CBCS scheme 2016

Bachelor of Engineering (Information Technology) Semester III

S.No.	Subject Code	Subject Name	Maximum marks allotted									Hours/Week			Total Credits
			Theory						Practical						
			End Sem	Minor-I	Minor-II	Quiz	Assignmen	Tutorials/ Problem	End Sem	Lab Work	Viva Voce	L	T	P	
1	DC	Data Structure-II	60	10	10	5	5	10	10	20	20	2	1	2	4
2	DC	Electronics and Digital Circuit	60	10	10	5	5	10	10	20	20	2	1	2	4
3	DC	Object Oriented Concept with C++	60	10	10	5	5	10	10	20	20	2	1	4	5
4	DE	Discrete Structure	60	10	10	5	5	10	-	-	-	3	1		4
5	DC	Data Base Management System	60	10	10	5	5	10	10	20	20	2	1	2	4
6	HU	Communication Skills	60	10	10	5	5	10	-	-	-	1	-	2	2
7	DC	Idea Generation	-	-	-	-	-	-	-	-	50	-	-	4	2
8	DC	Learning Through Expert	-	-	-	-	-	-	-	-	50	1	0	0	1
		Total	360	60	60	30	30	60	40	80	130	13	5	16	26

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Course Content						
Subject Code	Subject Name	L	T	P	Max Marks	Credit
IT-231	Object Oriented Concept with C++					

Course Contents

Concept of Object Oriented methodology: Role of programming methodology in software development, Comparison the concepts of structured-oriented programming (SOP) and object-oriented programming (OOP). Need for object oriented programming. Fundamental concepts of object-oriented programming (OOP): abstraction, encapsulation, modularity, data hierarchy through inheritance, Information Hiding, polymorphism and typing, parallelism and stability.

Elements of object oriented: Object, Class, message passing. Relationships among objects:- links, aggregation. Relationships among classes:- association, aggregation, using, instantiation, meta-class.

Beginning with C++: What is C++, Difference between C and C++. C++ program life cycle.

Functions in C++: Different forms of functions, function prototyping, call by value; call by Reference, Inline and friend Functions. Command Line Arguments

Encapsulation and Abstraction in C++: Classes and Objects in C++, defining classes, defining member functions, declaration of objects to class, access to member variables from objects etc, Initialization and assignment for objects. Different forms of member functions, dependence on access specifiers (i.e. Private, public, protected),

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static data members. Constructor and Destructor in C++: constructors, parameterized constructors Multiple constructors in class dynamic initialization of objects destructors. Implementation of relationship.

Inheritance in C++: Introduction, types of inheritance, single inheritance, multiple inheritance, multilevel inheritance, hierarchical inheritance, hybrid inheritance etc, virtual base class, abstract class, constructors in derived class.

Polymorphism in C++: type of polymorphism, function overloading, **operator overloading:-** introduction, defining operator overloading, overloading -(unary, binary operators), overloading binary operators using friends, Rules for overloading operators. **Function overriding:-** introduction to pointers, pointers to objects, this pointer, pointers to derived class, virtual functions, abstract class, pure virtual functions. Introduction to C++ templates.

REFERENCES:

1. Herbert Schildt, " C++ the complete reference", III edition, TMH 1999
2. Balagurusamy, Entrepreneurial, "object oriented programming with C++", TMH
3. Barkakatin," object oriented programming in C++", PHI 1995

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LIST OF EXPERIMENTS:

1. Program to demonstrate use of function overloading.
2. Write a function which accepts object as a parameter and returns object.
3. Write a program to demonstrate the virtual base class.
4. Write a program to demonstrate use of polymorphism (virtual function).
5. Write a program to overload ++ operator to increment age of person by one month.
6. Write a program to illustrate the use of scope resolution operator.
7. Write a program to find the square root using inline function.
8. Write a program to illustrate the use of friend function.
9. Create two employee objects and display each object's yearly salary.
10. Give each employee a 10% raise and display each Employee's yearly salary again.
11. Write C++ program to create five object of book, get information of book using getdata() function including name, price, publication and author.

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B.E. THIRD SEMESTER (COMPUTER SCIENCE AND INFORMATION TECHNOLOGY)						
COURSE CONTENT						
SUB. CODE	SUB. NAME	L	T	P	MAX. MARKS	CREDITS
MA 232	DISCRETE STRUCTURE	3	1	0	60	4

COURSE CONTENT:

Set Theory, Relation, Function Set Theory: Definition of sets, countable and uncountable sets, Venn Diagrams, proofs of some general identities on sets Relation: Definition, types of relation, composition of relations, Pictorial representation of relation, Equivalence relation, Partial ordering relation.

Function: Definition, , one to one, into and onto function, inverse function, composition of functions, recursively defined functions, pigeonhole principle. Theorem proving Techniques: Mathematical induction.

Posets, Hasse Diagram and Lattices: Introduction, ordered set, Hasse diagram of partially, ordered set, isomorphic ordered set, well ordered set, properties of Lattices, bounded and complemented lattices.

Recurrence Relation and Generating Function: Introduction to Recurrence Relation and Recursive algorithms , Linear recurrence relations with constant coefficients, Homogeneous solutions, Particular solutions, Total solutions , Generating functions , Solution by method of generating functions.

Algebraic Structures: Definition, Properties, types: Semi Groups, Monoid, Groups, Abelian group, properties of groups, Subgroup, cyclic groups, Cosets, Normal subgroup, Homomorphism and isomorphism of Groups, Rings and Fields and finite fields : definition and examples

Propositional Logic : Proposition, first order logic, Basic Logical Operation, truth tables, tautologies, contractions, Algebra of Proposition, logical implications, logical equivalence, Rules of inference , Predicates, the statement function, Variables and Quantifiers, predicate formulas, free and bound variables, The Universe of Discourse.

Graph Theory: Introduction and basic terminology of graphs, Planer graphs, Multigraphs and weighted graphs, Isomorphic graphs, Paths, Cycles and connectivity, Shortest path in weighted graph, Introduction to Eulerian paths and circuits, Hamiltonian paths and circuits, Graph coloring, chromatic number.

Reference Books:

1 Elements of Discrete Mathematics by C.L. Liu Tata Mc Graw-Hill Edition.
2. Discrete Mathematical Structure with Application in CS by Trembley ,J.P & Manohar;, Mc Graw Hill.
3. Graph Theory with application to Engineering and computer science by Deo , Narsingh ; PHI.
4. Discrete Mathematics by Seymour Lipschutzand and Mark Lipson, Schaum's Outlines, Tata McGraw- Hill Pub.

14-6-16

14/06/2016

14/06/16

14/6/16

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Course Content						
Subject Code	Subject Name	L	T	P	Max. Marks	Credits
IT-233	Data Structure II	1	1	2		3

COURSE CONTENT:

Trees: Basic terminology, Binary Trees: Array and Linked Representation of Binary trees, Traversing Binary trees, Complete Binary Tree, Extended Binary Trees, Threaded Binary trees, Binary Search Tree (BST), AVL Trees, B-tree, B+tree. Application of binary tree: Algebraic Expression, Huffman coding Algorithm, parse tree.

Sorting: Selection Sort, Insertion Sort, Bubble Sort, Quick Sort, Merge Sort, Heap Sort, Radix sort algorithms and their Complexities.

Searching & Hashing: Sequential search, binary search, Hash Table, Hash Functions, Collision Resolution Strategies.

Graphs: Introduction, Representations of Graphs: Adjacency List, Adjacency Matrices. Graph Traversals: Depth First Traversal, Breadth First Traversal. Connected Component and Spanning Trees, Minimum Cost Spanning Trees. Application: Dijkstra's Algorithm for shortest path.

EVALUATION: Evaluation will be continuous an integral part of the class followed by final examination.

Reference:

1. R. Kruse et al, Data Structures and Program Design in C, Pearson Education Asia, Delhi-2002
2. ISRD Group: Data structures using C, TMH
3. Lipschutz, Data structure (Schaum), TMH
4. Horowitz and Sahani, Fundamentals of data Structures, Galgotia Publication Pvt. Ltd., N Delhi.
5. A. M. Tenenbaum, Data Structures using C & C++, Prentice-Hall of India Pvt. Ltd., New Delhi.
6. Trembley and Sorenson, Data Structures, TMH
7. Pai, Data structure and algorithm, TMH
8. Thomas H. Corman et al, Introduction to Algorithm, AWL

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COURSE CONTENT & GRADE (w.e.f.)

Branch	Subject Title	Subject Code	Grade for End Sem		CGPA at the end of every even semester
			T	P	
B.E.	ELECTRONIC & DIGITAL CIRCUITS	IT-234	Min "D"	Min "D"	5.0

Electronics and Digital Circuits

Unit I

Semiconductor device, theory of P-N junction, temperature dependence and break down characteristics, junction capacitances, Zener diode, Transistors BJT, FET, MOSFET, types, working principal, characteristics, and region of operation, load line biasing method. Transistor as an amplifier, Feedback amplifier, negative feedback, voltage-series, voltage shunt, current series and current shunt feedback.

Unit II

Switching characteristics of diode and transistor, turn ON, OFF time, reverse recovery time, transistor as switch, Multivibrators, Bistable, Monostable, Astable multivibarators. Operational amplifier characteristics, slew rate, full power bandwidth, offset voltage, bias current, application ,Inverting , non inverting amplifier , summer , averager , differentiator, integrator, differential amplifier , instrumentation amplifier , log and antilog amplifier , voltage to current and current to voltage converters , comparators.

Unit III

Number systems & codes, Binary arithmetic , Boolean algebra and switching function. Minimization of switching function, Concept of prime implicant , Karnaugh map method, Quine & McCluskey's method, Cases with don't care terms, Multiple output switching function.

Unit IV

Introduction to logic gates, Universal gate, Analysis and design procedure of Combinational circuits, Half adder, Half subtractor, Full adder, Full subtractor circuits, Series & parallel addition, BCD adders, Look-ahead carry generator. Decoders, Encoders, Multiplexers, Demultiplexers, Introduction to various semiconductor memories & designing with ROM and PLA.

Unit V

Analysis and design procedure of synchronous Sequential circuits, Introduction to Shift Registers, Counters; Synchronous & asynchronous counters,

Text Books

1. Digital Design, PHI, 2/e and digital logic and computer design, PHI, by M. Morris Mano
2. Microprocessor Arch, Programming & Application with 8085 by R.S. Gaonkar
3. Digital Computer & Electronics by A.P. Malwino and J.A. Brown, TMH, 3/e
4. 0000 to 8085 Introduction to Microprocessors by P.K. Ghosh & P.R. Sridhar, PHI, 2/e
5. Logic Design Theory, by N.N. Biswas, PHI
6. Milliman Hallkias -Integrated Electronics; TMH Pub.
7. Gayakwad; OP-amp and linear Integrated Circuits; Pearson Education
8. Salivahanan; Electronic devices and circuits; TMH
9. Milliman Grabel; Micro electronics , TMH
10. RobertBoylestad & Nashetsky; Electronics Devices and circuit Theory; Pearson Ed.

Name of Text Books

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BE Third Semester (INFORMATION TECHNOLOGY)

COURSE CONTENT

SUB. CODE	SUB. NAME	L	T	P	MAX. MARKS	CREDITS
IT-235	DATA BASE MANAGEMENT SYSTEM	2	1	2	60	4

Unit I Basic Concepts: DBMS Concepts and architecture Introduction, Database approach v/s Traditional tile accessing approach, Advantages of database systems, Data models, Schemas and instances, Data independence, database users and DBA.

Unit II: Data models and their Comparison, Entities and attributes, Entity Sets, Relationships, Extended E-R Features Defining the E-R diagram of database Relational Data models: Domains, Tuples, Attributes, Relations, and Integrity constraints. Key (super key, candidate key, primary key, foreign key, and referential key)

Unit III: Structured Query Language ,Relational Query languages: Relational algebra, Relational algebra operations like select, Project, Join, Division, outer union. SQL: DDl, DML and their commands, Aggregate function, nested subquery, views in SQL, join Data retrieval queries, accessing SQL from programming language.

Unit IV: Database Design Data Base Design: Introduction to normalization, Normal forms, Functional dependency, Decomposition, Dependency preservation and lossless join, multi-valued dependencies.

Unit V: Transaction Processing Concepts: - Transaction System, Testing of Serializability, Serializability of schedules, conflict & view serializable schedule, recoverability, Recovery from transaction failures. Log based recovery. Checkpoints deadlock handling. Concurrency Control Techniques: - Concurrency Control, locking Techniques for concurrency control, time stamping protocols for concurrency control, validation based protocol, multiple granularity, Multi version schemes, Recovery with concurrent transaction. Introduction to Distributed databases, data mining, data warehousing.

Text Books:

1) Database System Concepts, Silberschatz, Korth and Sudarshan

2) Fundamental of database system by Elmasri / Navathe the Benjamin / Cunnings Publishing company inc.

Reference:

3) Data Base Management System by C.J. Date

4) Data Base Management System by Ullman

5) Data base design by Gio Wiederhold. McGraw Hill

6) Fundamental of Data Base Management System by Leon & Leon, Vikas Publishing House Pvt. Ltd.

7) Oracle 9i Database Administration Fundamental-I, Volume I, Oracle Press,TMH.

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COURSE CONTENT & GRADE (w.e.f. July 2016)

Branch	Subject Title	Subject Code	Grade for End Sem		CGPA at the end of every even semester
			T	P	
BE III	COMMUNICATION SKILL	CHU-236	Min "D"	Min "D"	5.0

COMMUNICATION SKILL

Max:60

Course Objectives:

- **Student will be able to learn and understand the four major Skills of Communication i.e. LSRW (Listening, Speaking, Reading and Writing)**
- **Student will be able to write effective job application to show employers that they deserve to be shortlisted for an interview**
- **Student will be able to meet high professional expertise with the help of much developed written and communication skills**
- **Students' comprehension skills will be enhanced.**

Constituents of Technical Communication: Fundamental of Grammar usage, Requisites of Sentence Construction, Proper Use Tenses; antonyms, idioms and phrases, synonyms, homophones; The art of Condensation, Paragraph Development Techniques, Writing Bibliography and References

Basics of Technical Communication: Distinction between Technical and General Communication, Flow of Communication, 7 C's of Effective Communication, Overcoming the Barriers to Communication, Role of Feedback in communication.

Listening and Reading Skills for Effective Communication: Importance of Listening in Communication, Difference between Listening and Hearing, Types of Listening. Techniques of Reading, SQ3R, Proof Reading.

Developing Oral Communication: Interpersonal Communication, Facilitators and Impediments of interview and Group Discussion, Presentation Strategies: Defining Purpose, Organizing Contents, Preparing Outline, Audio-Visual Aids, Nuances of Delivery, Importance of Paralanguage and Kinesics in Communication, Audience Awareness, Setting and Achieving Goals

Written Communication: Writing Curriculum Vitae, Letter and Cover Letter and job Application; Letter Components and Layouts, Principles of Effective Letter Writing, E-mail etiquettes, Notice Agenda and Minutes, Writing Proposals: Nature and Significance, Types of Proposals, Parts of a Formal Proposal; a brief recap of Formats of Report Writing.

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