DEVI AHILYA VISHWAVIDYALAYA, INDORE

FACULTY OF ENGINEERING

SCHEME OF EXAMINATION
&
COURSE OF CONTENTS

BE III Year Programme
(COMPUTER ENGINEERING)

INSTITUTE OF ENGINEERING & TECHNOLOGY
(www.iet.dauniv.ac.in)

Scheme for B.E. III (Computer Engineering) effective from June 2008

DEVI AHILYA VISHWAVIDYALAYA, INDORE
INSTITUTE OF ENGINEERING & TECHNOLOGY

SCHEMES OF EXAMINATION FOR BE PROGRAMME
(Subject to Revision)

B. E. III YEAR COMPUTER ENGINEERING
Th- Theory, CW – Class Work, SW – Sessional Work, Pr – Practical

Semester V

SNo	Sub Code	Subject	L	T	P	Th	CW	SW	Pr	TOTAL
1.	3CO201	Theory of Computation	4	-	-	100	50	-	-	150
2.	3CO202	Operating System	4	-	2	100	50	50	50	250
3.	3CO203	Computer Network	4	-	2	100	50	50	50	250
4.	3CO204	Principles of Programming Languages	4	-	-	100	50	-	-	150
5.	3EC205	Digital Communication Engineering	4	-	2	100	50	50	50	250
6.	3SS256	Entrepreneurship Development & IPR	2	-	-	-	50	-	-	50
7.	3CO206	Software Workshop	-	-	2	-	-	50	50	100
	TOTAL		**22**	**-**	**8**	**500**	**300**	**200**	**200**	**1200**

Semester VI

SNo	Sub Code	Subject	L	T	P	Th	CW	SW	Pr	TOTAL
1.	3CO251	Project – I	-	-	2	-	-	100	50	150
2.	3CO252	Analysis of Algorithms	4	-	2	100	50	50	50	250
3.	3CO253	Server Side Programming	4	-	2	100	50	50	50	250
4.	3CO254	Software Engineering	4	-	2	100	50	50	50	250
5.	3CO255	Database Management System	4	-	2	100	50	50	50	250
6.	3SS206	Principles of Management	2	-	-	-	50	-	-	50
	TOTAL		**18**	**-**	**10**	**400**	**250**	**300**	**250**	**1200**

Devi Ahilya University, Indore, India Institute of Engineering & Technology				BE III Year (Computer Engineering)					
Subject Code & Name	**Instructions Hours per Week**			**Marks**					
3CO201 **Theory of Computation**	**L**	**T**	**P**		**TH**	**CW**	**SW**	**PR**	**Total**
	4	**--**	**--**	**Max**	**100**	**50**	**-**	**-**	**150**
Duration of Theory Paper: 3 Hours				**Min**	**35**	**25**	**-**	**-**	**60**

Course Objectives: - To familiarize students about theoretical & mathematical aspects of computer science and making their problem solving thinking stronger.

Prerequisite: Discrete Structures, Applied Mathematics.

COURSE OF CONTENT

UNIT I
Introduction to Formal Languages, Grammar and Automata; Finite State Machines- DFA & NDFA; Regular Expressions; Properties of Regular Languages; Pumping Lemma.

UNIT II
Chomsky's Hierarchy; Context Free Languages & Grammars; Recognition, Translation and Parsing; Normal Forms of CFG; CKY and Earley's Algorithm.

UNIT III
Pushdown Automata; PDA and CFG; Nondeterministic PDA, Properties of CFLs; Pumping Lemmas; Turing Machines- TM as Language Acceptor, Transducer and Problem Solver.

UNIT IV
Predicate Calculus- Syntax and Wffs; Models of Interpretation and Semantics- Horn and Ground Clauses; Resolution Techniques.

UNIT V
Petri nets and its Applications; Programming Language Semantics; Verification of Programs; Formal and Type Systems; Computational Complexity. Complexity of Computing using HLL programs and Automata models; Formal Semantics of programming Languages; Verification of Programs.

BOOKS RECOMMENDED:

[1] D Mandriolli, C Ghezzi, "*Theoretical Foundation of Computer Science*, John Wiley, 1987.
[2] Zohar Manna, *Mathematical Theory of Computation*, McGraw Hill, 1977.
[3] Cohen, *Introduction to Computer Theory*, John Wiley, 1990.
[4] Moll, Arbib, Kfoury, *Introduction to Formal Language Theory*, Springer Verlog,1990.
[5] P Linz, *An Introduction to Formal languages and Automata*, 3/e, Narosa Pub. 2003.
[6] J. Martin, *Introduction to Languages and the Theory of Computation*, 3/e, Tata McGraw Hill, 2005.
[7] J.Hopcroft and J.D. Ullmam. " *Introduction to Languages*, Automata and Computation Addition Wesley, 1981.
[8] Lewis and Papadmitrou, "*Element of Theory of Computation*," Printice Hall, 1981.

Devi Ahilya University, Indore, India Institute of Engineering & Technology				BE III Year (Computer Engineering)					
Subject Code & Name	Instructions Hours per Week			Marks					
3CO202 Operating System	**L**	**T**	**P**		**TH**	**CW**	**SW**	**PR**	**Total**
	4	**-**	**2**	**Max**	**100**	**50**	**50**	**50**	**250**
Duration of Theory Paper: **3 Hours**				**Min**	**35**	**25**	**25**	**25**	**110**

Objective: To provide an introduction to Operating System concepts and its design issues.

Prerequisite: Computer Organization.

COURSE OF CONTENT

UNIT I
Introduction
Role of OS: Types of OS, Batch Systems; Multiprogramming; Time Sharing; Distributed & Real time OS. Computer structure and OS: System Architecture – I/O, Storage, Processors; System components- OS Services, System Calls , System Programs; System Design, Implementation and Generation.

UNIT II
Process Management
Concepts of process: Process status, Process description, Process model. Process Scheduling: Concepts, Scheduler organization, preemptive and non- preemptive scheduler strategies, scheduling algorithms: FCFS, SJN, Priority Scheduling, Round Robin Scheduling, Multiple Processor scheduling, Thread Concepts and Multiple threaded OS.

UNIT III
Process Synchronization and Deadlock
Process Co-operation, Concepts of Interprocess communication, Process Synchronization, Synchronization Issues, Critical Section problem, Mutual exclusion Primitives and Algorithms, Process Synchronization with semaphores. Concepts of Deadlock, Conditions for Deadlocks, Resource Concepts & Abstractions, Deadlock Prevention, Avoidance and Recovery, Banker Algorithms for Deadlock Avoidance.

UNIT IV
Memory Management
Swapping, Segmentation, Paging and Contiguous memory allocation. Virtual Memory: Demand Paging, Page replacement and Frame Allocation policies, Thrashing. File System: Concepts, Access Method, Directory Structure, and File System Management.

UNIT V
I/O management and other issues
Kernel, I/O hardware, I/O interfacing, I/O requesting and interrupts. Disk management: Disk Structure and Scheduling. Protection and Security. Linux: Kernel Organization, Process and resource management, Memory management, Introduction to Linux File System. Overview of Windows Operating System design.

Books recommended:
[1]. Silberschatz, Galvin and Gagne, *Operating System Principles*, 7th Ed. Addison Wesley.
[2]. Gary Nutt, *Operating Systems*, 3rd Ed. Pearson Education, India
[3]. Tanenbaum, *Modern Operating Systems*, PHI.
[4]. W. Stalling, *Operating Systems*, Macmillan.
[5]. H. M. Dietel *, Operating Systems*, Addison Wesley Longman.
[6]. Maurice J. Bach, *The design of Unix Operating system*, Pearson Education, India.
[7]. Sumitabha Das, *Unix Concepts & Applications: includes SCO Unix & Linux*, Tata McGraw Hill.

Devi Ahilya University, Indore, India Institute of Engineering & Technology				BE III Year (Computer Engineering)					
Subject Code & Name	**Instructions Hours per Week**			**Marks**					
3CO203 Computer Networks	**L**	**T**	**P**		**TH**	**CW**	**SW**	**PR**	**Total**
	4	**-**	**2**	**Max**	**100**	**50**	**50**	**50**	**250**
Duration of Theory Paper:3 Hours				**Min**	**35**	**25**	**25**	**25**	**110**

Objective: To provide an introduction to concepts of Computer Network and its design issues.

Prerequisite: Communication System basics.

COURSE OF CONTENT

UNIT I

Introduction

Computer Network-Definition, Goals, Design Issues, Network architecture-Broadcast & Point to Point, Models-OSI reference & TCP/IP and their comparative study, Network classification-LAN,WAN & MAN, protocols & services types of service-connection oriented and connection less, Transmission Media **:** Twisted pair, Coaxial cable, Fiber optic cable, Wire less transmission, Telephone System, Multiplexing, Switching: Circuit, Packet & Message Switching. Network Devices: Repeater, Bridge, Router, Gateways, NIC, Cabling System.

UNIT II

Data Link Layer Design and Protocols

Framing, Error control-Bit Error**:** causes of error, control methods, Flow control – Stop & Wait, Sliding Window Protocols, MAC Protocols: Aloha, CSMA, CSMA/CD, Collision free protocols, IEEE 802.3 standard, Fast Ethernet, Gigabit Ethernet, Overview of Wireless LANs: IEEE 802.11 standard.

UNIT III

Network Layer Design and Protocols

Internetworking: Concepts and Architecture. Routing: different routing algorithms, Congestion Control, Addressing- IP Addressing and subnet masking, CIDR , IPv6, IP protocol and other supporting protocols at IP layer: ARP, RARP, ICMP.

UNIT IV

Transport Layer Design and Protocols

Transport layer addressing, Connection Establishment and release, Buffering, Multiplexing, Crash Recovery, TCP/IP suit of Protocols –TCP & UDP, TCP: Protocol, Segment header, transmission policy.

UNIT V

Application Layer and Other Issues

Domain Name System, File Transfer Protocol, Telnet, Email: Architecture and services, HTTP, NAT, Firewall and Proxy, Network performance issues and QOS, Overview of network security.

Books Recommended:

[1] A.S. Tanenbaum, "*Computer Network"* by 4th Ed Pearson Education,2007
[2] S. Keshav, *An Engineering Approach to Computer network"* by Pearson Education
[3] William "*Stalling Data and computer communication"* 5TH Ed PHI, 1996.
[4] D.E.Comer, *Internetworking with TCP/IP Vol. I,* 5th Pearson Education
[5] Forouzan, "*Data Communication and Networking"* 4th Ed Tata McGraw Hills

Devi Ahilya University, Indore, India Institute of Engineering & Technology				BE III Year (Computer Engineering)					
Subject Code & Name	**Instructions Hours per Week**			**Marks**					
3CO204	**L**	**T**	**P**		**TH**	**CW**	**SW**	**PR**	**Total**
Principles of Programming Languages	**4**	**-**	**-**	**Max**	**100**	**50**	**-**	**-**	**150**
Duration of Theory Paper:3 Hours				**Min**	**35**	**25**	**-**	**-**	**60**

Objectives: To understand theoretical concepts of programming languages and expose to the students, the ideas of design and implementation of programming languages.

Prerequisites: Discrete Structures, Programming Fundamentals.

COURSE OF CONTENTS

UNIT I

Study of Programming Languages- History of Programming Languages, Features of good Language; Language Design Issues- Structure and Operation of Computer, Virtual Computers and Binding Times, Language Paradigms; Language Translation Issues- Programming Language Syntax, Stages in Translation, Formal Translation Models.

UNIT II

Data Types- Properties of Types and Objects, Elementary Data Types, Structured Data Types; Encapsulation- Abstract data Types, Encapsulation by Subprograms, Type Definitions, Storage Management; Inheritance- Abstract Data Types Revisited, Inheritance, Polymorphism.

UNIT III

Sequence Control – Implicit and Explicit Sequence Control, Sequencing with Arithmetic Expressions, Sequencing with Non arithmetic Expressions, Sequence Control between Statements; Subprogram Control – Subprogram Sequence Control, Attributes of Data Control, Shared Data in Subprograms.

UNIT IV

Advances Issues in Language Design – Variation on Subprogram Control, Parallel Programming; Formal Properties of languages, Language Semantics, Hardware Developments, and Software Architecture.

UNIT V

Paradigms and Languages:

Simple Procedural Languages, Block Structured Procedural Languages, Object-based Languages, Functional Languages, , Markup languages, Query Languages; ; Case Study of C/C++, Java, XML, SQL.

BOOKS REOMMENDED:

[1]T. W. Pratt, M. V. Zelkowitz, *Programming Languages: Design and Implementation*, 4/e, Pearson Education, 2000.
[2]D. P. Friedman, M Wand, *Essentials of Programming Languages*, 3/e, MIT Press, 2008.
[3]R. W. Sebesta, *Concepts of Programming Languages*, 8/e, Addison Wesley, 2008.

Devi Ahilya University, Indore, India Institute of Engineering & Technology				BE III Year (Computer Engineering)					
Subject Code & Name	**Instructions Hours per Week**			**Marks**					
3EC205 **Digital Communication Engineering**	**L**	**T**	**P**		**TH**	**CW**	**SW**	**PR**	**Total**
	4	**-**	**2**	**Max**	**100**	**50**	**50**	**50**	**250**
Duration of theory paper: 3Hours				**Min**	**35**	**25**	**25**	**25**	**110**

Course Objectives:

- To provide an introduction to the basic principles in analog and digital communication.
- To introduce the various processes like sampling, modulation and coding techniques, channel coding techniques etc. that are used in modern telecommunication system.
- To review the basic Fourier techniques and its application in these processes.
- To give exposure to quantitative method of measuring information and determining the capacity of communication system.

Prerequisite(s): Basic exposure to signals and systems.

COURSE OF CONTENTS

UNIT I

Review of Fourier techniques, Fourier techniques for linear system analysis, Fourier transform properties convolution, Error Function and complimentary error function, Introduction to analog modulation techniques like AM, FM, PM.

UNIT II

Line coding: NRZ, RZ, Biphase, Duo binary etc. their comparison and spectrum associated either their wave forms.
Signal and Spectra: classification of signals, spectral density, auto-correlation, random signals, bandwidth of digital data.

UNIT III

Sampling and quantization, Digital coding techniques, PCM, DPCM, ADPCM, DM, ADM, Vocoders, optimum filter, matched filter. Digital modulation techniques, binary PSK, QPSK, MSK etc., performance analysis and comparison of digital modulation techniques in presence of noise.

UNIT IV

Information theory: concept of amount of information, entropy, information rate, coding to increase average information per bit, Huffman coding, channel capacity, Shannon's theorem of channel capacity.
Channel coding: Linear block codes, systematic Linear blocks codes, parity check matrix, syndrome testing, cyclic codes hamming codes.

UNIT V

Introduction to spread spectrum techniques – spread spectrum overview, pseudo noise sequence, direct sequence spread spectrum system, Frequency hopping system, synchronization, spread spectrum application, CDMA systems.

BOOKS RECOMMENDED

[1] Taub & Schilling, "*Principal of Communication System*", Tata McGraw Hill publication, Third edition, 2007.
[2] J.G. Proakis, "*Digital Communication*", McGraw Hill publication, Fourth edition, 2001.
[3] Lathi B.P., *"Modern Analog and Digital Communication Systems*", Oxford Univ. Press, Third edition.
[4] Haykins Simon, "*Digital Communication*", Wiley Publication, Third edition, 2007.
[5] Haykins Simon, "*Analog and Digital Communication*", Wiley Publication, Third edition, 2007.
[6] Bernard Sklar, "*Digital communication*", Pearson Education, Second edition, 2007.

Devi Ahilya University, Indore, India Institute of Engineering & Technology				BE III Year (Common to All Branches)					
Subject Code & Name	**Instructions Hours per Week**			**Marks**					
3SS256	**L**	**T**	**P**		**TH**	**CW**	**SW**	**PR**	**Total**
Entrepreneurship Development & IPR	**2**	**-**	**-**	**Max**	**-**	**50**	**-**	**-**	**50**
Duration of Theory Paper: Only internal Test				**Min**	**-**	**25**	**-**	**-**	**25**

Objectives: To impart the basics of entrepreneurship development concepts and to develop the skills of entrepreneurship & to encourage the students to become an entrepreneur. To impart the basics of Intellectual property Rights.

Prerequisite(s):NIL

COURSE CONTENTS

UNIT-I

Introduction:

Definition of Entrepreneurship and role of an entrepreneur; Entrepreneurial characteristics: values and attitudes. Entrepreneurship development programmes.

UNIT-II

Modes & Methodology of setting up a Small Scale Industry:

Project Identification, Market Survey, Location & Building, Technical Know - How, Raw material & other Utilities, Professional & Skilled Manpower, Project Report, Finance, Whom to Approach.

UNIT-III

Institutional Support to Entrepreneurs:

Need for Institutional support different Government & Non Government institutions to support Entrepreneurs like, NSIC, SIDO, SSIB, SSIDC, SISIs , DTICs, industrial Estates, Specialized Institutions. Registration of a small scale Industry.

UNIT-IV

Intellectual Property Rights:

Introduction of IPR, various perspective of IPR like Innovation & Creation, Innovators & Creators, Sharing of Knowledge, Trade Marks etc.; General Provisions & Basic principles of IPR.

UNIT-V

Patents:

Definitions, Need for a patents, what can be patented, Patent laws, Rights of Patent Holders, Filing of a Patent, Industrial Scenario.

BOOKS RECOMMENDED:

[1]Colombo plan staff college for Technician Education, Manila , *Entrepreneurship Development*, Tata McGrawHill 1998
[2]N.K. Acharya, Text book on *intellectual Property Rights*, Asha Law House New Delhi, 2001.
[3] Class notes given by the course teacher.

Devi Ahilya University, Indore, India Institute of Engineering & Technology				BE III Year (Computer Engineering)					
Subject Code & Name	**Instructions Hours per Week**			**Marks**					
3CO206 **Software Workshop**	**L**	**T**	**P**		**TH**	**CW**	**SW**	**PR**	**Total**
	-	**-**	**2**	**Max**	**-**	**-**	**50**	**50**	**100**
Duration of Theory Examination **Only practical examination will be held**				**Min**	**-**	**-**	**25**	**25**	**50**

Course Objectives: - To familiarize students about Visual Basic.NET its components, applications, and services.

Prerequisite: Visual Basic, HTML

COURSE OF CONTENTS

UNIT I
Introduction to .NET, VB6 and VB.NET differences, programming with .NET.

UNIT II
Object-Oriented Programming and VB.NET, Data Types, Variables and Operators, Arrays, Conditional Logic, Procedures, Dialog Boxes, Error Handling, Namespaces, Classes and Objects, Multithreading.

UNIT III
IDE for VB.NET, Data access in .NET, Windows Forms, Specific Controls, and Visual Inheritance.

UNIT IV
VB.NET and the Web, Introduction to ASP.NET, Page Framework, HTML Server Controls, Web Controls, Events.

UNIT V
Web Services- SOAP, WSDL, Disco and UDDI, Instantiating-Invoking Web Services, Creating proxy classes with WSDL, Creating Web Service Project.

BOOKS RECOMMENDED:
[1] Bill Evjen, JasonBeres, *Visual Basic.NET Programming*, Bible, WILE Dreamtech, 2005.
[2]Jeffrey R. Shapiro, *Visual Basic.NET, The Complete Reference*, Tata McGraw-Hill, 2006.

Devi Ahilya University, Indore, India Institute of Engineering & Technology				BE III Year (Computer Engineering) Semester VI					
Subject Code & Name	**Instructions Hours per Week**			**Marks**					
3CO252 Analysis Of Algorithm	**L**	**T**	**P**		**TH**	**CW**	**SW**	**PR**	**Total**
	4	**-**	**2**	**Max**	**100**	**50**	**50**	**50**	**250**
Duration of Theory Paper: 3 Hours				**Min**	**35**	**25**	**25**	**25**	**110**

Course Objectives: This course aims to introduce approaches for analyzing algorithms in various domains, and techniques for designing efficient algorithms. Upon completion of this course the student should be able to:

1. apply the algorithms and design techniques to solve problems;
2. have a sense of the complexities of various problems in different domains.

Prerequisite: Knowledge of data structures may assist the learning process.

COURSE OF CONTENTS

Unit-I

Introduction to Algorithms: Design & analysis issues; Types of algorithms; Performance issues - Time and space complexity; Asymptotic analysis. Mathematical preliminaries; functions & their growth rates; Recurrence relations, Methods for solving recurrences.

Unit-II

Analysis of Some Sorting and Searching Algorithms: Elementary sorting techniques: Selection, Bubble, and Insertion sorts; Advanced sorting techniques: Heap, Merge and Quick sorts; Radix & Bucket sorts. Searching techniques: Linear and binary search; Searching minimum and maximum elements.

Unit-III

Algorithms Design Techniques: Divide–and-Conquer, Greedy Method, Dynamic programming, Backtracking and Branch-and- Bound; Illustration of above strategies using appropriate examples like; Knapsack problem, Optimal storage on tapes, finding shortest path, all pairs shortest path, finding minimum cost spanning trees, Queens problems, Traveling salesperson problem etc.

Unit-IV

Analysis of Matrix and Polynomial Algorithms: Boolean Matrix Multiplication's; Strassen's matrix multiplication; Matrix chain multiplication problem; Solving Linear Equations, Computation of polynomials – Horner's method. String matching algorithms.

Unit-V

Non-deterministic Algorithms: Introduction. Nondeterministic Complexity, Computational classes: – P, NP, NP-Complete, and NP-Hard; reducibility, Decision and optimization problems, Some NP and NP-Hard problems: Hamiltonion cycle, Traveling Salseperson (TSP). Satisfiability, Clique problems etc.

RECOMMENDED BOOKS

[1] T.H. Coreman, C.E. Leiserson and R.L. Rivest, *Introduction to Algorithms*, Prentice Hall of India, 1990.
[2] E. Horowitz, S. Sahni, S Rajasekaran, *Computer Algorithms*, Galgotia Publications.
[3] Saara Base, *Computer Algorithms: Introduction to Design and Analysis*, Addision Wesley, 2/e, 1988.
[4] Knuth, D, *The art of computer programming* , Vols. 1-2-3, Addision Wesley 1968-73.
[5] A V Aho, J E Hopcroft & J D Ullman, *The Design and Analysis of Computer Algorithms*, Addison Wesley, 1974.

Devi Ahilya University, Indore, India Institute of Engineering & Technology				BE III Year (Computer Engineering) Semester VI					
Subject Code & Name	**Instructions Hours per Week**			**Marks**					
3CO253 **Server Side Programming**	**L**	**T**	**P**		**TH**	**CW**	**SW**	**PR**	**Total**
	4	**-**	**2**	**Max**	**100**	**50**	**50**	**50**	**250**
Duration of Theory Paper: 3 Hours				**Min**	**35**	**25**	**25**	**25**	**110**

Objective: To learn web development using server side programming technologies and to develop skills for building web application with dynamic contents.

Prerequisite: Knowledge of Java Programming language (core), HTML and basics of SQL.

COURSE OF CONTENT

Unit I
Introduction: HTTP protocol: Http request, Http response; web container and web server overview; web application.

Unit II
Database Connectivity with Middle tier: Database drivers; API for interaction with database; Connection pooling; Transaction.

Unit III
Server Side Technology: Comparisons of prevalent server side technologies; Servlet basics; Servlet lifecycle; Implicit objects; scope.

Unit IV
Session Tracking : Approaches to session tracking; Session tracking with JAVA servlet API; Servlet collaboration.

Unit V
JAVA Server Pages: JSP overview; Directives; Scripting elements; Standard actions, Implicit objects; Scope; XML – equivalent tags; JSP design basics; Dispatcher approach; Introduction to JSP tag extension.
Introduction to CGI, PHP and ASP. Comparison of these technologies with servlet and JSP.

Books Recommended:

[1] J2EE Tutorial from www.java.sun.com.
[2] Jason Hunter *JAVA servlet programming, ,* William Crawford, O'Reilly, SPD.
[3] Professional *JAVA server programming,* J2EE edition, volume I, Wrox, SPD.

Devi Ahilya University, Indore, India Institute of Engineering & Technology				BE III Year (Computer Engineering) Semester VI					
Subject Code & Name	**Instructions Hours per Week**			**Marks**					
3CO254 Software Engineering	**L**	**T**	**P**		**TH**	**CW**	**SW**	**PR**	**Total**
	4	**-**	**2**	**Max**	**100**	**50**	**50**	**50**	**250**
Duration of Theory Paper: 3 Hours				**Min**	**35**	**25**	**25**	**25**	**110**

Objective: To familiarize with the process of software development life cycle using the concepts of software engineering.
Prerequisite: Knowledge of a programming language, preferably object oriented and a midsize project work.

COURSE OF CONTENT

Unit I
Software Engineering process- Basic concepts of System Design; Software life cycle; role of Software Engineer; Application Domains. Software Qualities and nature requirements and Measurement. Technique; other Software Engineering issues like formality, modality, abstraction, reuse, generality etc.

Unit II
Software Design Modularity Design, object-orientation; concurrent software specification. Case Styles Operational, Descriptive Logic and Algebraic specification; End-user requirements.

Unit III
Verification goods and Requirement – Testing, Debugging Analysis, Analysis software Metrics case studies.

Unit IV
Software Engineering Process-Different Models; Process Organization; Case Studies Software Engineering, Management planning control, Organization and Risk Management.

Unit V
Software Engineering Tools – System programs, Role of Programming languages; CASE Tools; Objected Oriented software Engineering; format Methods; Reengineering process ,Client Server Software Engineering.

Book Recommended:

[1] C.Gezzi, M. Jazayeri and D. Mandriohi *Fundament of software Engineering*, PHI 1996.
[2] R.S. Pressman, *software Engineering A Practitioner Approach,* 4/e McGraw-Hill International Edition 1997.
[3] P.Jalote, *An Integrated Approach to Software Engineering,* Naresa Publishing, Latest Edition.
[4] Ian Sommerville, *Software Enginering,* Pearson education , 7 th edition

Devi Ahilya University, Indore, India Institute of Engineering & Technology				BE III Year (Computer Engineering) Semester VI					
Subject Code & Name	**Instructions Hours per Week**			**Marks**					
3CO255 Database Management System	**L**	**T**	**P**		**TH**	**CW**	**SW**	**PR**	**Total**
	4	**-**	**2**	**Max**	**100**	**50**	**50**	**50**	**250**
Duration of Theory Paper: 3 Hours				**Min**	**35**	**25**	**25**	**25**	**110**

Objective: To gain the knowledge of Database Management System design and familiarize with database application development.
Prerequisite: Data Structures.

COURSE OF CONTENT

Unit I
Introduction to DBMS
Database Environment: Basic Concepts, Advantages of Database approach, Comparison with Traditional file systems, DBMS Architecture, Database Users, Data Models and Schemas, Database languages and Interfaces; Database development process: Development Lifecycle, Types of Application.

Unit II
Database Analysis
Introduction to Data Modeling, Modeling the rules, Entity Relationship Model, ER Model Constructs- Attributes, Relationship etc., Enhanced ER Model and Business Rules, Modeling Enhanced relationships – Specialization and Generalization, Union Types. Binary and Ternary relationship Issues.

Unit III
Database Design
Introduction to Logical Database Design, Relational Data Model – Codd's Rules, Relational Algebra etc. ;Integrity Constraints, Transforming ER diagrams into relations, Functional Dependencies, Normalization – 1NF, 2NF, 3NF, BCNF and 4NF etc.

Unit IV
System Implementation
Introduction to SQL – Inserting , Updating, and Deleting data, Processing Single Tables, Processing Multiple Tables, PL/SQL Constructs - Views, Triggers, Cursors etc; Transaction Processing – Properties, Schedules and Serializability Issues. Concurrency Control – Introduction, Locking and Time Stamping Issues etc.

Unit V
Advance Topics
Physical Database Design – File Organization and Indexes, Hashing Techniques, B-trees, B+ Trees etc; Database Recovery, Database Security, Introduction to Data Warehousing and Data Mining, Emerging Database Technologies and Applications etc., Overview of Oracle 10i.

Books Recommended:

[1] Elmasri ,*Fundamentals of Database Systems* –Navathe, Addision Wesley.
[2] Macfadden,Hoffer,Prescott ,Modern *DataBase Management* –Pearson Education Asia.
[3] Silberchatz, Korth and Sudarshan,*Database System Concepts* Mcgraw Hill, Fourth Edition
[4] C.J. Date,*An Introduction to Database Systems*, Addision Wesley.
[5] Connolly and Begg,*Database Systems*, Pearson Education.
[6] Ivan Bayross *Teach Yourself SQL & PL/SQL*, BPB Publication.

Devi Ahilya University, Indore, India Institute of Engineering & Technology				BE III Year (Common to All Branches) Semester VI					
Subject Code & Name	**Instructions Hours per Week**			**Marks**					
3SS206 Principles of Management	**L**	**T**	**P**		**TH**	**CW**	**SW**	**PR**	**Total**
	2	**-**	**-**	**Max**	**-**	**50**	**-**	**-**	**50**
Duration of Theory Paper: Only internal Test				**Min**	**-**	**25**	**-**	**-**	**25**

Course Objectives: To impart the basics of Management Concepts, Evolution of management as discipline and to deal with different Principles & Functions of Management.

Prerequisite(s): - NIL

COURSE OF CONTENTS

Unit I
The Nature of Management:
Definition and role of management; the function of a manager, Scientific management. Various schools of management thought. The Functions & Principles of management.

Unit II
Planning:
Nature and purpose of planning, Components of planning objective of business.

Unit III
Organization:
Nature and purpose of organizing Structure, Centralization, Decentralization, Span of control, Delegation of authority relationship. Formal and informal organization.

Unit IV
Directions & Staffing:
Direction process, Theories of motivation and leadership, Need analysis, Communication.

Unit V
Control:
Meaning and process of control, techniques of control evaluation, developing and compensating the employees, Merit rating.

BOOKS RECOMMENDED:
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