - Design techniques - Detailed Design Considerations - Real

time and distributed system Design - Test plans - Milestones, Walkthroughs and Inspection - Design Guidelines.

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.

Text Book:

Richard E. Fairly, *Software Engineering Concepts,* McGraw Hill Book company, New Delhi, 38th Reprint, 2012.

Chapters:

Unit I	-	Chapters 1& 2
Unit II	-	Chapter 3
Unit III	-	Chapter 4
Unit IV	-	Chapter 5
Unit V	-	Chapters 8 & 9

Reference Books:

1. Jones &Bartlett, *Essentials of Software Engineering, Jones & Bartlett* Publishers, New Delhi, First Edition, 2010.

2. Pankajjalote, *Integrated approach to Software Engineering,* Tata McGraw-Hill, New Delhi, Third Edition, 2012.

3. Roger S.Pressman, *Software Engineering , Tata* McGraw Hill Edition, New Delhi, Fifth reprint, 2012.

4. Robert-Facts & Fallacies, *Software Engineering, Beverly Publications, USA,* Second Edition, 2011.

5. Summervill, *Software Engineering,* Pearson Education, Newyork, 7th Edition, 2010.

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(w.e.f. 2017 – 2018 Batch onwards)

Title of the Paper : Data Mining and Warehousing
Semester : VI **Contact Hours: 5**
Sub Code : 17I62 **Credits : 4**

Objectives:

1. To equip the students in the knowledge of various tools and techniques involved in Data Mining and Warehousing.
2. To introduce the concept of data mining with in detail coverage of basic tasks, metrics, issues, and implication. Core topics like classification, clustering and association rules are exhaustively dealt with.
3. To introduce the concept of data warehousing with special emphasis on architecture and design.

UNIT-I:

Introduction: Data Mining – Data Mining on what kind of Data – What kind of Patterns can be Mined - Which Technologies are used - Which kind of applications are targeted - Major issues in Data Mining.

UNIT-II:

Data Preprocessing: Data preprocessing an overview-Data cleaning-Data Reduction-Data Transformation and Data Discretization.

UNIT-III:

Data Warehousing and On-Line Analytical Processing: Data Warehouse Basic concepts - Data Warehouse modeling Data cube and OLAP - Data Warehouse design and usage - Data Warehouse implementation-Data generalization by attribute-oriented induction.

UNIT- IV:

Classification Basic Concepts: Basic Concepts - Decision Tree induction - Bayes classification methods - Rule-Based Classification - Model Evaluation and selection -Techniques to improve classification Accuracy.

UNIT-V:

Cluster Analysis Basic concepts and Methods: Cluster Analysis - Partitioning Methods - Hierarchical Methods - Density-Based Methods - Grid –Based Methods -Evaluation of Clustering.

Text Book:

Jiawei Han & Micheline Kamber, "*Data Mining Concepts and Techniques,* Morgan Kaufmann Publishers, New Delhi, Third Edition, 2013.

Chapters:

Unit I : Chapter 1(1.1 to 1.7)
Unit II : Chapter 3 (3.1 to 3.5)
Unit III : Chapter 4 (4.1 to 4.5)
Unit IV : Chapter 8 (8.1 to 8.6)
Unit V : Chapter 10 (10.1 to 10.6)

Reference Books:

1. Alex Berson, Stephen Smith.J , *Data Warehousing ,* Data Mining & OLA, Tata Mc Graw Hill Education Pvt. Ltd., New Delhi, Eighteenth reprint, 2010.
2. Arun K.Pujari , *Data Mining Techniques*, Universities Press (India) Pvt. Ltd., Hyderabad , Second Edition , 2010.
3. Bharat Bhushan Agarwal, Sumit Prakash Tayal , *Data Mining and Data Warehousing*, University Science Press Laxmi Publications Pvt. Ltd., First Edition, Reprint 2014.
4. Dennis Murray , Sam Anahory , *Data Warehousing in the Real World* , Dorling Kindersley (India) Pvt. Ltd., New Delhi, Fifth Edition, 2009.
5. Richard J.Roiger, Michael W.Geatz, Data Mining, Pearson Education, New Delhi, First Impression, 2007.

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(w.e.f. 2017 – 2018 Batch onwards)

Title of the Paper : Web Technology Lab
Semester : VI **Contact Hours: 6**
Sub Code : 17I6P **Credits : 3**

Java Script:

1. Odd Number Generation using Java Script
2. Fibonacci Series using Java Script
3. To Check a Number Palindrome or Not
4. Perform All Arithmetic Operation
5. To Search an elements in a dynamic Array

VB .NET:

6. Adding methods to class
7. Program for Class Event
8. Program for Inheritance
9. List to Add or Remove an Item
10. Date Time Picker-To view files on a particular date
11. Program for Track bar Control
12. Program for Common dialog Control
13. Program for Tree View control
14. Program for Menu Editor

ASP .NET:

15. Write a console application that obtains four int values from the user and displays the product

16. Write an application that uses two command-line arguments to place values into a string and an integer variable, respectively. Then display these values.

17. Write programs using conditional statements and loops:
Generate various patterns (triangles, diamond and other patterns) with numbers.

18. Check whether the number in the textbox 'getnum' is palindrome or not.

19. List of employees is available in list box. Write an application to add selected or all records from list box (assume multi-line property of textbox is true)

20. "How is the book ASP.NET with c# by Vipul Prakashan?" Give the user three choices: i) Good ii) Satisfactory iii) Bad. Provide a VOTE button. After user votes, present the result in percentage using labels next to the choices.

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(w.e.f. 2017 – 2018 Batch onwards)

Title of the Paper	**: Mobile Computing**	
Semester	**: VI**	**Contact Hours: 5**
Sub Code	**: 17IE6A**	**Credits : 5**

Objectives:

1. To impart fundamental concepts in the area of mobile computing.
2. This course covers the limitations of fixed networks, the need and the trend toward mobility.
3. Understand the concept of Wireless LANs, Mobile Networks and Sensor Networks.

UNIT- I: Wireless Communication Fundamentals:

Introduction: Definition-Applications-History of Wireless or Wireless comes of Age-A Reference Model-Future Trends.

Wireless Transmission: Frequencies for Radio Transmission- Signals- Antennas-Signal Propagation- Signal Propagation -Multiplexing –Modulation-Spread.

Medium Access Control (MAC): Introduction-SDMA-Definition-Function of MAC-FDMA-Definition-Techniques of FDMA-Diagram-Description-TDMA-Definition-Diagram-Features of TDMA-Various TDMA Techniques.

UNIT- II: Telecommunication Network:

Telecommunication system: GSM: Introduction-Mobile Services-System Architecture-Radio Interface-Protocols-Localization and Calling-Hand Over-Security-GPRS-GPRS Architecture- GPRS transmission Plane Protocol Reference Model-DECT-System Architecture-Protocol Architecture –UMTS- UMTS System Architecture- UMTS Radio Interface-UTRAN-Core Network-Hand Over.

Satellite Networks:Basics-Parameters and Configuration-Capacity Allocation-Frequency Division - Frequency Division Multiplexing- Frequency Division Multiple Access-FAMA-FDMA-DAMA-FDMA- Capacity Allocation-Time Division-TDMA Frame Format-FAMA-TDMA-SS/TDMA.

UNIT- III: Wireless LAN:

Wireless LAN : IEEE 802.11-Architecture- IEEE 802.11 System Architecture-IEEE 802.11 Protocol Architecture-Services-MAC Layer- MAC Frames- MAC Management-Physical Layer-Frequency Hopping Spread Spectrum-Direct Sequence Spread Spectrum -IEEE 802.11a-Channel Structure-Physical Layer Frame Structure-Coding and Modulation.

HIPERLAN: Introduction- HIPERLAN-1-Requirements and Architecture-HIPERLAN-1 PHY and MAC Layers-WATM-BRAN- HIPERLAN-2-Reference Model and Architecture-Physical Layer-Convergence Layer(CL)-Data Link Control Layer.

UNIT- IV: Mobile IP

Mobile IP:Entities and Terminology-IP Packet Delivery-Agent Discovery- Agent Advertisement- Agent Solicitation-Registration-Tunneling and Encapsulation-IP in IP Encapsulation-Minimal Encapsulation-Generic Routing Encapsulation -Optimizations-Reverse Tunnelling-IPV6-IP Micro Mobility Support-Cellular IP-HAWAII-HMIPv6.

UNIT- V: Wireless Application Protocol (WAP)

Wireless Application Protocol (WAP): Introduction-Architecture-Components of WAP- Wireless Datagram Protocol(WDP)- Wireless Transport Layer Security(WTLS)-Wireless Transaction Protocol (WTP)-WTP class 0- WTP class 1- WTP class 2-Wireless Session Protocol (WSP)-WSP/B over WTP-WSP/B as connectionless Session Service-Wireless Application Environment-Wireless Markup Language-WML Script-Wireless Telephony Application (WTA)-WAP 2.0-Introduction Architecture-Protocol Stack.

Annexure - 8

Text Book:

K.Muralibabu, L.Agilandeeswari, K.Vinothbabu , *Mobile Computing*, Lakshmi Publications, 1st Edition, 2009

Chapters:

Unit I	:	Chapter 1(1.1 to 1.16)
Unit II	:	Chapter 2 (2.1 to 2.9)
Unit III	:	Chapter 3 (3.1 to 3.3)
Unit IV	:	Chapter 4(4.1 to 4.1.10.3)
Unit V	:	Chapter 5(5.3 to 5.8)

Reference Books:

1. Amjad Umar , *Mobile Computing and Wireless Communications* , NGS solutions, Chennai , First Edition, 2004.
2. Behera G.K, Pamudra Das.L.O , *Mobile Communication*, Scitech Publication of india, Chennai, First Edition , 2009.
3. Frank Adelestein, Sandeep K.S.Gupta, Golden G.Richard III, Loren Schwiebert, *Fundamentals of Mobile and Pervasive Computing*, Tata MCGraw Hill Publishing Limited , New York , Fourth Edition , 2005.
4. Jochen Schiller, *Mobile Communication*, Dorling Kindersley of India Pearson Education, South Asia , Second Edition , 2003.
5. Tomasz Imielinski, Henry F. Korth, *Mobile Computing*, Kluwer Academic Publishers, New Delhi, First Edition, 1996.

Annexure - 8

E.M.G. YADAVA WOMEN'S COLLEGE, MADURAI – 625 014.

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(Re–accredited (3rd Cycle) with Grade A+ & CGPA 3.51 by NAAC)

CBCS

DEPARTMENT OF INFORMATION TECHNOLOGY-UG

(w.e.f. 2017 – 2018 Batch onwards)

Title of the Paper	**: Cloud Computing**		
Semester	**: VI**	**Contact Hours**	**: 5**
Sub Code	**: 17IE6B**	**Credits**	**: 5**

Objectives:

1. Analyze the various Cloud concepts and Technologies.
2. Have to knowledge in Cloud based Services and Applications.
3. To learn the basic python programming for cloud services.

Unit: I

Introduction to Cloud Computing: Introduction – Characteristics of Cloud Computing – Cloud Models – Cloud-based Services & Applications. **Cloud Concepts & Technologies:** Virtualization – Load Balancing – Scalability & Elasticity – Deployment – Replication – Monitoring – Software Defined Networking – Network Function Virtualization – MapReduce.

Unit: II

Cloud Services & Platforms: Compute Services – Storage Services – Database Services – Application Services – Content Delivery Services. **Hadoop & Map Reduce:** Apache Hadoop – Hadoop MapReduce Job Execution – Hadoop Schedulers.

Unit: III

Cloud Application Design: Introduction – Design Considerations for Cloud Applications – Reference Architectures for Cloud Applications – Cloud Application Design Methodologies – Data Storage Approaches.

Unit: IV

Python Basics: Introduction – Python Data Types & Data Structures – Control Flow – Functions – Modules – Packages – File Handling – Date/Time Operations – Classes. **Python for Cloud:** Python for Amazon Web Services.

Unit: V

Cloud Security: Introduction – CSA Cloud Security Architecture – Authentication – Authorization – Identity & Access Management – Data Security. **Cloud for Industry, Healthcare & Education:** Cloud Computing for Healthcare –Cloud Computing for Manufacturing Industry – Cloud Computing for Education.

Text Book:

Arshdeep Bahga, Vijay Madisetti, *Cloud Computing: A Hands-on Approach,* University Press(India) Private Limited, Hyderabad, 2th Edition, 2016.

Chapters:

Unit 1 - Chapters 1 (1.1-1.3, 1.5) & 2 (2.1 - 2.9)
Unit 2 - Chapters 3 (3.1 - 3.5) & 4 (4.1 - 4.3)
Unit 3 - Chapter 5 (5.1 - 5.5)
Unit 4 - Chapters 6 (6.1 - 6.10) & 7 (7.1)
Unit 5 - Chapters 12 (12.1 - 12.6) & 13 (13.1, 13.4, 13.5)

Reference Books:

1. John W.Rittinghouse and James F.Ransome, *Cloud Computing: Implementation, Management, and Security*, CRC Press, United States, 2010.
2. Katarina Stanoevska-Slabeva, Thomas Wozniak, *SantiRistol, Grid and Cloud Computing – A Business Perspective on Technology and Applications*, Springer, Chennai, 2010.
3. Kumar Saurabh, *Cloud Computing – insights into New-Era Infrastructure*, Wiley India, New Delhi, 2011.
4. Rajkumar Buyya, Christian Vecchiola, S.ThamaraiSelvi, *Mastering Cloud Computing*, Tata McGraw Hill Education Private Limited, New Delhi, 2013.
5. Ronald L. Krutz, Russell Dean Vines, *Cloud Security – A comprehensive Guide to Secure Cloud Computing*,Wiley – India, New Delhi, 2010.

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(w.e.f. 2017 – 2018 Batch onwards)

Title of the Paper	**: Project**		
Semester	**: VI**	**Contact Hours**	**: 5**
Sub Code	**: 17IPR6**	**Credits**	**: 5**

Objectives:

1. The aim of the Project work is to acquire practical knowledge on the implementation of the programming concepts studied.
2. Each student should carry out the Project Work and it may be a work using the software packages that they have learned or the implementation of concepts from the papers studied or implementation of any innovative idea.

* Exam will be conducted as follows

- Viva-voce will be conducted at the end of VI semester for 100 marks.
- Both the Internal (Respective Guides) and External Examiners (20+80) should conduct the Viva-Voce Examination.
- For awarding a pass, a candidate should have obtained 40% of the Total 100 marks.

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DEPARTMENT OF INFORMATION TECHNOLOGY-UG

(w.e.f. 2017 – 2018 Batch onwards)

SKILL BASED ELECTIVE - VI

Title of the Paper	**: Quantitative Aptitude**		
Semester	**: VI**	**Contact Hours**	**: 2**
Subject Code	**: 17SEI61**	**Credits**	**: 2**

Objectives:

1. This module is designed to acquaint with frequently asked patterns in quantitative aptitude and logical reasoning.
2. This module would train the students on the quick ways to solve quantitative aptitude problems and questions applying logical reasoning.
3. This course would train the students on a variety of question types asked in the competitive Examinations.

Unit- I:

Numbers – Decimal Fractions – Square Roots and Cube Roots – Average – Problems on ages.

Unit- II:

Surds & Indices – Percentage - Profit & Loss – Ratio & Proportion – Time & Work.

Unit- III:

Time & Distance – Problems on Trains – Boats & Streams – Simple Interest – Compound Interest – Logarithms – Area.

Unit- IV:

Calendar – Permutations & Combinations – Probability – Odd Man out Series.

Unit-V:

Tabulation – Bar Graphs – Pie Charts – Line Graphs.

Text Book:

Dr.Aggarwal, R.S,*Quantitative Aptitude,* S.Chand& Company Ltd- Ram Nagar, New Delhi, Revised Edition, 2012.

Chapters:

Unit 1: Chapters 1 3, 5, 6, 8

Unit 2: Chapters 9, 10, 11, 12, 15

Unit 3: Chapters 17, 18, 19, 21, 22, 23, 24

Unit 4: Chapters 27, 30, 31, 35

Unit 5: Chapters 36, 37, 38, 39

Reference Books :

1. AbhijitGuha, *Quantitative Aptitude,* Tata McGraw Hill, New Delhi, Second Edition, 2003.
2. Aggarwal.R.S,*Objective Arithmetic,* S.Chand & Co Ltd,New Delhi Reprint, 2009.
3. Career Launcher, *Quantitative Ability,* Vikas Publishing House Pvt. Ltd., New Delhi, First Edition, 2009.
4. DineshKhattar, *The Pearson Guide to Quantitative Aptitude,* Saurabh Printers Pvt. Ltd., India, Third Edition, 2009.
5. Rita Mishra, *Quantitative Aptitude,* Khurmi Publication, New Delhi, Second Edition, 2008.