

School of Computer and Information Science
BCA and Integrated MCA Scheme and Syllabus

Annexure-1

Bachelor of Computer Application

Semester-I w.e.f. 2012-2013

S. No	Course Title	Paper Code	Teaching Schedule			Total	Credit
			L	T	P		
1	Fundamental of Computer and Programming using C	CAL-101	4	1	2	7	6
2	PC Software	CAL-103	4	1	2	7	6
3	Mathematics –I	AHL-107	4	1	0	5	5
4	Communication Skill	AHL-111	4	0	0	4	4
5	Business Practice	MSL-111	4	1	0	5	5
6	Personality Development-I	AHP-115	0	0	2	2	1
Total			20	4	6	30	27

Semester-II

S. No	Course Title	Paper Code	Teaching Schedule			Total	Credit
			L	T	P		
1	Fundamental of Internet Technologies	CAL-102	4	1	2	7	6
2	Mathematical Foundation of Computer Science	CAL-104	4	1	0	5	5
3	Advanced C Programming	CAL-106	3	0	3	6	4.5
4	Introduction to Computer Network	CAL-108	4	1	0	5	5
5	Mathematics-II	AHL-110	4	1	0	5	5
6	Personality Development-II	AHP-116	0	0	2	2	1
Total			19	4	7	30	26.5

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Semester-III

S. No	Course Title	Paper Code	Teaching Schedule			Total	Credit
			L	T	P		
1	Object Oriented Programming using C++	CAL-201	4	1	2	7	6
2	Data And File Structure	CAL-203	4	1	2	7	6
3	Software Engineering	CAL-205	4	0	0	4	4
4	Computer Organisation	CAL-207	3	1	0	4	4
5	Financial Accounting	MSL-221	3	1	0	4	4
6	Personality Development-III	AHP-203	0	0	2	2	1
7	Convention	CAS-209	0	0	2	2	1
Total			18	4	8	30	26

Semester-IV

S. No	Course Title	Paper Code	Teaching Schedule			Total	Credit
			L	T	P		
1	Operating System	CAL-202	4	1	2	7	6
2	Database Management System	CAL-204	4	1	2	7	6
3	Data Communication And Network	CAL-206	3	1	0	4	4
4	System Analysis and Design	CAL-208	4	0	0	4	4
5	Microprocessor	ECL-210	3	1	0	4	4
6	Personality Development-IV	AHP-204	0	0	2	2	1
7	Environmental Studies	AHL-108	2	0	0	2	AC
8	Forum	CAS-212	0	0	2	2	1
Total			20	4	8	32	26

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Semester-V

S. No	Course Title	Paper Code	Teaching Schedule			Total	Credit
			L	T	P		
1	Core Java	CAL-301	4	1	2	7	6
2	Computer Graphics	CAL-303	4	1	2	7	6
3	Management Information System	CAL-305	4	0	0	4	4
4	Business Communication	AHL-307	4	0	0	4	4
5	Elective-1		4	0	0	4	4
6	Personality Development-V	AHP-303	0	0	2	2	1
7	Proseminar	CAS-307	0	0	2	2	1
Total			20	2	8	30	26

Departmental Elective-1

8	Artificial Intelligence	CAL-309	4	0	0	4	4
9	Mobile Computing	CAL-311	4	0	0	4	4

Semester VI

S. No	Course Title	Paper Code	Teaching Schedule			Total	Credit
			L	T	P		
1	Visual Programming	CAL-302	4	1	2	7	6
2	Numerical Methods	CAL-304	4	1	2	7	6
3	System Programming	CAL-306	3	1	0	4	4
4	Elective -2		4	0	0	4	4
5	Mini Project	CAD-308	0	0	6	6	3
6	Personality Development-VI	AHP-304	0	0	2	2	1
Total			15	3	12	30	24

Departmental Elective-2

Object Oriented System Design	CAL-312	4	0	0	4	4
Multimedia Applications	CAL-314	4	0	0	4	4

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CAL-101	Fundamental of Computer & Programming Using C	L T P	Cr
		4 1 2	6

Objective:

Today is the era of Computer. This subject focuses on the introduction of Computer to each student of every discipline.

Note:

For setting up the question paper, question no 1 will be set up from complete syllabus which will be compulsory and of short answer type. Three questions will be set from each of the sections. The students have to attempt first common question, which is compulsory, and two question from each of the sections. Thus students will have to attempt 5 questions out of 7 questions.

SECTION – A

UNIT – 1

What are computers, The evolution of computers, Classification of computers, Block Diagram: Input-output devices, Computer Memory: Primary Memory & secondary Memory, Memory Organization, Input/output Ports, Connector.

UNIT – 2

Number System, Computer Language: Low level and high level languages, assemblers, compilers, interpreters, linkers, algorithms, flow charting, decision tables, pseudo code, software concepts: system & application software packages.

UNIT – 3

Computer Generation: First Generation of Computers, The Second Generation, The Generation, The fourth Generation, The Fifth Generation. Operating System concepts, different types of operating systems, structure of operating system.

SECTION – B

UNIT – 4

C basics: C Character Set, Identifiers And Keywords, Data Types, Constants, Variables, type of variable and Arrays, Declarations, Expressions Statements, Symbolic Constants, Compound Statements.

UNIT – 5

Operator: Arithmetic Operators, Unary Operators, Relational And Logical Operators, Assignment Operators, Conditional Operators, Bit Operators.

UNIT – 6

C constructs: If statement, if...else statement, if.....else if....else statement, while statement,

do...while statement, for statement, switch statement, nested control statement, break operator, continue operator, goto statement return statement.

Suggested Readings:

Text Books:

1. Fundamentals of Computers & Programming with C, A.K. Sharma, Dhanpat Rai Publishing.
2. Gill, Nasib Singh: Essentials of Computer and Network Technology, Khanna Books Publishing Co., New Delhi.
3. Kenneth.A.: C problem solving and programming, Prentice Hall.
4. Y. Kanetkar: Let us C, BPB Publication
5. E. Balaguruswamy: Programming in C, Tata McGraw Hill.

Reference Books:

1. Gottfried, B.: Theory and problems of Programming in C, Schaum Series
2. Sanders, D.: Computers Today, Tata McGraw-Hill.
3. Rajender Singh: Application of IT to Business, Ramesh Publishers
4. Kerninghan & Ritchie: The C Programming Language, PHI.
5. H. Schildt: C-The Complete Reference, Tata McGraw Hill.

Note: Latest and additional good books may be suggested and added from time to time.

Practical based on the following :

- 1- Program to demonstrate the use of variables, and input output statements.
- 2- Program to demonstrate the use of various arithmetic and logical operators.
- 3- Program to demonstrate the use of various decision making statements.
- 4- Program to demonstrate the use of various looping statements.
- 5- Program to demonstrate the implementation of one dimensional array and its various operations

CAL-103	PC Software	L T P	Cr
		4 1 2	6

Objective:

The purpose of this subject is to provide the dynamic knowledge of office applications of computer that will help the students in day to day work.

For setting up the question paper, question no 1 will be set up from complete syllabus which will be compulsory and of short answer type. Three questions will be set from each of the sections. The students have to attempt first common question, which is compulsory, and two question from each of the sections. Thus students will have to attempt 5 questions out of 7 questions.

SECTION – A

UNIT – 1

The fundamentals of DOS, DOS and Disk, Disk Organization understanding DOS prompt and Shell Screen using keyboard & mouse, Internal commands; Batch files; Using the screen editor, Printing images, ASCII Files; Indirect printing and spooling; Communicating with other devices, Parallel vs Serial communication; Optimizing DOS, CONFIG, SYS. & AUTOEXEC.BAT files, Freeing up memory at boot time, managing Extended/and Expended memory, RAM disk, Disk Caching, Defragmentation.

UNIT – 2

Window fundamental: Types of windows, anatomy of Windows; Windows Explorer, Customizing windows, Installing a printer, using clipboard, using paintbrush, Control Panel, Taskbar Settings.

UNIT – 3

Introduction to MS-WORD: Menus, Toolbars, Ruler, Scroll Bars, Status Bar; Creating, Saving, Importing, Exporting and Inserting files; Formation, Indents/Outdents, Lists, Tabs, Styles; Working with Frames, Columns, Pictures, Chart/Graphs, Forms, Tools, Equations and Macros.

SECTION – B

UNIT – 4

Worksheet overview: Rows, Columns, Cell, Menus; Creating worksheets; opening and saving worksheets; Formatting, Printing, Charts, Window, Establishing Worksheet links, Macros, Database, Tables, Using files with other programs.

UNIT – 5

Overview of MS-Power Point, H/w and S/w requirements, Creating slides & presentations, rehearsing presentations, Insert, Tools, Format, Slide-show, Window options.

UNIT – 6

Disk Management Tools: PC Tools, Norton Utilities, Norton Disk Doctor, Virus detection, prevention and cure utilities.

Suggested Readings:

Text Books:

1. Taxali, R.K. : PC Software for Windows Made Simple, Tata McGraw- Hill.

Reference Books:

1. Robbins Judd : Mastering DOS 6.0 & 6.2, BPB Publications, 1994.
2. DOS Quick Ref. Manual: BPB Publications.
3. Habraken : MS-Office 2000 8-in-1, Prentice-Hall.
4. Sandler : Teach Yourself MS-Office, BPB Publications.
5. Bangia R. : Learning MS-Office 2000, Khanna Book Pub. Co.
6. Wang W. & Parker R.C. : MS-Office 2000 Windows for Dummies, IDG Books India (P) Ltd.
7. Peter Dyson : Undertaking PC Tools, Sybex/Tech. Asian Edition. Tech.Publications
8. Peter Dyson : Understanding Norton Utilities, 2nd edn., Sybex/Tech.Asian.

Note: Latest and additional good books may be suggested and added from time to time.

Practical PC Software:

MS – Word

1.Prepare a document about any tourist destination of your choice with appropriate pictures and editing features.

2.Prepare a News Paper Layout. Insert appropriate pictures wherever necessary. Use the following Features:

- Three Column and Four Column setting
- Set One or Two Advertisements
- Use Bullets and Numbering.

3.Create a Document consisting of Bio-data. It includes

- A table giving your qualification and/or experience of work. Table should be Bordered and Shaded.
- A Multilevel list giving your areas of interest and further areas of interest. The sub areas should be numbered as ‘a’, ‘b’, etc while the areas should be numbered as ‘1’, ‘2’, etc.
- The information should be divided in “General” and “Academic”

sections.

- The header should contain “BIO-DATA” while the footer should have page numbers in the format Page 1 of 10.
- Assign a password for the document to protect it from unauthorized access.

4. Assume that you are coordinating a seminar in your organization. Write a letter to 10 different IT companies asking them to participate in the seminar using mail merge facility.

5. Prepare a document which contains template of marks card of students. Assume that there are 10 students. Use mail merge facility to forward the marks cards to the parents. The footer for the document should be ‘MVN University, Palwal’.

6. Prepare a document about any topic in mathematics which uses mathematical symbols. (At least 5 mathematical symbols should be used). Assign a password for the document to protect it from unauthorized access. Demonstrate the use of Hyperlink Option.

MS-EXCEL

1. Open a new workbook, save it as JavaCoffeeBar.xls. In sheet1 write following sales data for Java Coffee bar to show their First 6 months sales.

- Select cell B4:D4 and change the horizontal alignment to center and text to 90 degree.
- All titles should be in bold
- Format all cells numbers to currency style and adjust width as necessary.
- Add border to data.
- Select the cell range A1:H1, merge and center these cells. Apply same format to A2:H2.
- Give border, shading and pattern to data in sheet
- Apply different font settings for all titles in sheet
- Apply green color and bold setting to sales above 10000 (use conditional formatting)
- Rename current worksheet as FirstHalfSales
-

1. Prepare a worksheet to maintain student information. The work sheet should contain Roll Number, Name and marks in 5 subjects. (Max Marks is 100). Validate the marks. Calculate the total marks. Assign the grade according to the following. Assign grade ‘A’ if the total marks is above 450. From 401 to 449 assign the grade as “B”. From 351 to 400 assign the Grade as C. From 300 to 350 the grade to be assigned is ‘D’. For the total marks less than 300 No grade is assigned. A student is eligible to get a grade only when he gets 40 and above in all the subjects. In such cases the grade is “FAIL”. (Assume that there are 10 students).

3. Prepare a pay-bill using a worksheet. The work sheet should contain Employee Id,

Name, Designation, Experience and Basic Salary and Job ID. If Job Id is 1 then DA is 40% of the basic salary. HRA is Rs. 4500. If Job Id is 2 then DA is 35% of the basic salary. HRA is Rs. 3500. If Job Id is 3 then DA is 30% of the basic salary. HRA is Rs. 2500. If Job Id is 4 then DA is 25% of the basic salary and HRA is RS.2500. For all the other Job ids DA is 20% of the basic salary and HRA is Rs.1500. For all the above Job ids PF to be deducted is 4%. For the job ids between 1-4 Rs. 100 to be deducted as Professional Tax. Find the net pay.

4. For the above employee worksheet perform the following operations

(a). Use filter to display the details of employees whose salary is greater than 10,000.

(b) Sort the employees on the basis of their net pay

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(c).Use advance filter to display the details of employees whose designation is “Programmer” and Net Pay is greater than 20,000 with experience greater than 2 yrs.

5. (a) Using Excel write sales data with columns product, month and sales. Write at least 5 records. Create Pivot Table chart and Report for the data.

(b)Create a macro to change the name of worksheet as Macro Example, merge first three columns of first row and write heading as DATA in green color with yellow background

(c)Link word document in excel worksheet to show the usage of linking and embedding.

MS-POWERPOINT

1. Assume that you are going to give a presentation about Information Technology. (Choose some latest technologies). The presentation should have minimum 10 slides. Insert appropriate images wherever necessary. Use proper formatting, diagrams and tables. Show the application of Pens.

2.Prepare a presentation about any general topic of current relevance (min 10 slides). Show the usage of action buttons, hyperlinks, and animations.

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MSL- 111	Business Practice	L	T	P	Cr
		4	1	0	5

Objective:

The course aims at providing fundamental knowledge and exposure to the concepts, theories and practices in the field of management.

THEORY:

For setting up the question paper, question no 1 will be set up from complete syllabus which will be compulsory and of short answer type. Three questions will be set from each of the sections. The students have to attempt first common question, which is compulsory, and two question from each of the sections. Thus students will have to attempt 5 questions out of 7 questions.

SECTION – A

UNIT-1

Meaning of Management, Definitions of Management, Characteristics of Management, Management Vs Administration, Importance of Management, Development of Management thoughts.

UNIT-2

Principles of Management. The Management functions, Inter –relationship of managerial functions. Nature and significance of Staffing, Personnel Management, Functions of Personnel Management.

UNIT -3

Manpower planning, Process of Manpower Planning, Recruitment, Selection, Job analysis, Promotion-Seniority Vs Merit. Training Objectives and Types of Training,

SECTION – B

UNIT-4

Marketing Management: Definition of Marketing, Marketing concept, objectives & functions of Marketing. Marketing Research-Meaning, definition, Objectives, Importance, Limitations, Process. Advertising: Meaning, Objectives, Functions and Criticisms

UNIT-5

Introduction of Financial Management, Objectives of Financial Management, Functions and Importance of Financial Management. Brief introduction to the concept of capital structure and various sources of finance.

UNIT-6

Organisational Structure: developing and designing structure, Types of structure, Departmentation, Authority and Delegation, Centralization and De-centralization.

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Text Books:

1. Fundamentals of Management – T.N CHHABRA, Sun India publication
2. Principles and Practice of Management – R.S. Gupta, B.D.Sharma, N.S. Bhalla.(Kalyani Publishers)
3. Business practice – Shashi k.Gupta,R.K.Gupta,Niti Gupta, Kalyani publication

Reference Books:

1. Principles & Practices of Management – L.M. Prasad (Sultan Chand & Sons)
2. Management – Harold, Koontz and Cyrilo Donell (Mc.Graw Hill).
3. Marketing Management – S.A. Sherlikar (Himalaya Publishing House, Bombay).

AHL-111	COMMUNICATION SKILLS	L	T	P	Credit
		4	0	0	4

Objectives:

The objective of the course is to inculcate English proficiency among technical students besides sensitizing them to the nuances of its applications to various communication needs.

Note :For setting up the question paper, question no 1 will be set up from complete syllabus which will be compulsory and of short answer type. Three questions will be set from each of the sections. The students have to attempt first common question, which is compulsory, and two question from each of the sections. Thus students will have to attempt 5 questions out of 7 questions.

Section - A

Unit I Vocabulary

Synonyms and Antonyms, One Word Substitution, Formation of words using prefixes and suffixes, Function of words as nouns and verbs, Idioms and Phrases

Unit II Grammar and Usage

Basic Knowledge of Tense , Main Verb and Auxiliary Verb, Sentence Corrections, Punctuation marks

Unit III English Sounds

Elementary knowledge of English sounds, Commonly Mispronounced Words (List will be provided to the students)

Section - B

Unit IV Comprehension

- Comprehension of Unseen Passages , Analyses of Graphs and Tabulated Data

Unit V Composition

- E-mail Writing, Business Letters Writing, Slogan Writing, Paragraph Writing

Unit VI Reading Skills

- Techniques of Readings: Skimming and Scanning

Text Books:

1. *A Textbook of English Phonetics for Indian Students* by T. Balasubramanian, MacMillan

Reference Books:

1. *Intermediate Grammar, Usage and Composition* by M. L. Tickoo and A. E. Subramanian, Orient Longman
2. *Spoken English for India* by R.K. Bansal and J. B. Harrison, Orient Longman
3. *A Practical English Grammar* by Thomson and Martinet, OUP, Delhi

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AHL-107	MATHEMATICS – I	L	T	P	Cr
		4	1	0	5

Objective:

Basic elements of permutations and combinations, trigonometry, vector, complex number and statistics have been included in the curriculum as foundation course and to provide base for continuing education to the students.

Note :For setting up the question paper, question no 1 will be set up from complete syllabus which will be compulsory and of short answer type. Three questions will be set from each of the sections. The students have to attempt first common question, which is compulsory, and two question from each of the sections. Thus students will have to attempt 5 questions out of 7 questions.

SECTION – A

Unit I

Algebra Series: AP and GP; Sum, nth term, Permutations and Combinations, Binomial theorem for positive, negative and fractional index (Without proof). Application of Binomial theorem.

Determinants– expansion of determinants (upto third order) using sarrus rule, expansion method , Properties of determinants, solution of equations (upto 3 unknowns) by Cramer’s rule.

Unit II

Matrices and its applications: Definition of matrix, addition, subtraction and multiplication of matrices (upto third order). Rank of a matrix, elementary transformation, elementary matrices, Inverse of a matrix by adjoint method and elementary row transformations. Solution of equations (up to 3 unknowns) by Matrix method

Unit III

Trigonometry Addition and subtraction formulae, product formulae and their application in engineering problems. Transformation from product to sum or difference of two angles or vice versa, multiple and submultiple angles, Conditional identities, solution of triangles (excluding ambiguous cases). Graphs of $\sin x$, $\cos x$, and $\tan x$, etc.

SECTION – B

Unit IV

Definition of vector and scalar quantities. Addition and subtraction of vectors. Dot product and cross product of two vectors. Properties of scalar product of two vectors. Properties of vector product of two

vectors . Thumb rule. Angle between two vectors, application of dot and cross product in engineering problems, scalar triple product and vector triple product. Properties of scalar triple product.

Unit V

Complex number

Definition, Real and Imaginary parts of a complex number, polar and Cartesian representation of a complex number and conversion from one form to the other, conjugate of a complex number, modulus and argument of a complex number, addition, subtraction, multiplication and division of a complex number. Demoivre's theorem, roots of a complex number, probability: definition *and* laws on probability.

Unit VI

Probability and probability distribution: Definition and laws on probability, theorems of probability (addition theorem ,multiplication theorem ,Baye's theorem) ,probability distribution : binomial distribution,poission distribution, normal distribution.

Suggested Readings:

Text Books:

1. Engineering Mathematics Vol. I by Ishan Publishing House

Recommended Books:

1. Applied Mathematics Vol. I by SS Sabharwal and Others by Eagle Prakashan, Jalandhar
2. Applied Mathematics Vol. I by RD Sharma
3. Engineering Mathematics by Dass Gupta
4. Higher Engineering Mathematics by BS Grewal; Khanna Publishers, Delhi

AHP-115	PERSONALITY DEVELOPMENT-I	L	T	P	Credit
		0	0	2	1

Objective:

To improve the communication skill and overall personality of the student.

SECTION-A

UNIT-I: SPOKEN SKILLS

- Self Introduction
- Free Speeches
- On the Spot Story Telling
- Role Plays and Simulations

UNIT-II: SOUNDS OF ENGLISH LANGUAGE

- Consonant Sounds
- Vowel Sounds
- Syllable Identification in Words
- Words Commonly Mispronounced

** Lists of commonly mispronounced words to be provided to the learners*

SECTION-B

UNIT-III: READING COMPREHENSION

- Comprehension of Unseen Passages, Graphs and Tabulated Data
- Techniques of Reading Skills – Skimming and Scanning

UNIT-IV: LISTENING SKILLS

- Listening to Spellings and Dictation
- Listening to Words with Vowel Difference

Suggested Readings:

Reference Books

1. *Intermediate Grammar, Usage and Composition* by M. L. Tickoo and A. E. Subramanian, Orient Longman
2. *Spoken English for India* by R.K. Bansal and J. B. Harrison, Orient Longman
3. *A Practical English Grammar* by Thomson and Martinet, OUP, Delhi.

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4. *A Textbook of English Phonetics for Indian Students* by T. Balasubramanian, MacMillan, Chennai
5. *High School English Grammar & Composition* by Wren & Martin, S. Chand & Company Ltd., New Delhi.
6. *English for Professionals* By Dr. Seema Miglani & Shikha Goyal, Vayu Education of India, New Delhi.

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CAL-102	Fundamentals of Internet Technologies	L	T	P	Cr
		4	1	2	6

Objective:

To have a fundamental understanding of the design, performance and state of the art of Internet. Topics covered include state of the art E-mail, Internet and research and thus changes substantially form one offering of this course to the next.

Note :For setting up the question paper, question no 1 will be set up from complete syllabus which will be compulsory and of short answer type. Three questions will be set from each of the sections. The students have to attempt first common question, which is compulsory, and two question from each of the sections. Thus students will have to attempt 5 questions out of 7 questions.

SECTION – A

UNIT- 1

Introduction to World Wide Web, Introduction to w3 consortium, Surfing & searching the www: Directories search engines and Meta search engines, search fundamentals, search strategies, working of the search engines, Telnet and FTP. Browser architecture & types, HTTP, URL, Web page types, Using Plug-ins. User generated Content: Blogs & Wikis.

UNIT-2

E-Mail Concepts – Configuring E-Mail Program, Sending and Receiving Files through E-Mail, Fighting Spam, Sorting Mail, and avoiding E-Mail viruses. E-Mail mailing lists,

UNIT – 3

Usenet newsgroup concepts – Reading UseNet newsgroups, Internet Relay Chat, Instant messaging, Web-Based chat rooms and discussion boards, Voice and Video conferencing.

SECTION – B

UNIT – 4

HTML: Internet Language, Understanding HTML, Create a Web Page, Text Alignment and Lists, Text Formatting Fonts Control.

UNIT-5

Linking to other Web Pages, Publishing HTML Pages, E-mail Links and link within a Page, Creating HTML Forms.

UNIT-6

Creating Web Page Graphics, Putting Graphics on a Web Page, Custom Backgrounds and Colors, Creating Animated Graphics. Web Page Design and layout, Advanced Layout with Tables, Using Style Sheets.

Suggested Readings:

Text Books:

1. Fundamental of Internet & the world wide web, Raymond Green Law. & Ellen Hepp, 2001, TMH

Reference Books:

1. Internet & Web Design, Ramesh Bangia, Laxmi Publication
2. Complete Reference, Internet, TMH.
3. Pankaj Sharma, Web Administration, S.K. Kataria & Sons.

Note: Latest and additional good books may be suggested and added from time to time.

Practical : FIT Lab

- 1 Describe the stages of create e-mail id on yahoo web site, how will you send and receive e mail.
- 2 Describe the chatting components on the internet.
3. Describe the use and function of the following (a) telnet (b) TCP/IP (c) HTTP.
- 4 Create your first web page using notepad in HTML.
- 5 Create your login webpage for your college website or company website.
- 6 Create the web page with the following constraints
 - (a) an image on the webpage.
 - (b) a hyperlink to college website
 - (c) a table of marks of your class students.
- 7 Show blinking effect on web page
- 8 Design a digital clock on your web page
- 9 Design a digital calculator using HTML

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CAL-104	Mathematical Foundation Of Computer Science	L	T	P	Cr
		4	1	0	5

Objective:

To provide the basic architecture about the mathematical concept of computer that will help the students to understand that how the data is stored and traverse in computer.

Note :For setting up the question paper, question no 1 will be set up from complete syllabus which will be compulsory and of short answer type. Three questions will be set from each of the sections. The students have to attempt first common question, which is compulsory, and two question from each of the sections. Thus students will have to attempt 5 questions out of 7 questions.

SECTION – A

UNIT- 1

Algorithms, merits and demerits, type of algorithms, Exponentiation, How to compute fast exponentiation. Linear Search, Binary Search, "Big Oh" notation. Worst case, complexity.

UNIT-2

Graphs, Types of graphs, degree of vertex, sub graph, isomorphic and homeomorphic graphs, Adjacent and incidence matrices, Path Circuit ; Eulerian, Hamiltonian path circuit, Multi graph, labeled graph.

UNIT-3

Relation: Relations, Properties of Binary relation, Matrix representation of relations, Closures of relations, Equivalence relations, Partial order relation.

SECTION – B

UNIT – 4

Trees, Minimum distance trees, Minimum weight and Minimum distance spanning trees, Binary search Tree, Avail Tree, Balance Tree.

UNIT – 5

Merge sort, Insertion sort, Selection Sort, Bucket Sort, Radix Sort, Bubble sort, Heap sort, Quick sort

UNIT – 6

Propositional Logic: Prepositions, logical operations, Tautologies, Contradictions, Logical implication, Logical equivalence, Normal forms, Theory of Inference and deduction. Predicate Calculus: Predicates and quantifiers. Mathematical Induction

Suggested Reading:

Text Books:

1. Schaums Outline series: Theory and problems of Probability by S. Lipshutz, 1982, McGraw-Hill
Singapore
2. Elements of Discrete Mathematics C.L Liu, 1985, McGraw Hill

Reference Books:

1. Discrete Mathematics by Johnson Bough R., 5th Edition, PEA, 2001..
2. Concrete Mathematics: A Foundation for Computer Science, Ronald Graham, Donald Knuth and Oren Patashik, 1989, Addison-Wesley.
3. Mathematical Structures for Computer Science, Judith L. Gersting, 1993, Computer Science Press.
4. Applied Discrete Structures for Computer Science, Doerr and Levasseur, (Chicago: 1985,SRA
5. Discrete Mathematics by A. Chtewynd and P. Diggle (Modular Mathematics series), 1995,
Edward Arnold, London,

Note: Latest and additional good books may be suggested and added from time to time.

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CAL-106	Advanced C Programming	L T P	Cr
		3 0 3	4.5

Objective:

To provide sound conceptual understanding of the advanced concept of C Language.

Note :For setting up the question paper, question no 1 will be set up from complete syllabus which will be compulsory and of short answer type. Three questions will be set from each of the sections. The students have to attempt first common question, which is compulsory, and two question from each of the sections. Thus students will have to attempt 5 questions out of 7 questions.

SECTION – A

UNIT- 1

C Functions: Definition of function, purpose, importance, declaration, recursion, call by value, call by reference type of function.

UNIT-2

Arrays: Arrays, pointers, array & pointer relationship, pointer arithmetic, dynamic memory allocation.

UNIT-3

Introduction to Pointer, pointer to arrays, array of pointers, pointers to functions, array of pointers to functions, Preprocessor directives: #include, #define, macro's with arguments, the operators # and ##, conditional compilations, multiple file programming.

SECTION – B

UNIT – 4

String : introduction to string, various function of string, Standard library functions from stdio.h, stdlib.h, conio.h, ctype.h, math.h, string.h, process.h

UNIT – 5

Structures: Structures, unions, structure passing to functions, bit fields, file handling

UNIT – 6

Data Files: Open, Close, Create, Process Unformatted Data Files. (Formatted Console I/O functions, Unformatted Console I/O functions, Modes Of Files, Use Of fopen(), fclose(), fgetc(), fputc(), fgets(), fprintf(), fscanf(), fread(),fwrite(),

Suggested Readings:

Text Books:

1. Yashwant Kanetkar, "Let us C", BPB Publications, 2002
2. E. BalaGuruswamy, "Programming in ANSI C", TMH, 1999.

Reference Books:

1. Al Kelly and Ira Pohl, "A Book on C", (4th Ed.), Addison Wesley, 1999.
2. B. Kernighan and D. Ritchie, "The ANSI C Programming Language", PHI., 2000.

Note: Latest and additional good books may be suggested and added from time to time.

Develop a program with functions

1. Without Arguments & without Return Value
2. With Arguments & without Return Value
3. With Arguments & with Return Value for the following
 - a) Sum of digits of in given number.
 - b) Factorial of a given number.
 - c) Check whether the given number is prime or not
 - d) find a raise to the power b
 - f) check whether a number is even or odd

Develop a program with functions using Arrays

- a) Largest of N numbers.
- b) Sum and average of N numbers.
- c) Sorting of N numbers.

Develop a program with Recursive Function for

- a) Factorial of a given number.
- b) Generation of Fibonacci series.

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Annexure-1

Differentiate between call by value and call by reference using a program to swap two numbers.

WAP to find sum of all elements of array using function.(pass individual element)

WAP to input an array then sort the array using function.(pass whole array)

WAP to input element in array than find largest element using array with pointers using function
STRUCTURES AND UNION

Develop a program to assign some values to the members a structure and to display the same on the screen. (Members of a structure include the student name, roll number and marks)

Develop a program to Define, Assign, Read and Display.

a)Book details b) Student information c)Employee information d) Bank A/C information

Develop a program to compare two structure variables.

Develop a program to find total and average of sales of all employees using array of structure.

Develop a program to read a set of Name, Roll Number, Date of Birth and Date of Admission of the students in the college from the keyboard where the date of birth and date of admission consists of three members such as day month and year as a separate structure.

Develop a program to illustrate the method of sending and one entry of the structure as a parameter to a function.

Develop a program to send the entire data of a structure to a function.

WAP to create a File "a.txt" than write 10 number to the file.

WAP to create two file "a.dat" and "b.dat". Then write your details to "a.dat".

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Annexure-1

CAL-108	Introduction to Computer Network	L	T	P	Cr
		4	1	0	5

Objective:

To provide the basic knowledge of network architecture and connections.

Note :For setting up the question paper, question no 1 will be set up from complete syllabus which will be compulsory and of short answer type. Three questions will be set from each of the sections. The students have to attempt first common question, which is compulsory, and two question from each of the sections. Thus students will have to attempt 5 questions out of 7 questions.

SECTION – A

UNIT- 1

Fundamental of Data communication:

Analog signal: Amplitude, Period and Frequency, wave length, Band width. Digital signal: Bit rate, Bit length, Transmission Impairment, Communication Mode: Simplex, Half Duplex, Full Duplex, Transmission modes: Synchronous and asynchronous Modes, Transmission media.

UNIT-2

Introduction to Network:

Introduction to Computer Networks, History of computer networks, Need and Applications of computer network, Example networks ARPANET, Internet, Private Networks, Introduction to Backbone and its benefits. Introduction to Ethernet its need and benefits.

UNIT – 3

Types of Networks Introduction to Local Area Networks, its Application, LAN Interconnecting Devices: NIC, Repeater, Hubs, Switches, Bridges, Routers, Gateways, Modem. Advantages and disadvantages of LAN Interconnecting devices. , Metropolitan Area Networks, Wide Area Networks, peer to peer network, client server network, circuit switching network, packet switching networks.

SECTION – B

UNIT – 4

Network Topologies: Physical topologies: Bus, Star, Ring, Star Tree, and Mesh. Advantages and disadvantages of various topologies in different scenarios .

Wireless Networks: introduction to wireless networks, Examples of wireless networks, Infrastructural and Adhoc networks Difference between infrastructural and Adhoc networks , Wireless Topologies.

UNIT – 5

OSI model, Functions of each layer, Services and Protocols of each layer. **TCP/IP:** Introduction, History of TCP/IP, Layers of TCP/IP, Protocols, Internet Protocol, Transmission Control Protocol , User Datagram Protocol. IP Addressing, IP address classes.

UNIT - 6

Goal of network security, Types of security threats, Measures to ensure security.

Cryptography: Public key Cryptography, private key Cryptography, Difference among private and public key cryptography. Encryption schemes, Digital Signatures, Firewalls.

Suggested Readings:

Text Books:

1. Forouzan , Data Communication & Networking, TMH, N.Delhi.
2. Tannenbaum, Computer Networks, PHI, N.Delhi.

Reference Book:

1. Miller, Data and Network Communication, Vikas Publishing House, New Delhi.
2. Shay, Understanding Data Communication and Networks, Thomson Learning, Vikas
3. Computer Networks and Internet, Mukesh Duhana nad Deepak Verma
Publishing House, New Delhi.

Note: Latest and additional good books may be suggested and added from time to time.

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Annexure-1

AHL-110	MATHEMATICS-II	L	T	P	Cr
		4	1	0	5

Objective:

Applied Mathematics forms the backbone of engineering discipline. Basic elements of differential calculus, integral calculus, differential equations and coordinate geometry have been included in the curriculum as foundation course and to provide base for continuing education to the students.

Note :For setting up the question paper, question no 1 will be set up from complete syllabus which will be compulsory and of short answer type. Three questions will be set from each of the sections. The students have to attempt first common question, which is compulsory, and two question from each of the sections. Thus students will have to attempt 5 questions out of 7 questions.

Section-A

Unit- I

Differential Calculus:

Functions, limits, continuity, - functions and their graphs, range and domain, elementary methods of finding limits(right and left), elementary test for continuity and differentiability Methods of finding derivative, Function of a function, Logarithmic differentiation, Differentiation of implicit functions.

Unit- II

Higher order differentiation:Higher order derivatives, Leibnitz theorem. Special functions (Exponential, Logarithmic, Hyperbolic, Inverse circular function), Definition, Graphs, range and Domain and Derivations of each of these functions. Application - Finding Tangents, Normal, Points of Maxima/Minima, Increasing/Decreasing functions.

Unit III

Integral Calculus :

Methods of Indefinite Integration: - Integration by substitution, Partial fraction and by parts, properties of definite integrals, Evaluation of definite integrals. Application: Finding areas bounded by simple curves, Length of simple curves, Volume of solids of revolution, centre of mean of plane areas. Simpsons and Trapezoidal Rule: their application in simple Cases.

SECTION-B

Unit IV

Differential Equations:

Formation of differential equation ,Solution of first order and first degree differential equation by Variable separation, Homogeneous differential equation and reducible homogeneous differential equations , Linear differential equations and reducible linear differential.

Unit V

Co-ordinate Geometry:

Area of a triangle, centroid and incentre of a triangle (given the vertices of a triangle), Simple problems on locus Equation of straight line in various standard forms (without proof) with their transformation from one form to another, Angle between two lines and perpendicular distance formula (without proof)

Unit VI

Co-ordinate Geometry(Cont:) :General equation of circle and its characteristics ,The center and radius, Three points on it, The co-ordinates of the end's of the diameter Conics (parabola, ellipse and hyperbola), standard equation of conics (without proof), given the equation of conic to calculate foci, directrix, eccentricity, latus rectum, vertices and axis related to different conics.

Suggested Readings:

Text Books:

1. Applied Mathematics Vol. II by SS Sabharwal and Others; Eagle Parkashan,
Jalandhar

Reference Books:

1. Applied Mathematics Vol. II by Dr RD Sharma
2. Higher Engineering Mathematics by BS Grewal; Khanna Publishers, Delhi
3. Engineering Mathematics by Ishan Publication

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Annexure-1

AHP-116	PERSONALITY DEVELOPMENT-II	L	T	P	Credit
		0	0	2	1

Objective:

To improve the personality and communication skill of the student.

SECTION-A

UNIT-I: INTERACTIVE SKILLS

- Debates , Group Discussions, Mock Seminar
- Power Point Presentation

UNIT-II: SPOKEN SKILLS

- Mock Interview, Dialogue Making, Answer questions from your tutor or fellow students.
- Commonly Mispronounced Words

SECTION-B

UNIT-III: VOCABULARY EXPANSION

- Formation of words using prefixes and suffixes, One word Substitution
- Commonly used Idioms and Phrases, Words often Confused

UNIT-IV: BASIC ETIQUETTES

- Social Etiquettes, Telephone Etiquettes, Eating Etiquettes, Meeting Etiquettes

Suggested Readings:

Text Books:

REFERENCE BOOKS

1. *Intermediate Grammar, Usage and Composition* by M. L. Tickoo and A. E. Subramanian, Orient Longman
2. *Spoken English for India* by R.K. Bansal and J. B. Harrison, Orient Longman
3. *A Practical English Grammar* by Thomson and Martinet, OUP, Delhi
4. *A Textbook of English Phonetics for Indian Students* by T. Balasubramanian, MacMillan, Chennai
5. *High School English Grammar & Composition* by Wren & Martin, S. Chand & Company Ltd., New Delhi.
6. *English for Professionals* By Dr. Seema Miglani & Shikha Goyal, Vayu Education of India, New Delhi.

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Annexure-1

CAL-201	Object Oriented Programming Using C++	L	T	P	Cr
		4	1	2	6

Objective

This subject focuses better understanding and deeper knowledge of the Object and its uses. It also focuses on various object oriented programming concepts like inheritance, polymorphism, etc.

Note :For setting up the question paper, question no 1 will be set up from complete syllabus which will be compulsory and of short answer type. Three questions will be set from each of the sections. The students have to attempt first common question, which is compulsory, and two question from each of the sections. Thus students will have to attempt 5 questions out of 7 questions.

Section - A

UNIT - I

Introduction: Introducing Object-Oriented Approach Abstraction, Encapsulation, Inheritance, Polymorphism, Review of C, Difference between C and C++ - cin, cout, new operators Scope Resolution operators ,tokens, keywords.

UNIT – II

Classes and Objects: Encapsulation, information hiding, abstract data types, Object & classes, attributes, methods, C++ class declaration, State identity and behavior of an object, Constructors and destructors, instantiation of objects, Default parameter value, object types, C++ garbage collection, dynamic memory allocation, Metaclass/abstract classes.

UNIT – III

Operator overloading: Introduction; fundamentals of operator overloading; restrictions on operators overloading; operator functions as class members vs. as friend functions; overloading; <<; >> overloading unary operators; overloading binary operators.

Section - B

UNIT – IV

Inheritance; virtual functions and polymorphism: Introduction; inheritance: base classes and derived classes; protected members; casting base-class pointers to derived-class pointers; using member functions; overriding base–class members in a derived class; public; protected and private inheritance; using constructors and destructors in derived classes.

UNIT –V

Files and i/o streams: Files and streams; creating a sequential access file; reading data from a sequential access file; updating sequential access files; random access files; creating a random access file; writing data randomly to a random access file; reading data sequentially from a random access file.

UNIT – VI Templates & exception handling: Function templates; overloading template functions; class template; templates and inheritance; templates and friends; templates and static members; basics of C++ exception handling: try; throw; catch; throwing an exception; catching an exception.

TEXT BOOK

1. Balagurusamy, E., “Object Oriented Programming with C++”, Prentice Hall of India, 2008.
2. A.R.Venugopal, Rajkumar, T. Ravishanker “Mastering C++”, TMH, 1997.
3. S. B. Lippman & J. Lajoie, “C++ Primer”, 3rd Edition, Addison Wesley, 2000.

REFERENCE:

1. R. Lafore, "Object Oriented Programming using C++", Galgotia Publications, 2004.
2. D. Parsons, "Object Oriented Programming with C++", BPB Publication.
3. Steven C. Lawlor, "The Art of Programming Computer Science with C++", Vikas Publication.
4. Schildt Herbert, "C++: The Complete Reference", 4th Ed., Tata McGraw Hill, 1999.
5. Tony Gaddis, Watters, Muganda, "Object-Oriented Programming in C++", 3rd Ed., Wiley Dreamtech,

Program 1:- Given that an EMPLOYEE class contains the following members:

- a. Data members: Employee_number, Employee_name, Basic, DA, IT, Net_Sal.
- b. Member functions: To read data, to calculate net_sal and to print datamembers.

Write a C++ program to read data on employees and compute the net_sal of each employee (DA =52 % of basic and income tax=30% of the gross salary)

Program 2:- Define a STUDENT class with USN, name and marks in 3 test of a subjects. Declare an array of 10 STUDENT objects. Using appropriate functions, find the average of the two better marks for each student. Print the USN, name and the average marks of all the subjects.

Program 3: Write a C++ program to create a class called COMPLEX and implement the following overloading functions ADD that return a complex number:

- a. ADD(a,s2)-where 'a' is an integer (real part) and s2 is a complex number.
- b. ADD(s1,s2)-where s1 and s2 are complex numbers.

Program 4:- Write a C++ program to create a class called DATE. Accept two valid dates in the form dd/mm/yy. Implement the following operations by overloading the operators + and -. After every operation display the results by overloading the operator <<.

- a) no_of_days=d1-d2; where d1 and d2 are DATE objects.d1>=d2 and no_of_days is an integer.
- b) d2=d1-no_of_days; where d1 is a DATE object and no_of_days is an integer.

Program 5: Create a class called MATRIX using two-dimensional array of integers. Implement the following operations by overloading the operator ++ which checks the compatibility of two matrices to be added and subtracted. Perform the addition and subtractions by overloading the + and - operators respectively. Display the result by overloading the operator << if(m1==m2) then m3=m1+m2 and m4=m1-m2 else display error.

Program 6: Write a C++ program to create a class called OCTAL which has the characteristics of an octal number. Implement the following operations by writing an appropriate constructor and an overload operator +.

- a. OCTAL h=x; where x is an integer.
- b. Int y=h + k; where h is an OCTAL object and k is an integer.

Display the OCTAL result by overloading the operator <<. Also display the values of h and y.

CAL-203	Data And File Structure	L	T	P	Cr
		4	1	2	6

Objective: This subject discusses different data structures to represent real world problems and to study various ways to design algorithms to solve the problems.

Note :For setting up the question paper, question no 1 will be set up from complete syllabus which will be compulsory and of short answer type. Three questions will be set from each of the sections. The students have to attempt first common question, which is compulsory, and two question from each of the sections. Thus students will have to attempt 5 questions out of 7 questions.

Section - A

UNIT - I

INTRODUCTION TO DATA STRUCTURES: Definition of data structures and abstract data types; linear vs. non-linear data types; primitive vs. non-primitive data types; Static and Dynamic implementations;

RUNNING TIME: Time Complexity; Big – Oh - notation; Running Times; Best Case; Worst Case; Average Case; Introduction to Recursion; Divide and Conquer Algorithm; Evaluating time Complexity.

ARRAYS: 1D, 2D and multi-dimensional arrays. Array's operations, Linear search, Binary search, sorting algorithms: insertion, bubble and selection sort.

UNIT - II

STACKS AND QUEUES: The Stacks: Definition; Array based implementation of stacks; Linked List based implementation of stacks; Examples: Infix; postfix; prefix representation; Conversions; definition of Queues; Array based implementation of Queues.

UNIT - III

LINKED LISTS: Linked List implementation of stacks and queues; Circular implementation of Queues and Singly linked Lists; implementation of doubly linked Queues; Priority Queues.

Section - B

UNIT - IV

TREES: Definition of trees and Binary trees; Properties of Binary trees and Implementation; Binary Traversal pre-order; post order; In- order traversal; Binary Search Trees.

UNIT – V

GRAPHS: Definition of Undirected and Directed Graphs and Networks; The Array based implementation of graphs; Adjacency matrix; path matrix implementation; The Linked List representation of graphs; shortest path Algorithm; Graph Traversal – Breadth first Traversal; Depth first Traversal.

UNIT – VI

File Structure

Physical storage devices and their characteristics, constituents of a file viz. Fields, records, fixed and variable length records, primary and secondary keys; File operations, Basic file system operations, File Organizations serial sequential, Indexed sequential, Direct, inverted, multilist. Hashing functions and collision handling methods.

TEXT BOOK

Data & file structure, Schaum's series, varsha M Patil TMH.

REFERENCE BOOKS

Data & file structure , Sushil Goyal.

List of Experiments:

Note: C can be used to implement the following programs.

1. Write a program to calculate sum of n numbers using 1D array.
2. Write a program to find the transpose of a matrix.
3. Write a program to multiply two matrices.
4. Write a program to calculate factorial of a number using recursion.
5. Write a program to search a number in an array using linear search.
6. Write a program to search a number in an array using Binary search.
7. Write a program to implement insertion sort.
8. Write a program to implement stack using array.
9. Write a program to implement queue using array.
10. Write a program for implementation of creation, insertion, deletion, and searching operation in singly linked list.
11. Write a program to implement stack using linked list.
12. Write a program to implement queue using linked list.
13. Write a program to implement circular linked list.
14. Write a program for implementation of creation, insertion, deletion, and searching operation in doubly linked list.
15. Write a program to traverse a binary tree in preorder, postorder and inorder.
16. Write a program to traverse the graph in Depth first Traversal.

CAL-205	Software Engineering	L	T	P	Cr
		4	0	0	4

Objective

This subject deals with the designing and testing of software. Various models and techniques are discussed in this subject to improve performance of software.

Note :For setting up the question paper, question no 1 will be set up from complete syllabus which will be compulsory and of short answer type. Three questions will be set from each of the sections. The students have to attempt first common question, which is compulsory, and two question from each of the sections. Thus students will have to attempt 5 questions out of 7 questions.

SECTION - A

UNIT – I

Introduction: Software engineering definition and paradigms, A generic view of Software Engineering, Requirements analysis, Statement of system scope, isolation of top level processes and entities and their allocation to physical elements, refinement and review. Analyzing a problem, creating a software specification document, review for correctness, Software Processes & Characteristics, Software life cycle models: Waterfall, Prototype, Evolutionary and Spiral Models.

UNIT – II

Software Requirements analysis & specifications: Requirement engineering, requirement elicitation techniques like FAST, QFD, requirements analysis using DFD, Requirements documentation, Nature of SRS, Characteristics & organization of SRS.

UNIT – III

Software Project Management Concepts: The Management spectrum, The People The Problem, The Process, The Project. **Software Project Planning:** Size Estimation like lines of Code & Function Count, Cost Estimation Models, COCOMO, Risk Management.

SECTION - B

UNIT – IV

Software Design: Cohesion & Coupling, Classification of Cohesiveness & Coupling, Function Oriented Design, Object Oriented Design, design principal, Strategy.

Software Implementation : Relationship between design and implementation; Implementation issues and programming support environment; Coding the procedural design; Good coding style, and review of correctness and readability.

UNIT – V

Software Testing: Verification & Validation, Testing Process, Design of Test Cases, Objectives of testing, Types of Testing, Functional Testing, Structural Testing, Test Activities, Unit Testing, Integration Testing and System Testing. Debugging Activities

UNIT – VI

Software Maintenance: Management of Maintenance, Maintenance Process, need of maintenance, type of maintenance, Reverse Engineering, Software Re-engineering, Configuration Management, Documentation.

TEXT BOOK

Text Books:

1. Software Engineering **Publisher:** New Age International Pvt Ltd Publishers **Author:** K K Aggarwal, Yogesh Singh **Edition:** Paperback 1st Ed.

Reference books:

1. Fundamentals of software Engineering, Rajib Mall, PHI
2. Software Engineering by Ian Sommerville, Pearson Edu, 5 edition, 1999, AW,
3. Software Engineering – David Gustafson, 2002, T.M.H
4. Software Engineering Fundamentals Oxford University, Ali Behforooz and Frederick J. Hudson 1995 JW&S,
5. An Integrated Approach to software engineering by Pankaj jalote , 1991 Narosa

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Annexure-1

CAL-207	Computer Organization	L	T	P	Cr
		3	1	0	4

Objective : Computer organization is a key component of computer Science. The computer organization is concerned with the structure and behavior of digital computers. The main objective of this subject is to understand the overall basic computer hardware structure, including the peripheral devices.

Note :For setting up the question paper, question no 1 will be set up from complete syllabus which will be compulsory and of short answer type. Three questions will be set from each of the sections. The students have to attempt first common question, which is compulsory, and two question from each of the sections. Thus students will have to attempt 5 questions out of 7 questions.

Section - A

UNIT-I

Information Representation: Number Systems, Binary Arithmetic, BCD codes, Error detecting and correcting codes, Character Codes- ASCII, EBCDIC, Fixed point and Floating point representation of numbers, 1's complement and 2's complement representation of numbers.

UNIT-II

Binary Logic: Boolean algebra, Boolean theorems, Boolean functions and Truth tables, Simplification Of Boolean Expression using K-map, Digital Logic Gates: AND, OR, NOT, XOR, NAND, NOR etc.

UNIT-III

Combinational Circuit: Half Adder, Full Adder, Half Subtractor, Full Subtractor, Encoder, Decoder, Multiplexers, Demultiplexers, Comparators, Code Converters, Binary parallel Adder.

Section - B

UNIT-IV

Sequential Circuits: Flip-flop, S-R f/f, D f/f, T f/f, J-K f/f, Master slave J-K f/f, Registers, Shift Registers, Counters, Synchronous and Asynchronous Counters.

UNIT-V

Memory Systems: Memory parameters, Memory Hierarchy, Main Memory, Auxiliary Memory, Associative Memory, Cache Memory.

UNIT-VI

CPU Organization: Processor Organization, Bus and Memory transfer, Machine Instructions, Instruction Formats and Instruction Cycles and Addressing modes.

TEXT BOOKS :

1. Morris Mano, Computer System Architecture, 3rd Edition, Prentice-Hall of India Private Limited, 1999.

REFERENCE BOOKS:

1. William Stallings, Computer Organization and Architecture, 4th Edition, Prentice Hall of India Private Limited, 2001
2. Harry & Jordan, Computer Systems Design & Architecture, Addison Wesley, Delhi, 2000.
3. Malvino, "Digital Computer Electronics: An Introduction to Microcomputers",

MSL-221	FINANCIAL ACCOUNTING	L	T	P	Cr
		3	1	0	4

Objective : To understand the concepts related with finance and accountancy.

Note :For setting up the question paper, question no 1 will be set up from complete syllabus which will be compulsory and of short answer type. Three questions will be set from each of the sections. The students have to attempt first common question, which is compulsory, and two question from each of the sections. Thus students will have to attempt 5 questions out of 7 questions.

SECTION-A

UNIT-I

Basic Concepts of Accounting: Meaning, Nature and scope of Accounting, Types of Accounting , Accounting Cycle, Difference between Book keeping and Accounting.

UNIT-II

General Accepted Accounting Principles: Accounting Concepts and Conventions.

UNIT-III

Fundamentals of Computerized Accounting System: In Journalizing Transactions, Ledger-Posting, TrialBalance.

SECTION-B

UNIT-IV

Applications of computers in accounts : Accounting procedures used, in practice, for recording Cash. Inventory Accounting and Control.

UNIT-V

Applications of computers in accounts: Lease and Loan accounting, Accounting system for preparing and maintaining Payrolls,

UNIT-VI

Applications of computers in accounts: Budget, Accounting for Decision Making.

Text Books

1. Tulsian, P.C., (2009) Financial Accountancy, 2nd edition, Pearson Education.
2. Maheshwari, S.N. and Maheshwari, S. K., (2009) An Introduction to Accountancy, Eighth Edition, Vikas Publishing House.
3. Goel D.K, Goel Rajesh, Goel Shelly, Financial Accounting, Avichal /Arya Publication.

Reference Books

1. Bhattacharyya, Asish K., ((2010)) Essentials of Financial Accounting, PHI
2. Rajasekran, ((2010)), Financial Accounting, 1st edition, Pearson Education.
3. Bhattacharyya, S.K. and Dearden, J., ((2003)) Accounting for Manager – Text and Cases, 3rd Edition, Vikas Publishing House.

CAS-209 Convention L-0 T-0 P-2 Credit:1

Objective : To improve the confidence of the students using various techniques.

Syllabus:

It will be a seminar type of the activity. This one credit course is meant to give students practice speaking in front of an audience and to explore topics of their own choosing in detail. Students will research topics and organize presentations for faculty and other students. The topics may be any aspect of the Computer and Information sciences and must be approved by the instructor in advance.

To help students improve as speakers, each student will receive feedback from the fellow students and the instructor

AHP-203 Personality Development -III L-0 T-0 P-2 Credit:1

Objective : To improve the confidence of the students using various techniques.

UNIT-1: ENGLISH SOUNDS

- Concept of Syllables
- Types of Syllables – Monosyllabic Words, Disyllabic Words, Tri-syllabic Words and Polysyllabic Words
- Syllable Identification
- Phonetic Transcription of complex words using IPA system
- Words Commonly Mispronounced-III

**List of 50 commonly mispronounced words to be provided by the facilitator*

UNIT-2: LISTENING SKILLS

- Listening to Spellings and Dictation
- Listening to identify differences in consonant pairs: /p/ and /f/ and /f/ and /v/

UNIT-3: VOCAL SKILLS

- Pronunciation Practice from Words Commonly Mispronounced-III
- Free Speeches
- Role Plays and Simulations
- Debating Skills

UNIT-4: READING SESSIONS

- Reading newspaper reports
- Reading extracts from novels and dramas

UNIT-5: PRESENTATION SKILLS

- Classroom Presentation

***Topics for presentation to be given by the facilitator and these must be related from Computer Applications Field**

UNIT-6: ETIQUETTES IN ACTION

- Telephone Etiquettes-Meaning and Significance
- Understanding Telephone Etiquettes in the classroom through practical implications

CAL-202	Operating System	L	T	P	Cr
		4	1	2	6

Objective:

This subject focuses on the system software called operating system which is an essential part of computer. It focuses on various functions of operating system, problems, and their solutions.

Note :For setting up the question paper, question no 1 will be set up from complete syllabus which will be compulsory and of short answer type. Three questions will be set from each of the sections. The students have to attempt first common question, which is compulsory, and two question from each of the sections. Thus students will have to attempt 5 questions out of 7 questions.

Section A

Unit I: Introduction

Introduction to Operating System Concepts (including Multitasking, multiprogramming, multi user, Multithreading etc), Types of Operating Systems: Batch operating system, Time-sharing systems, Distributed OS, Network OS, Real Time OS; Various Operating system services, architecture, System programs and calls.

Unit II: Process Management

Process, Process description, Process states, Process control, Scheduling: Types of scheduling, scheduling algorithms: FCFS, SJF, Priority, and Round Robin.

Unit III: Memory Management

Logical & Physical Address Space, swapping, contiguous memory allocation(First Fit, Best Fit, Worst Fit, Next Fit);non- contiguous memory allocation: paging and segmentation techniques, segmentation with paging; virtual memory management - Demand paging, Page Replacement Policies (FIFO, LRU, Optimal),Demand Segmentation.

Unit IV: Process Communication and Synchronization

Synchronization: Principles of Concurrency, Critical Section Problems, semaphores.

Deadlock: Principles of deadlock, Deadlock Prevention, Deadlock Avoidance, Deadlock Detection, deadlock recovery.

Section B

Unit V: File Management

File System: Different types of files and their access methods, directory structures, various allocation methods (contiguous, linked, index), disk scheduling and management and its associated algorithms, Introduction to distributed file system.

Unit VI: I/O System & UNIX System And Windows NT Overview

I/O Devices, Organization of I/O functions, Operating System Design issues, I/O Buffering. UNIX file system, Windows NT architecture overview, Windows NT files system.

Text Books:

- Operating System Concepts by Silberchatz et al, 5th edition, 1998, Addison-Wesley.
- Modern Operating Systems by A. Tanenbaum, 1992, Prentice-Hall. • Operating Systems Internals and Design Principles by William Stallings, 4th edition, 2001, Prentice- Hall

Reference Books:

- Operating System By Peterson , 1985, AW.
- Operating System By Milankovic, 1990, TMH.
- Operating System Incorporating With Unix & Windows By Colin Ritche, 1974, TMH.
- Operating Systems by Mandrik & Donovan, TMH
- Operating Systems By Deitel, 1990, AWL.
- Operating Systems – Advanced Concepts By Mukesh Singhal , N.G. Shivaratri, 2003, T.M.H

Lab :

1. Study of Linux and Windows Operating System
2. Use of Linux command
3. WAP to implement FCFS Scheduling
4. WAP to implement SJF Scheduling
5. WAP to Implement RR scheduling

CAL-204	Database Management System	L	T	P	Cr
		4	1	2	6

Objective

The design methodology for databases and verifying their structural correctness implementing databases and applications software primarily in the relational model using querying languages, primarily SQL, and other database supporting software applying the theory behind various database models and query languages

Note :For setting up the question paper, question no 1 will be set up from complete syllabus which will be compulsory and of short answer type. Three questions will be set from each of the sections. The students have to attempt first common question, which is compulsory, and two question from each of the sections. Thus students will have to attempt 5 questions out of 7 questions.

SECTION A

Unit 1:

Introduction to database Management System; Various views of data, data Models, Introduction to Database Languages. Advantages of DBMS over file processing systems. Introduction to Client/Server architecture, Three levels architecture of Database Systems, E-R Diagram (Entity Relationship), mapping Constraints, Keys, Reduction of E-R diagram into tables.

Unit 2 :

Relational Model, Relational Algebra & various operations

Unit 3 :

Structured query language – with special reference of (SQL of ORACLE), integrity constraints, Functional dependencies, Modification anomalies ,Normalisation: 1st , 2nd ,3rd and 4th Normal forms , BCNF (Boyce – code normal forms).

SECTION B

Unit 4

Sequential Files, index sequential files, direct files, Hashing, B-trees Index files.

Unit 5 :

Introduction to transaction, properties of transaction and life cycle of transaction, Introduction to Concurrency, Why concurrency Needed, Concurrency control Techniques (Two phase locking protocol, Timestamp based locking protocol, Validation Based protocols) and Recovery Concept.

Unit 6 :

Introduction to Database Administrator , Responsibility of Database Administrator, type of Database Administrator.

Text Books:

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Annexure-1

- 1- Database System Concepts by A. Silberschatz, H.F. Korth and S. Sudarshan, 3rd edition, 1997, McGraw-Hill, International Edition.
- 2- Introduction to Database Management system by Bipin Desai, 1991, Galgotia Pub.

Reference Books:

- 1- Fundamentals of Database Systems by R. Elmasri and S.B. Navathe, 3rd edition, 2000, Addison-Wesley, Low Priced Edition.
- 2- Introduction to Database Management System by Satinder Bal Gupta and Aditya Mittal
- 3- An Introduction to Database Systems by C.J. Date, 7th edition, Addison-Wesley, Low Priced Edition, 2000.

LAB:

Note: At least ten experiments are to be performed during the semester. At least eight experiments should be performed from the list of experiments. Two experiments may either be performed from the given list of experiments or may be designed by the concern faculty in consultation with H.O.D as per the scope of syllabus.

Objective: To understand the concepts of database, operation of database and various queries.

List of Experiments:

Note: Create a database and write the programs to carry out the following operation:

Create tables and specify the Questionnaires in SQL

- 1- Add a record in the database
- 2-Delete a record in the database
- 3- Modify the record in the database
- 4- To implement the restrictions on the table
- 5- List all the records of database in ascending order.
- 6- To implement the structure of the table.
- 7- To Implement Oracle function.
- 8- To implement the concept of grouping of Data
- 9- To implement the concept of Joins

CAL-206	DATA COMMUNICATION AND NETWORKS	L	T	P	Cr
		3	1	0	4

Objective:

This subject introduces the student to the world of networking. It provides knowledge about network topologies, architectures, protocols, devices, etc.

Note :For setting up the question paper, question no 1 will be set up from complete syllabus which will be compulsory and of short answer type. Three questions will be set from each of the sections. The students have to attempt first common question, which is compulsory, and two question from each of the sections. Thus students will have to attempt 5 questions out of 7 questions.

Section – A

UNIT- 1:

Data communication: Components, Data Representation, Data Flow: Simplex, Half Duplex, Full Duplex, Protocols and standards: Protocols in Networks, Standards and their Organization.

Introduction to Computer Networks: History of computer networks, ARPANET, Internet, and Private Networks, Local Area Network, Metropolitan Area Network, Wide Area Network, Client-server network. Network Models: OSI and TCP/IP model.

UNIT- 2:

Data Transmission Concepts: Introduction, Classification of Data: Analog and Digital, Signals: Periodic Analog signal and Digital Signal. Transmission Impairment: Attenuation, Distortion, Noise Performance comparison of digital and analog transmission. Transmission Media.

UNIT-3

Multiplexing: Frequency- division multiplexing, Wavelength-Division multiplexing, Synchronous Time-Division Multiplexing. **Switching:** Circuit-Switched Networks: Phases, Efficiency, Delay. Datagram Networks: Routing table, Efficiency and Delay, Virtual-Circuit Networks.

Section B

UNIT- 4

Error Detection and Correction Methods: Introduction: Types of Errors, Redundancy, Detection versus Correction, Forward Error Correction versus Retransmission, Coding. **Block Coding:** Error Detection, Error Correction, Hamming Distance. Cyclic Redundancy Check and Checksum.

UNIT- 5

Virtual Circuit Networks: ATM: ATM: Design goals, Problems, Architecture, Switching, ATM layers **Congestion Control:** Open-Loop Congestion Control, Closed-Loop Congestion Control, **Quality OF Service:** Flow Characteristics and Flow Classes.

UNIT- 6

Network security : Cryptography: Introduction: Definition, Categories. **Symmetric-Key Cryptography:** Traditional Ciphers, Simple Modern Ciphers. **Asymmetric-Key Cryptography:** RSA, Diffie-Hellman Algorithms. Security Services, Digital Signatures and Firewalls.

SUGGESTED READINGS:

Text Book:

1. Forouzan , Data Communication & Networking, TMH, N.Delhi.

Reference:

1. Miller, Data and Network Communication, Vikas Publishing House, New Delhi.
2. Shay, Understanding Data Communication and Networks, Thomson Learning, Vikas
3. 4.Computer Networks and Internet,Mukesh Duhana nad Deepak Verma
Publishing House, New Delhi.
4. Tannenbaum, Computer Networks, PHI, N.Delhi.
5. Uyless Black, Computer Networks, PHI, N.Delhi.
6. Elements of Computer Networks, Katson, Sanjay Sharma.

CAL-208	System Analysis And Design	L	T	P	Cr
		4	0	0	4

Objective

Subject provides basic knowledge about the System Development Activities.

Note :For setting up the question paper, question no 1 will be set up from complete syllabus which will be compulsory and of short answer type. Three questions will be set from each of the sections. The students have to attempt first common question, which is compulsory, and two question from each of the sections. Thus students will have to attempt 5 questions out of 7 questions.

Section-A

Unit 1 : Introduction to analysis and design : System, Subsystem, SDLC, Case tools for analyst, role of system analys ,Qualities of System analyst.

Unit 2:Entity Relationship Model: Entities, attributes, Domain, values and Entity Sets, Types of attributes, Relationships and Relationship Sets with its types .Mapping cardinalities, Constructing E-R Diagram.

Unit-3:Design of Application (Input Design): - Input data, Source data, Input Media ,DFDs, 0-level and I level DFD, form design, structure chart.

Section-B

Unit-4 :Design of Application (Output Design):- Output Technologies/Methods ,Report Design ,Types of Report ,Screen Design, CRT screen desig

Unit-5: Implementation: Data dictionary, decision tables, decision trees, logical design to physical implementation.

Unit-6:Introduction to distributed data processing and real time system :Evaluating distributing system, designing distributed data base, event based real time analysis tools, state transition diagrams.

Suggested Readings :

Text Books:

1. James, A., Analysis and Design of Information System, McGraw Hill.

Reference Books:

1. Len, Fertuck, System Analysis and Design, McGraw Hill.
2. Powers, Cray, System Analysis and Design, McGraw Hill.
3. Elias, M., System Analysis and Design, Prentice Hall of India.

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Annexure-1

ECL 210	MICRO PROCESSOR	L	T	P	Cr
		3	1	0	4

Objective: The objective of the course is to get the knowledge about the basic principles of micro-processors which are the heart of any computer system. The basic knowledge of the subject will help student to get better understanding of the computer system.

Note :For setting up the question paper, question no 1 will be set up from complete syllabus which will be compulsory and of short answer type. Three questions will be set from each of the sections. The students have to attempt first common question, which is compulsory, and two question from each of the sections. Thus students will have to attempt 5 questions out of 7 questions.

SECTION – A

UNIT 1: Evolution of micro-processor

overview of intel pro-pentium Motorola 68000 series,Z80, power PC, DEC-Alphacip; CISC architecture. Basic micro processor architecture and interface : Internal architecture, external system bus architecture, memory and Input/output interface.

UNIT 2: Introduction to 8085

Introduction, Microprocessor Architecture and its operations, 8085 MPU and its architecture,

UNIT 3: Assembly programming and interfacing in 8085

8085 instruction cycle ,8085 Instructions :Data Transfer instructions, Arithmetic instructions, logical instructions, Branch instructions, RISC v/s CISC processors General-purpose registers; pointer and index registers; flag; segment registers, program invisible registers; memory addressing and addressing modes. Memory interfacing; memory address decoding

SECTION – B

UNIT 4: Introduction to 8086

Introduction, Pin diagram of 8086, 8086Architecture,real and Protected mode memory Addressing, Memory Paging ,Addressing Modes.

UNIT 5: Assembly Programming in 8086

Instruction Cycle in 8086, Types of instructions: Data movement, Arithmetic and logic; and program control, Operating Mode, Registers, Interrupts, Addressing modes.

UNIT 6: Interrupts

Introduction, 8259 Interrupt controller, basic DMA operation and 8237 DMA Controller, Arithmetic coprocessor,

Text Books:

1. B. Ram, “Fundamentals of Microprocessors and Microcomputers”, Dhanpat Rai
2. Ramesh S. Gaonkar, “Microprocessor Architecture, Programming and Applications with 8085/8080A”, Wiley Eastern Limited.

Reference Books:

1. B. Brey, “The intel micro processors 8086/8086, 80186/80188, 80286,80386, 80486 pentium pro processor Architecture, programming and interfacing” , PHI, 4th Edition

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Annexure-1

AHP-204	PERSONALITY DEVELOPMENT-IV	L	T	P	Credits
		0	0	2	1

Objective: To improve the communication skill of the student

UNIT-1: PHONETICS AND PRONUNCIATION

- Basic Concepts of Phonetics – Speech Sounds (Phonemes), Consonants and Vowel Sounds
- Knowledge of International Phonetic Alphabet System
- Phonetic Transcription using IPA system - IV
- Words Commonly Mispronounced - IV

UNIT-2: LISTENING SKILLS

- Listening to Spellings and Dictation
- Listening to Words with Vowel Difference
- Listening to Words with Different Consonant Sounds (e.g. /P/ and /f/, /d/ and /ð/)

UNIT-3: VOCAL SKILLS

- Extempore Speeches
- Role Plays and Simulations
- Debate
- Group Discussion

UNIT-4: READING SESSIONS

- Reading newspaper articles
- Reading magazines
- Reading lab manuals

UNIT-5: PRESENTATION SKILLS

- Skills of Presentation
- Classroom Presentation
- PowerPoint Presentation

UNIT-6: BASIC ETIQUETTES

- Social Etiquettes
- Telephone Etiquettes
- Meeting Etiquettes

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Annexure-1

AHL-108	ENVIRONMENTAL STUDIES	L	T	P	Cr.
		2	0	0	AC

Objective:

This subject provides the basic knowledge about the environment, factors affecting environment etc.

Theory:

Note :For setting up the question paper, question no 1 will be set up from complete syllabus which will be compulsory and of short answer type. Three questions will be set from each of the sections. The students have to attempt first common question, which is compulsory, and two question from each of the sections. Thus students will have to attempt 5 questions out of 7 questions.

SECTION-A

UNIT-I

The Multidisciplinary Nature of Environmental studies: – Nature, scope and importance, need for public awareness.

UNIT-II

Natural resources: – Renewable and non-renewable resources, natural resources and associated problems:

- (a) **Forest resource:** Use and over-exploitation, deformation and case studies. Timber extraction, mining, dams and their effects on forests and tribal people.
- (b) **Water resources:** Use and overutilization of surface and ground water, flood, drought, conflicts over water, dams-benefit and problem.
- (c) **Mineral resources:** Use and exploitation, environmental effects of extracting and using mineral resources.
- (d) **Food resources:** World food problems, changes caused by agriculture and over-grazing, effects of modern agriculture, fertilizer-pesticide problem, water logging, salinity.
- (e) **Land resource:** Land as a resource, land degradation, man induced landslides, soil erosion and desertification.

UNIT-III

Ecosystems :- Concept, structure and function of an ecosystem; energy flow in the ecosystem; ecological succession; food chains, food webs and ecological pyramids; types of ecosystem – forest ecosystem, grassland ecosystem, aquatic ecosystems.

SECTION-B

UNIT-IV

Environmental Pollution: – Definition, cause, effects and control measures of different types of pollutions – air pollution, water pollution, soil pollution, marine pollution, noise pollution, thermal pollution, nuclear hazards; solid waste management- causes, effects and control measures of urban and industrial wastes; role of an individual in prevention of pollution.

UNIT-V

Social issues and environment:– Urban problems related to energy, water conservation, rain water harvesting, resettlement and rehabilitation of people and its problems; global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust.

UNIT-VI

Human population and environment :-Population growth, variation among nation, population explosion- family welfare programme, environment and human health, Human rights, HIV/AIDS, woman and child welfare.

SUGGESTED READINGS:

Text Books:

1. Rajagopalan R, Environmental Studies, Oxford University Press, New Delhi

Reference Books:

1. Kaushik Anubha, C.P. Kaushik, Perspective in Environmental Studies, New Age International (P) Ltd. Publishers
2. Joseph Benny, Environmental Studies, Tata McGraw Hill Publishing Company Ltd., New Delhi
3. Ubaroi, N.K., Environment Management, Excel Books, New Delhi

CAS-212 Forum L-0 T-0 P-2 Credit:1

Objective : To improve the confidence of the students using various techniques.

Syllabus:

It will be a group discussion type of the activity. This one credit course is meant to give students practice speaking in front of an audience and to explore topics of their own choosing in detail. Students will research topics and organize presentations for faculty and other students. The topics may be any aspect of the Computer and Information sciences or some general topics and must be approved by the instructor in advance.

To help students improve as speakers, each student will receive feedback from the fellow students and the instructor.

CAL-301	Core Java	L	T	P	Cr
		4	1	2	6

Objective

The purpose of the this course is to familiarize students with the fundamentals of Java programming, program design and problem-solving.

Note :For setting up the question paper, question no 1 will be set up from complete syllabus which will be compulsory and of short answer type. Three questions will be set from each of the sections. The students have to attempt first common question, which is compulsory, and two question from each of the sections. Thus students will have to attempt 5 questions out of 7 questions.

SECTION A

Unit 1:

Introduction To Java, Basic Features, Java Virtual Machine Concepts, Primitive Data Type And Variables, Java Operators, Expressions, Statements and Arrays.

Unit 2 :

Class and Objects-- Class Fundamentals, Creating objects ,Introducing Methods, Static methods, Constructors ,Overloading constructors; This Keyword, Argument passing, Method overloading, Garbage Collection, The Finalize () Method.

Unit 3 :

Inheritance Basics, Access Control, Multilevel Inheritance, Method Overriding, Abstract Classes, Polymorphism, Final Keyword.

SECTION B

Unit 4

Defining Package, Package naming, Accessibility of Packages, using Package Members. Implementing Interfaces, Interface and Abstract Classes, Extends and Implements together.

Unit 5 :

Exception, Handling of Exception, Using try-catch, Catching Multiple Exceptions, Using finally clause, Types of Exceptions, Throwing Exceptions.

Unit 6 :

Multithreading, The Main Thread, Java Thread Model, Thread Priorities, Synchronization in Java, Inter thread Communication

Text Books:

- 1- Balagurusamy E.: Programming with Java, Latest Edition, Tata McGraw-Hill
- 2- Schildt H.: The Complete Reference Java 2, Latest Edition, Tata McGraw-Hill

Reference Books:

- 1- Comer Douglas E. : Computer Networks and Internets, Addison-Wesley.
- 2- Mughal K.A.,Rasmussen R.W.:A Programmer's Guide to Java Certification, Addition Wesley.

List Of Experiments:

Write a Java program to find simple Interest.

Write a Java program to find all arithmetic operation

Write a Java program to find the factorial of a given number

Write a Java program to find first number is multiple of second

Write a Java program to print number in sorting order

Write a Program to find the Roots of a Quadratic Equation for the given values

Write a Program To print the Fibonacci series up to given numbers

Write a Program To print the Prime Numbers upto given numbers

Write a Program To check whether the given string is Palindrome or not.

Write a Program To sort the given list of names

Write a Program To find the product of matrices

Write a Program That reads on a file and display the information that whether the file exists or not, to display the information about the file and find the type of file whether readable, writable and the length of bytes.

Write a Program That reads a file and displays the file on the screen within line number before each line

Write a Program That prints a number of characters ,words,lines in that file

Write an applet that displays a simple message

Write an applet That computes the payment of a loan based on the amount of the loan the interest rate and the no. of months. It takes one parameter from the browser: monthly rate if true, they interest rate is per month otherwise the interest rate is per annual.

Write a Program That works as a simple calculator using Grid layout to arrange buttons for the digits and +,-,* % operations. Add a text filed to print the result.

Write an applet To handling the mouse events

Write an applet To create multiple threads that correctly implements producer consumer problem using the concept of Inter thread communication

CAL-303	Computer Graphics	L	T	P	Cr
		4	1	2	6

Objective

This course provides an introduction to the area of computer graphics. It introduces the basics of rendering algorithms such as rasterization and ray tracing and explores different representations for surface geometry.

Note :For setting up the question paper, question no 1 will be set up from complete syllabus which will be compulsory and of short answer type. Three questions will be set from each of the sections. The students have to attempt first common question, which is compulsory, and two questions from each of the sections. Thus students will have to attempt 5 questions out of 7 questions.

SECTION A

Unit 1:

Introduction to computer graphics, Basics of Graphics systems, Application areas of Computer Graphics, overview of graphics systems, video-display devices, and raster-scan systems, random scan systems, graphics monitors and workstations and input devices.

Unit 2 :

Output Primitives and Attributes of Output Primitives: Points and lines, line drawing algorithms, mid-point circle and ellipse algorithms. Filled area primitives: Scan line polygon fill algorithm, boundary fill and floodfill algorithms

Unit 3 :

2-D Geometrical Transforms: Translation, scaling, rotation, reflection and shear transformations, matrix representations and homogeneous coordinates, composite transforms, transformations between coordinate systems.

SECTION B

Unit 4

2-D Viewing: The viewing Pipeline, Window to viewport coordinates Transformation, Clipping: viewing functions, Cohen-Sutherland and Cyrus-beck line clipping algorithms, Sutherland –Hodgeman polygon clipping algorithm

Unit 5 :

Three-Dimensional Transformation: Three Dimensional Graphics Concept, Matrix representation Of 3-D Transformation, Composition of 3-D transformations, Reflection and Shearing

Unit 6 :

Viewing in 3D: Projections, types of projections: Parallel Projection and Perspective Projection

Hidden Surface Removal: Introduction to hidden surface removal, The Z-buffer algorithm,

Text Books:

- 1- Computer Graphics Principles and Practices second edition by James D. Foley, Andeies van Dam, Stevan K. Feiner and Johb F. Hughes, 2000, Addision Wesley,
- 2- Computer Graphics by Donald Hearn and M.Pauline Baker, 2nd Edition, 1999, PHI
- 3- An introduction, Villamil & Molina, Multimedia Mc Milan, 1997

Reference Books:

- 1- Procedural Elements for Computer Graphics – David F. Rogers, 2001, T.M.H Second Edition
- 2- Fundamentals of 3Dimensional Computer Graphics by Alan Watt, 1999, Addision Wesley,
- 3 Computer Graphics: Secrets and Solutions by Corrign John, BPB
- 4- Graphics, GUI, Games & Multimedia Projects in C by Pilaiania & Mahendra, Standard Publ,
- 5- Computer Graphics Secrets and solutions by Corrign John, 1994, BPV.
- 6- Introduction to Computer Graphics By N. Krishanmurthy T.M.H 2002

List Of Experiments:

1. Write a program for 2D line drawing as Raster Graphics Display.
2. Write a program for circle drawing as Raster Graphics Display.
3. Write a program for polygon filling as Raster Graphics Display
4. Write a program for line clipping.
5. Write a program for polygon clipping.
6. Write a program for displaying 3D objects as 2D display using perspective transformation.
7. Write a program for rotation of a 3D object about arbitrary axis.
8. Write a program for Hidden surface removal from a 3D object.

CAL-305	Management Information System	L	T	P	Cr
		4	0	0	4

Objective

The goal of the course is to educate future knowledge workers and business leaders as to how they can create business value for organizations using information systems and information technology.

Note :For setting up the question paper, question no 1 will be set up from complete syllabus which will be compulsory and of short answer type. Three questions will be set from each of the sections. The students have to attempt first common question, which is compulsory, and two question from each of the sections. Thus students will have to attempt 5 questions out of 7 questions.

Section A

Unit 1:

Information Concepts: Data and Information – Meaning and importance, Relevance of Information in Decision Making, Sources and Types of Information, Cost Benefit Analysis –Quantitative and Qualitative Aspects, Assessing Information Needs of the Organization.

Unit 2:

Introduction to MIS: Definition, Purpose, Objectives and Role of MIS in Business Organization with particular reference to Management Levels. MIS Growth and Development, Location of MIS in the Organization – Concept and Design.

Unit 3:

Decision Support System: Overview, components and classification, steps in constructing a DSS, role in business, group decision support system.

Section B

Unit 4:

System Development Life Cycle: Concept of System, Types of Systems – Open, Closed, Deterministic, Probabilistic, etc. Relevance of Choice of System in MIS, System Development Life Cycle, Case tools for analyst, Role of System Analyst, Qualities of System analyst.

Unit 5:

Information Technology :Information system for strategic advantage, strategic role for information system, breaking business barriers, business process reengineering, improving business qualities.

Unit 6:

Information Systems : users of information systems; Types of information systems – transaction processing systems, MIS decision support systems, executive support system; Enterprise Resource Planning (ERP) system, Expert system, Customer Relationship management , Supply Chain Management

Text Book

1.Sadagopan, S., (2009), Management Information Systems, Prentice Hall of India.

Reference Books

1. LM Prasad, (2008), Management Information System, Sultan Chand.

2. Arora, Ashok and Akshaya Bhatia, (2009), Information Systems for Managers, Excel Books, New Delhi.

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Annexure-1

CAL- 309	Artificial Intelligence	L	T	P	Cr
		4	0	0	4

Objective

The main purpose of this course is to provide the most fundamental knowledge to the students so that they can understand what the AI is and to learn the basics of designing intelligent agents that can solve general purpose problems, represent and process knowledge, plan and act, reason under uncertainty and can learn from experiences.

Note :For setting up the question paper, question no 1 will be set up from complete syllabus which will be compulsory and of short answer type. Three questions will be set from each of the sections. The students have to attempt first common question, which is compulsory, and two question from each of the sections. Thus students will have to attempt 5 questions out of 7 questions.

Section A

Unit 1:

Introduction : AI problems, foundation of AI and history of AI intelligent agents: Agents and Environments,the concept of rationality, the nature of environments, structure of agents, problem solving agents, problemformulation.

Unit 2 :

Searching : Searching for solutions, uniformed search strategies – Breadth first search, depth first Search. Search with partial information (Heuristic search) Greedy best first search, A* search.

Unit 3 :

Game Playing: Adversial search, Games, minimax, algorithm, optimal decisions in multiplayer games, Alpha-Beta pruning, Evaluation functions, cutting of search.

Section B

Unit 4 :

Knowledge Representation & Reasons logical Agents, Knowledge – Based Agents, the Wumpus world, logic, propositional logic, Resolution patterns in propositional logic, Resolution, Forward & Backward. Chaining.

Unit 5 :

First order logic. Inference in first order logic, propositional Vs. first order inference, unification & lifts forward chaining, Backward chaining, Resolution.

Unit 6 :

Learning from observation - Inductive learning – Decision trees – Explanation based learning – Statistical Learning methods - Reinforcement Learning

Text Books:

1. Artificial Intelligence – A Modern Approach. Second Edition, Stuart Russel, Peter Norvig, PHI/ Pearson Education
2. Artificial Intelligence , 2nd Edition, E.Rich and K.Knight (TMH).

Reference Books:

1. Artificial Intelligence and Expert Systems – Patterson PHI.
2. Expert Systems: Principles and Programming- Fourth Edn, Giarrantana/ Riley, Thomson.
3. PROLOG Programming for Artificial Intelligence. Ivan Bratka- Third Edition – Pearson Education.

CAL-311	Mobile Computing	L	T	P	Cr
		4	0	0	4

Objective

The purpose of the this course is to familiarize students with the fundamentals of mobile computing, wireless communication.

Note :For setting up the question paper, question no 1 will be set up from complete syllabus which will be compulsory and of short answer type. Three questions will be set from each of the sections. The students have to attempt first common question, which is compulsory, and two question from each of the sections. Thus students will have to attempt 5 questions out of 7 questions.

SECTION A

Unit 1:

Introduction to wireless communications: Applications, Short History of Wireless Communications, Market of Mobile Communications.

Elementary Knowledge on Wireless Transmission: Frequency of Radio Transmission, Signals, Antennas, Signal Propagation: Path Loss of Radio Signals, Additional Signal Propagation Effects, Multipath Propagation.

Unit 2 :

Multiplexing: Space Division Multiplexing, Frequency Division Multiplexing, Time Division Multiplexing, Code Division Multiplexing,

Modulation: Amplitude Shift Keying, Frequency Shift Keying, Phase Shift Keying, Advanced Frequency Shift Keying, Advanced Phase Shift Keying, Multicarrier Modulation.

Spread Spectrum: Direct Sequence Spread Spectrum, Frequency Hopping Spread Spectrum, Cellular Systems.

Unit 3 :

Elementary Knowledge on Telecommunications Systems: GSM: Mobile services, System architecture, Radio interface, Protocols, Localization and calling, Handover, Security, New data services, DECT: System architecture, Protocol architecture.

Elementary Knowledge on Satellite systems: History, Applications, Basics: GEO, LEO, MEO, Routing, Localization, Handover.

SECTION B

Unit 4

Mobile Internet: Introducing the Mobile Internet, Services for the mobile Internet, Business opportunities.

Implementing WAP Services: WML: WML Variables and Contexts: Variable Substitution, Setting Variables, Browser Contexts, WML Tasks and Events, WML User Interaction: Problems with Web Interaction, Interaction in WAP, Elements: <input> , <select> ,<option> , <optgroup> , <do> , <anchor> , <a> , The tabindex Attribute, WML Timers, WML Decks,

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Annexure-1

Templates, and Cards: Elements: <wml>, <head>, <access>, <meta> , <card> , <template>, WML Text and Text Formatting, Elements <p>,
, Character Formatting, Tables, WML Images: Element, The WBMP Image Format.

Unit 5 :

WAP: the Mobile Internet Standard, Making the Internet Mobile: Challenges and Pitfalls, Overview of the Wireless Application Protocol

Implementing WAP Services: WML Script: Datatypes, Variables, and Conversions, Operators and Expressions: Operand Conversions, Assignment Operators, Arithmetic Operators, Bitwise Operators, Shift Operators, Logical Operators, Increment and Decrement Operators, Comparison Operators, Type Operators, The Conditional Operator, The Comma Operator, Precedence and Associativity, WMLScript Statements: Expressions as Statements, Blocks of Statements, Conditions, Loops, Returning from a Function, Other Statements, WMLScript.

Unit 6 :

Functions: Function Declarations, Function Calls, Calls to Other Script Units, Calling WMLScript from WML, Standard Libraries, WMLScript Pragmas: The access Pragma, The meta Pragma, Elementary Knowledge on Libraries: Lang , Float , String ,URL , WMLBrowser Dialogs.

Text Books:

1. Jochen Schiller, “Mobile Communications”, PHI/Pearson Education, Second Edition, 2003.
2. Sandeep Singhal, “The Wireless Application Protocol, Writing Applications for Mobile Internet”, Pearson Education, 2000
3. Learning WML, and WMLScript, Programming the Wireless Web, Martin Frost, Publisher: O'Reilly 2000

Reference Books:

- 1- William Stallings, “Wireless Communications and Networks”, PHI/Pearson Education, 2002
- 2- Theodore S Rappaport, “Wireless Communication Principles and Practice”, 2nd Ed, Pearson Education. 2002
- 3- C. Y. Lee and William, “Mobile Cellular Telecommunications”, 2nd Ed, McGraw Hill. 2001

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CAS-307

Proseminar

Annexure-1
(0-0-2) Credit:1

Students can take the proseminar in the area within which his/her chosen field of concentration falls.

It will be a presentation type of the activity. This one credit course is meant to give students practice speaking in front of an audience and to explore topics of their own choosing in detail. Students will research topics and organize presentations for faculty and other students. The topics may be any aspect of the Computer and Information sciences or some general topics and must be approved by the instructor in advance.

To help students improve as speakers, each student will receive feedback from the fellow students and the instructor.

AHL-307

Business Communication (4-0-0)

Objectives: This syllabus aims to understand the concept, process and importance of communication, to gain knowledge of media of communication, to develop skills of effective communication - both written and oral, to help students to acquaint with application of communication skills in the business world.

Unit 1: Introduction to Communication

Meaning and Definition - Process - Functions - Objectives - Importance - Essentials of good Communication - Communication barriers - Overcoming communication barriers Channels and Objectives of Communication Verbal and Nonverbal, Concept of Effective Communication

Unit 2: Business Correspondence

Theory of Business Letter Writing, Parts, Structure, Layouts—Full Block, Modified Block, Semi - Block Principles of Effective Letter Writing Personnel Correspondence, Job Application Letter and Resume, Letter of Acceptance of Job Offer, Letter of Resignation, - Report writing - Notices, Agenda and Minutes of the Meetings - Memos

Unit 3: Language and Writing Skills

Commercial Terms used in Business Communication, Paragraph Writing, Developing an idea, using appropriate linking devices etc, Cohesion and Coherence, self-editing etc

Unit 4: Listening and Presentation Skills

The art of listening - Principles of good listening, Importance of Listening Skills, Cultivating good Listening Skills Presentation Skills: Principles of Effective Presentation, How to make a Power-Point Presentation

Unit 5: Oral Communication

Meaning, nature and scope - Principles of effective oral communication - Techniques of effective speech

Unit 6: Communication Medium

Media of communication (Face-to-face conversation, Teleconferences, Press Conference, Demonstration, Radio Recording, Meetings, Rumor, Dramatization, Public address system, Grapevine, Group Discussion, Oral report, Closed circuit TV).

Suggested books:

1. T.N. Chhabara *Business Communication*.
2. Business Communication - K. K. Sinha - Galgotia Publishing Company, New Delhi.
3. Essentials of Business Communication - Rajendra Pal and J. S. Korlhalli - Sultan Chand & Sons, New Delhi.
4. Business Correspondence and Report Writing - R. C. Sharma, Krishna Mohan - Tata McGraw-Hill Publishing Company Limited, New Delhi.

Reference Books:

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Annexure-1

1. Media and Communication Management - C. S. Rayudu - Himalaya Publishing House, Bombay.
2. Business Communication (Principles, Methods and Techniques) Nirmal Singh - Deep & Deep Publications Pvt. Ltd., New Delhi.
3. Business Communication - Dr. S.V. Kadvekar, Prin. Dr. C. N. Rawal and Prof. Ravindra Kothavade - Diamond Publications, Pune.
4. Communicate to Win - Richard Denny - Kogan Page India Private Limited, New Delhi.
5. Modern Business Correspondence - L. Gartside - The English Language Book Society and Macdonald and Evans Ltd.
6. Business Communication - M. Balasubrahmanyam - Vani Educational Books.
7. Creating a Successful CV - Siman Howard - Dorling Kindersley.

AHP-303

Personality Development (0-0-2)

Credit :1

UNIT-1: ENGLISH SOUNDS

- Intonation in English Language
- Intonation Practice
- Phonetic Transcription of tri-syllabic words using IPA symbols

UNIT-2: LISTENING SKILLS

- Listening to spellings and dictations
- Listening to identify differences in consonant pairs: /s/ and /ʃ/ and /v/ and /w/

UNIT-3: VOCAL SKILLS

- Story narration on the spot
- Role Plays and Simulations
- Debate
- Group Discussion – Do's and Don'ts

UNIT-4: READING SESSIONS

- Reading business correspondences
- Reading lab manuals

UNIT-5: PRESENTATION SKILLS

- PowerPoint Presentation

***Topics for power point presentation to be given by the facilitator and these must be related to Computer Applications field**

UNIT-6: ETIQUETTES IN ACTION

- Corporate Etiquette-Meaning and Significance
- Understanding Corporate Etiquette in the classroom through practical implications

CAL-302	Visual Programming	L	T	P	Cr
		4	1	2	6

Objective

This course teaches students to develop custom-made applications using the Visual programming language.

Note:

For setting up the question paper, question no 1 will be set up from complete syllabus which will be compulsory and of short answer type. Three questions will be set from each of the sections. The students have to attempt first common question, which is compulsory, and two question from each of the sections. Thus students will have to attempt 5 questions out of 7 questions.

SECTION A

Unit 1:

WINDOWS PROGRAMMING: Windows environment A simple windows program , Windows and messages ,Creating the window ,Displaying the window ,Message loop , The window procedure ,Message processing ,Text output, Painting and Repainting.

Unit 2 :

Introduction to GDI: Device context, Basic drawing, Child window controls, check boxes, Static control, Radio Buttons, Scroll bars, Text and Font.

Unit 3 :

Visual C++ Basic: Introduction, Building a Basic Application, SDI and MDI, View Document Architecture Using Microsoft Foundation Class (MFC) Library, Visual C++ Resources: Application Wizard, Accelerators and Menus, Toolbars

SECTION B

Unit 4

Reading keystrokes, handling mouse, creating menus, toolbars, buttons, status bar prompts, dialog box, check box, radio buttons, list boxes, combo boxes, sliders, multiple documents.

Unit 5 :

Visual C++ And Database Management: MFC programming without View Document Architecture., Data Access Objects (DAO) versus Open Database Connectivity (ODBC), Database Building Overview.

Unit 6 :

ADVANCED CONCEPTS: Database management with Microsoft ODBC Structured query language ,MFC ODBC classes ,Sample database applications ,Filter and sort strings ,DAO concepts, Displaying database records in scrolling view

Text Readings:

1. Microsoft Visual C++ By Steven Holzner (Pub: BPB) nd
2. Visual C++ Programming, 2 edition by Steven Holzner(Pub: PHI)
3. Using Visual Basic for Applications By Paul Sanna(Pub: PHI)
4. Visual Basic Programming By Steven Holzner

Reference Books:

1. Visual C++: From the ground Up By Mucller (Pub :TMH)
2. Programming Visual C++ by David J. Kruglinsk

VP Lab :

1. SDK type programs for creating simple windows with different window styles
2. SDK type programs code for keyboard and mouse events, GDI objects.
3. Simple Dialog Based application –eg. Calculator, interest computation, money conversions, etc.
4. Creating SDI & MDI applications, Modal and Modeless dialog.
5. Programming for reading and writing into documents.
6. Coding Dynamic controls –slider control, progress control etc
7. Creating static and dynamic splitter windows
8. Creating DLLs and using them.

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Annexure-1

CAL-304	Numerical Methods	L	T	P	Cr
		4	1	2	6

Objective

This course teaches students to develop concepts of numerical methods to understand mathematical modeling which involves large numbers of tedious arithmetic operations.

Note:

For setting up the question paper, question no 1 will be set up from complete syllabus which will be compulsory and of short answer type. Three questions will be set from each of the sections. The students have to attempt first common question, which is compulsory, and two question from each of the sections. Thus students will have to attempt 5 questions out of 7 questions.

SECTION A

Unit 1:

Floating Point Arithmetic: Basic concept of floating point numbers systems, implications of finite precision, illustrations of errors due to round off.

Unit 2 :

Interpolation: Finite difference calculus, polynomial interpolation. Approximation Uniform, discrete least square, polynomial, Fourier.

Unit 3 :

Numerical Integration & Differentiation Interpolatory numerical integration; numerical differentiation.

SECTION B

Unit 4

Solution of non-linear: Bisection, fixed point iteration, Newton's Raphson's Methods.

Solution of Ordinary differential equation: Taylor series, method, Range-Culta method, Euler method.

Unit 5 :

Random variables and their distributions: Random variables (discrete and continuous), probability density and distribution functions, special distributions (Binomial distribution functions, special distributions poisson, Uniform Exponential), mean and variance, chebychey inequality, independent random variables, functions of random variables and their distribution.

Unit 6 :

Limit Theorems: Poisson and normal approximations, Control limit Theorem Law of large numbers.

Text Readings:

1. Veerarjan, T and Ramachandran, T., "Numerical methods with programming in C", Second Edition, Tata McGraw-Hill Publishing.Co.Ltd, 2007.
2. Sankara Rao K, "Numerical Methods for Scientists and Engineers", 3rd Edition, Printice Hall of India Private Ltd, New Delhi, 2007.

Reference Books:

1. Chapra, S. C and Canale, R. P., “Numerical Methods for Engineers”, 5th Edition, Tata McGraw-Hill, New Delhi, 2007.
2. Gerald, C. F. and Wheatley, P.O., “Applied Numerical Analysis”, 6th Edition, Pearson Education, Asia, New Delhi, 2006.
3. Grewal, B.S. and Grewal, J.S., “ Numerical methods in Engineering and Science”, 6th Edition, Khanna Publishers, New Delhi, 2004.

NM Lab :

1. Solution of Non-linear equation in single variable using the method of successive bisection.
2. Solution of Non-linear equation in single variable using the Regula-Falsi & Newton Raphson method.
3. Solution of a system of simultaneous algebraic equations using the Gaussian elimination procedure.
4. Solution of a system of simultaneous algebraic equations using the Gauss- Seidel iterative method.
5. Numerical solution of an ordinary differential equation using the Euler’s method.
6. Numerical solution of an ordinary differential equation using the Runge-Kutta 4th order method.
7. Numerical solution of an ordinary differential equation using the predictor –corrector method.
8. Numerical solution of a system of two ordinary differential equation using numerical integration.
9. Numerical solution of an elliptic boundary value problem using the method of finite differences.

CAL-306	System Programming	L	T	P	Cr
		3	1	0	4

Objective

The purpose of the this course is to familiarize students with the fundamentals of system programming.

Note:

For setting up the question paper, question no 1 will be set up from complete syllabus which will be compulsory and of short answer type. Three questions will be set from each of the sections. The students have to attempt first common question, which is compulsory, and two question from each of the sections. Thus students will have to attempt 5 questions out of 7 questions.

Section A

Unit 1:

Evolution and components of System Programming, Assembler, Loader, Compiler, Macro, Interpreters, Linkers.

Unit 2 :

Machine Structure, Machine language & Assembly language.

Unit 3 :

Assembler: Functions of assembler, general design procedure, design of assembler, Table processing searching and sorting techniques.

Section B

Unit 4 :

Loader: Loader schemes, Compiler & Go Loader, General Loader Scheme, Absolute loaders, subroutine linkages, relocating loaders, Direct linking loaders.

Unit 5 :

Macros: Macro language & processors feature of macro facility, macro instruction, arguments.

Unit 6 :

Programming languages: Importance of High Level Language, Features, Data Types and Data structure, Storage allocation, accessing flexibility, Functional modularity.

Text Books:

1. John N. Donavan “System Programming” Tata Mc Graw Hill
2. D.M.Damdhere “System Programming & Operating System” Tata Mc Graw Hill.

CAL-312	Object Oriented System Design	L	T	P	Cr
		4	0	0	4

Objective

This course teaches students to learn the concept of Object Oriented Software Development Process and to get acquainted with UML Diagrams and to understand Object Oriented Analysis Processes .

Note:

For setting up the question paper, question no 1 will be set up from complete syllabus which will be compulsory and of short answer type. Three questions will be set from each of the sections. The students have to attempt first common question, which is compulsory, and two question from each of the sections. Thus students will have to attempt 5 questions out of 7 questions.

SECTION A

Unit 1:

Review of Object modeling, new paradigm, object oriented thinking-rethinking, Objects and Classes. Links and association, Generalization and specialization, Inheritance, Grouping concepts, aggregation, composition , abstracts classes, Polymorphism, Metadata, Constraints, Reuse.

Unit 2 :

Object Oriented Lifecycle Model, Introduction to Object Oriented Methodology, Overview of various object oriented methodologies- OOD, HOOD, OMT, CRC, OOA, OOSA, OOSE, OOSD, OORASS.

Unit 3 :

Architecture: Introduction, System development in model building, model architecture, requirements model, analysis model, the design model, the implementation model, test model.

SECTION B

Unit 4

Analysis: Introduction, the requirements model, the analysis model

Construction: Introduction, the design model, block design, working with construction.

Testing: introduction, on testing, unit testing, integration testing, system testing, the testing process.

Unit 5 :

Modeling with UML: Origin of UML, 4+1 view architecture of UML, Basic Building Blocks of UML, A Conceptual Model of UML, Basic Structural Modeling, UML Diagrams.

Unit 6 :

Designing Classes:

UML object constraint languages, designing classes, class visibility, refining attributes for the vianet bank objects, designing methods and protocols, designing methods for the vianet bank objects, packages and managing classes. Designing access layer, case study. Designing view layer, macro level process

Text Books:

1. Ivar Jacobson, "Object Oriented Software Engineering", Seventh Impression , Pearson, 2009.
2. Grady Booch, James Rumbaugh, Ivar Jacobson, "The UML User Guide", 2ndEdition, Pearson, 2008.

REFERENCE Books:

1. Stephen R. Scach, "Classical & Object Oriented Software Engineering with UML and Java", McGraw Hill, 1999.
2. Richard C. Lee, William M. Tepfenhard, "UML and C++, A Practical guide to object-oriented Development", Pearson.
3. Ivar Jacobson, Grady Booch & James Rumbaugh, "The Unified Software Development Process", Pearson, Fifth Impression, 2009.
4. Bernd Bruegge, "Object Oriented Software Engineering", Pearson, 2nd Ed., 2008.
5. James R. Rumbaugh , Michael R. Blaha , William Lorensen , Frederick Eddy , William Premerlani , "Object-Oriented Modeling and Design ", 2nd Edition, PHI, 2007.
6. Mahesh P. Matha, "Object Oriented Analysis and Design using UML", PHI, 2008.
7. Michael R. Blaha, James R. Runbaugh, "Object Oriented Modeling and Design with UML", Pearson, 2ndEd.

CAL-314	Multimedia Applications	L	T	P	Cr
		4	0	0	4

Objective

To understand the multimedia representation and working.

Note:

For setting up the question paper, question no 1 will be set up from complete syllabus which will be compulsory and of short answer type. Three questions will be set from each of the sections. The students have to attempt first common question, which is compulsory, and two question from each of the sections. Thus students will have to attempt 5 questions out of 7 questions.

SECTION A

Unit 1:

Fundamental concepts in Text and Image: Multimedia and hypermedia, world wide web, overview of multimedia software tools. Graphics and image data representation graphics/image data types, file formats, Color in image and video: color science, color models in images, color models in video.

Unit 2 :

Fundamental concepts in video and digital audio: Types of video signals, analog video, digital video, digitization of sound, MIDI, quantization and transmission of audio.

Unit 3 :

Multimedia data compression : Lossless compression algorithm: Run-Length Coding, Variable Length Coding, Dictionary_Based Coding, Arithmetic Coding, Lossless Image Compression,

SECTION B

Unit 4

Lossy compression algorithm: Quantization, Transform Coding, Wavelet-Based Coding, Embedded Zerotree of Wavelet Coefficients Set Partitioning in Hierarchical Trees (SPIHT).

Unit 5 :

Basic Video Compression Techniques: Introduction to video compression, video compression based on motion compensation, search for motion vectors, MPEG, Basic Audio Compression Techniques.

Unit 6 :

Multimedia Networks: Basics of Multimedia Networks, Multimedia Network Communications and Applications : Quality of Multimedia Data Transmission, Multimedia over IP, Multimedia over ATM Networks, Transport of MPEG-4, Media-on-Demand(MOD)

Text Books:

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Annexure-1

1. Fundamentals of Multimedia by Ze-Nian Li and Mark S. Drew PHI/Pearson Education.
2. Essentials Action Script 2.0, Colin Mook, SPD O,REILLY.

Reference Books:

1. Digital Multimedia, Nigel chapman and jenny chapman, Wiley-Dreamtech
2. Macromedia Flash MX Professional 2004 Unleashed, Pearson.
3. Multimedia and communications Technology, Steve Heath, Elsevier(Focal Press).

CAD-308

Mini Project

(0-0-6)

Credit:3

Students will develop a project and submit the report for evaluation

AHP-304 Personality Development-VI (0-0-2) Credit :1

UNIT-1: ENGLISH SOUNDS

- Recapitulation of Consonant sounds, Vowel sounds, IPA symbols, Syllables, Word Stress and Intonation pattern

UNIT-2: LISTENING SKILLS

- Listening to English spellings and dictation
- Listening to Words with Different Consonant Sounds: // and /ð/, /d/ and /ð/

UNIT-3: VOCAL SKILLS

- Narrating incidents/anecdotes on the spot
- Role Plays and Simulations
- Debate
- Group Discussion

UNIT-4: READING SESSIONS

- Reading online blogs
- Reading lab manuals

UNIT-5: PRESENTATION SKILLS

- PowerPoint Presentation

***Topics for power point presentation to be given by the facilitator and these must be related to Computer Applications field**

UNIT-6: ETIQUETTES IN ACTION

- Interview Etiquette-Meaning and Significance
- Understanding Interview Etiquette in the classroom through practical implications