SCHEME OF EXAMINATION

&

SYLLABI

for

MASTER OF COMPUTER APPLICATIONS
(Software Systems)

for

Lao PDR students

**GURU GOBIND SINGH
INDRAPRASTHA
UNIVERSITY**

Offered by

University School of Information Technology

**Guru Gobind Singh Indraprastha University
Kashmere Gate, Delhi – 6 [INDIA]**
www.ipu.ac.in

SCHEME/SYLLABUS
MASTER OF COMPUTER APPLICATIONS (SOFTWARE SYSTEMS) for LAOS Students
University School of Information Technology

First Semester				
Code No.	Paper	L	T/P	Credits
ITS-601	Introduction to Information Technology	3	1	4
ITS-603	Programming in C	3	1	4
ITS-605	Web Technology	3	1	4
HS-607	Basic English Skills-I	3	1	4
Practicals				
ITS-651	Lab – I	0	4	2
ITS-653	Lab – II	0	4	2
	TOTAL	12	12	20

Lab-I Practical on Introduction to Information Technology & Web Technology
Lab-II Practical on Programming in C

Second Semester				
Code No.	Paper	L	T/P	Credits
ITS-602	Programming in VB	3	1	4
ITS-604	Data Base Management System	3	1	4
ITS-606	Fundamentals of Digital Electronics	3	1	4
HS-608	Basic English Skills-II	3	1	4
Practicals				
ITS-652	Lab – I	0	4	2
ITS-654	Lab – II	0	4	2
ITS-656	Lab – III	0	4	2
	TOTAL	12	16	22

Lab-I Practical on DBMS

Lab-II Practical on Fundamentals of Digital Electronics

Lab-III Practical on Programming in VB

Third Semester				
Code No.	Paper	L	T/P	Credits
ITS-701	Foundations of Computer Science	3	1	4
ITS-703	Programming in C++	3	1	4
ITS-705	Operating System Concepts	3	1	4
ITS-707	Software Engineering	3	1	4
ITS-709	Minor Project	-	4	10
Practicals				
ITS-751	Lab – I	0	4	2
ITS-753	Lab – II	0	4	2
	TOTAL	12	12	30

Lab-I Practical on Programming in C++
Lab-II Practical on Software Engineering

Fourth Semester					
Code No.	Paper	L	T/P	Credits	
ITS-702	Computer Architecture	3	1	4	
ITS-704	Data Structures	3	1	4	
ITS-706	Computer Networks	3	1	4	
ITS-708	Software Project Management	3	1	4	
ITS-710	Major Project	-	8	12	
Practicals					
ITS-752	Lab – I	0	4	2	
ITS-754	Lab – II	0	4	2	
	TOTAL	14	20	32	

Lab-I Practical on Data Structure
Lab-II Practical on Computer Networks

Fifth Semester				
Code No.	Paper	L	T/P	Credits
ITS-801	Java Programming	3	1	4
ITS-803	Linux & X-Windows Programming	3	1	4
MS-805	Organizational Behavior	3	1	4
Electives (Select any two)				
ITS-807	Artificial Intelligence	3	1	4
ITS-809	Software Testing	3	1	4
ITS-811	.NET Framework using C#	3	1	4
ITS-813	.NET Framework using VB.NET	3	1	4
ITS-815	Web App. Developed in ASP.NET	3	1	4
ITS-817	Advanced Web Technology	3	1	4
ITS-819	Software Engineering with UML	3	1	4
ITS-821	Network Management & Information Security	3	1	4
ITS-823	Management Information Systems	3	1	4
ITS-825	Distributed Systems	3	1	4
ITS-827	Computer Graphics	3	1	4
ITS-829	Operation Research	3	1	4
ITS-851	Lab – I	0	4	2
ITS-853	Lab – II	0	4	2
ITS-855	Lab - III	0	4	2
	TOTAL	15	17	26

Lab-I Practical on Linux & X-Windows Programming
Lab-II Practical on Java Programming
Lab-III Practical based on Electives

Sixth Semester

Code No.	Paper	L	T/P	Credits
ITS – 852	Dissertation	-	-	25
ITS – 854*	Seminar and Progress Reports	-	-	5
	TOTAL	**-**	**-**	**30**

*NUES

The student will submit a synopsis at the beginning of the semester for approval from the departmental committee in a specified format. The student will have to present the progress of the work through seminars and progress reports.

Note:

The students would qualify for:

1. A degree in M.Sc. (IT) if he has undergone the courses of studies, completed project reports/dissertation specified in the first 4 semesters of the MCA (SS) curriculum within two years and secured minimum 96 credits out of 104.
2. A degree in MCA (SS) if he has undergone the courses of studies, completed project reports/dissertation specified in the 6 semesters of the course curriculum and secured minimum 148 credits out of 160 credits prescribed for the award of MCA (SS) degree.

ITS 601   **Information Technology**   **L-3, T-1, Cr -4**

Unit I:

Introducing Computer Systems, Exploring Computers and Their Uses Looking Inside the Computer System, Input and Output Media: Input and output devices, memory devices.

Unit II:

Processing Data, Word processor, Preparing presentation, Transforming Data Into Information, Modern CPUs, Storing Data, Types of Storage Devices, Measuring and Improving Drive Performance, data representation in computer

Unit III:

Operating Systems basics, Types of operating system, Functions of operating system, Networking basics, Introduction to data communication

Unit IV:

The Internet: Internet and the World, E-Mail and Other Internet Services, Internet applications, Data over internet, Internet tools. Database Fundamentals, Computer security, Need for Security Measures, Emerging trends in IT

Text books:

1. Peter Norton, "Introduction to Computers", TMH, 2006

2. ITL Education Solutions Ltd., "Introduction to Information Technology", Pearson Education, 2006

References Books:

1. Leon and M. Leon, "Fundamentals of Information Technology", Vikas Publishing House, 2003
2. Rajaraman V., "Fundamentals of Computers", PHI, 2004
3. Sanders D. H., "Computers Today", McGraw Hill, 2005

ITS-603   **Programming in C**   **L   T   C**
                                                                        3   1   4

Unit I:
Review of Flow chart, History of C , Basic structure of C Programs , Execution of C Program ,Constants , Variables , Data types , Operators and Expressions : arithmetic , relational, Logical , assignment , increment and decrement , conditional operators, precedence and associativity of Operators , type conversion , Decision making constructs including simple if , if else, and else-if ladder

Unit II:

Switch construct, ? Operator, goto statement, while, do..while , For Looping constructs , jumps in loops , Introduction to arrays , One dimensional arrays and their declaration and initialization . Two dimensional arrays and their implementation. Character array and string, declaration and initialization of strings, comparison and concatenation of two strings, string handling functions

Unit III:

User Defined functions and it's need, Definition and Elements of a user defined function, function calls, call by value and call by reference mechanism. Structure, definition, declaration and implementation, accessing structure members, nesting of structures, Union and difference with structures, array of structures.

Unit IV:
Pointers : Introduction , declaration and initialization , Pointer arithmetic and concept of scale factor , Pointer and arrays , Pointer and character strings , Pointer as function arguments , function returning Pointers , Pointers to function , dynamic Memory allocation , calloc () and Malloc () and Free () functions

Unit V:

Definition , Opening and closing File Operations , input –Output Operation on files , error handling during I/O Operation, copying the contents of one file into another.

Text Books

1. Balagurusamy .E , " Programming in Ansi C : Third Edition " , Tata McGraw Hill, 2003
2. Gottfried , " Programming with C : Second Edition " , Tata McGraw Hill, 2005

Reference Books:

1.Salaria R.S." Application Programming in C" , Khanna Publication, 2001
2. Kernighan and Ritche ," The C Programming Language " , PHI, 1990
3. Johnsonbaugh R and Kalin M , " Application Programming in C " , PHI, 2000
4. Kanetkar. Y " Let Us C " , BPB Publication, 2000

ITS-605   **Web Technology**   **L-3, T-1, Cr -4**

Unit I

Internet & Web: History and growth of Internet and Web , Introduction to WWW, Web Browsers and Search Engines, Internet protocols and applications , overview of various internet & web technologies, cyber laws.

Web Design: Key issues and challenges .

Unit II

HTML : Introduction to HTML, Elements of HTML syntax, Head and Body sections, Building HTML documents, Inserting text, images, hyperlinks, Backgrounds and Color Control, ordered and unordered lists, content layout & presentation.

Tables: use of table tags and various other HTML tags .

Unit III

HTML Editors & Tools: Use of different HTML editors and tools like Microsoft Front Page etc.

Graphical and Animation Tools: Use of Different graphical and animation tools like Abode Photoshop and Gif Animator .

Unit IV

Frames: Developing Web pages using frames.

Security: Considering various security issues like firewalls etc.

Unit V

Interactivity: Creating interactive & dynamic web pages, DHTML,Creating forms, CGI, ASP.

Web Technologies: Current web technologies and their applications. Use of java script and java applets , web engineering and semantic web technology .

Text:

1. Achyut S Godbole and Atul Kahate, "Web Technologies", Tata McGraw Hill
2. C. Xavier, "Web Technology & Design ", Tata McGraw Hill.
3. Ann Navarro, " Effective Web Design", BPB publications.
4. Raj Kamal, "Internet & Web Design", Tata McGraw Hill
5. E Stephen,Will Train, "HTML 4.0", BPB publication

References:

1. VK Jain, "Advanced programming in web design",Cyber tech publications
2. Rick Dranell, "HTML4 unleashed", Techmedia Publication.
3. TM Ramachandran , "Internet & Web development", Dhruv publications
4. James L Mohler and Jon Duff, "Designing interactive web sites",Delmar Thomson learning .
5. Ivan Bay Ross, "HTML,DHTML,Java script,Perl CGI" , BPB

HS – 607   **Basic English Skills – I**   **L-3,T-1,Cr-4**

Objective

Initial work (written & oral) with the students indicates that though they have some idea of English language, but none of them has systematic exposure to written language. As a result they falter in making even rudimentary expressions.
The aim of the present activity with them will be to streamline their syntactic understanding of language, enabling them to express themselves through the written medium. This will make them capable of putting their thoughts, ideas and concepts in black and white. Moreover, this will give their expression intelligibility, sustainability and consistency. Besides enhancing their reading and comprehension skills, it will make them better listeners too.

Syllabus

1. Tenses   :   Simple Present & Present Perfect, Continuous, Past, Perfect Continuous, the Future .
2. Sequence of Tenses
3. Helping Verbs: Be, have,do,linking verbs.
4. Modals
5. Forming Questions
6. Verbs: Finite and non-finite, Transitive and intransitive
7. Subject- Verb Agreement
8. Reporting
9. Conditional Sentences
10. Types of Clauses
11. Word Formation
12. Prepositions
13. Articles
14. Determiners & Quantifiers
15. Adjectives
16. Adverbs
17. Linking Words
18. Common errors

ITS- 602   **Programming in VB**   **L-3,T-1,Cr-4**

Unit 1

Variable Names, Data Types, Assignment, If-then, if-then-else, if then-elseif-else, expression, print statement, arrays, variable declaration, built-in & User Defined types

Unit 2

Subroutine and functions, Boolean Operators, Arithmetic Operator, For-.next, do loop, while-wend, procedures/Public, Private, and Static & Dim Statement.

Unit 3

Structure of VB program, Forms & built in controls, Properties and events, Code Module, Scale Modes, Printer Object (Printing text, setting Fonts, graphics) Common dialog Boxes, picture controls, image-controls, send keys, MS-Common controls, Error Handling, Classes, Control Arrays, MDI, SDI.

Unit 4

Review of ANSI SQL, ODBC, Pass through ODBC, DAO, MS-Jet Engine, DB-Engine, Workspaces, Databases, recordsets, Data bound controls, ActiveX controls, ADO, Active X Data controls, RDO

Text:

1. B. Reselman et al, "Using Visual Basic 6", PHI
2. B. Siler & J. Spotts, "Using Visual Basic 6", PHI

Reference:

1. E. Petroutsos, "Mastering Visual Basic 6.0", BPB.
2. Mohd. Azam, "Programming with Visual Basic 6.0", Vikas Publication

Unit I:
Basic concepts: database & database users, characteristics of the database, database systems, concepts and architecture, date models, schemas & instances, DBMS architecture & data independence, database languages & interfaces

Unit II:
Data modelling using the entity-relationship approach. Overview of hierarchical, Network & Relational Data Base Management Systems, MS-Access.

Unit III:
Relational model, languages & systems: relational data model & relational algebra: relational model concepts, relational model constraints, relational algebra, SQL- a relational database language: data definition in SQL, queries in SQL

Unit IV:
Relational data base design: function dependencies & normalization for relational dataases: functional dependencies, normal forms based on primary keys, (1NF, 2NF, 3NF & BCNF), lossless join and dependency preserving decomposition.

Unit V:
Concepts of object oriented database management systems, Distributed Data Base Management Systems.

Text:

1. Avi Silberschatz, Henry F. Korth, S. Sudarshan ,” Database System Concepts Fifth Edition, McGraw-Hill, 2005.
2. ISRD Group,”Introduction to Database Management Systems”, TMH, 2005

Reference:

1. Desai, B., “An introduction to database concepts”, Galgotia publications, 2002
2. Elmsari and Navathe, “Fundamentals of database systems”, Addison Wesley, 1994
3. Ullman, J. D., “Principals of database systems”, Galgotia publications, 1996
4. Date, C. J., “An introduction to database systems”, 7rd Edition, Addison Wesley, 2001

Unit I:
Analog & Digital signals, AND, OR, NOT, NAND, NOR & XOR gates, Boolean algebra, Standard representation of Logical functions, K-map representation and simplification of logical functions, Don't care conditions, X-OR & X-NOR simplification of K-maps.

Unit II:
Combinational circuits: Multiplexers, demultiplexers, Decoders & Encoders, Adders & Subtractors, Code Converters, comparators

Unit III:
Flip Flops: S-R, J-K, D & T Flip-flops, excitation table of a flip-flop, race around condition, Sequential circuits: Shift registers, Ripple counter, Design of Synchronous counters and sequence detectors.

Unit IV:
A/D and D/A converters, Bipolar-Transistor Characteristics, RTL and DTL circuits, TTL, ECL and C-MOS Logic families.

Unit V:
Logic Implementations using ROM, PAL & PLA., Semiconductor Memories: Memory organization & operation, classification and characteristics of memories, RAM, ROM and content addressable memory.

Text:

1. R.P. Jain, "Modern Digital Electronics", TMH, 2nd Ed, 2005
2   Morris Mano, "Digital Design", PHI, 2nd Ed., 2004

Reference :

1. Malvino and Leach, "Digital principles and applications", TMH, 1985
2. R. J. Tocci, "Digital Systems", PHI, 2000
3.   I.J Nagrath, "Electronics, Analog & Digital", PHI, 1999.
3. J. M. Yarbrough, "Digital Logic-Application and Design", PWS Publishing, 2001
4. B. S. Nai, " Digital Electronics and Logic Design", PHI, 2002
5. Balabanian and Carlson, "Digital Logic Design Principles", Wiley Pub., 2003

HS – 608   **Basic English Skills – II**   **L-3   T-1   C-4**

Unit 1: Remedial Exercises, Vocabulary Exercises, Phrasal Verbs, Idiomatic Expressions.

Unit 2: Phrases, Clauses and Sentences; Infinitive Patterns and Gerunds.

Unit 3: Comprehension of Written and Spoken Texts; Developing Writing Efficiency

Unit 4: Composition: a) Note Making
                          b)Paragraph Writing
                          c) Correspondence- Personal & Official
                          d) Writing Longer Pieces

Text:

1. Advanced English Grammar By Martin Hewings (CUP).
2. Written and Spoken Communication in English, (Universities Press).

ITS- 701   Foundations of Computer Science   L-3, T-1,Cr-4

Unit - 1
Sets, Subsets, powersets, binary and unary operations on a set, set operations/set identities, Fundamental counting principles, principle of inclusion and exclusion, pigeonhole principle, Permutation and combination, pascal's triangles, binominal theorem.

Unit - 2
Relation, properties of binary relation, closures, partial ordering, equivalence relation, properties of function, composition of function, inverse of a function

Unit – 3
Matrices and determinants, Linear transformations, Systems of linear equations- consistency and inconsistency, Gauss elimination, rank of a matrix, inverse of a matrix, Bilinear, Quadratic, Unitary, Orthogonal and Hermitian matrices; Skew-Hermitian Forms.

Unit – 4

Mathematical Logic: Logic operators, Truth tables, Theory of inference and deduction, mathematical calculus, predicate calculus, predicates and quantifiers. Boolean Algebra, K-maps, Simplification of Boolean Expressions.

Text:

1. Kolman, Busby & Ross "Discrete Mathematical Structures", 5th Edition, PHI .2004.
2. E. Kreyszig, "Advanced Engineering Mathematics", 9th Edition, Wiley Eastern, May 2006.

Reference:

1. Trembly. J. P & Manohar. P "Discrete Mathematical Structures with Applications to Computer Science", Mc Graw Hill,1987.
2. M.Lipson & Lipshutz, "Discrete Mathematics", Schaum's Outline series ed. McGraw-. Hill (1995).
3. Grewal B.S., "Higher Engineering Mathematics", (35th Edition), Khanna Publishers, Delhi, 2000.

ITS- 703 **Programming in C++** **L-3,T-1,Cr-4**

Unit 1

Objects, relating to other paradigms (functional, data decomposition),basic terms and ideas (abstraction, encapsulation, inheritance, polymorphism).

Unit 2

Overview of C, 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.

Unit 3

Inheritance, Class hierarchy, derivation – public, private & protected, aggregation, omposition vs classification hierarchies, polymorphism, operator overloading, parametric polymorphism, generic function – template function, function name overloading, overriding inheritance methods, run time polymorphism.

Unit 4

Standard C++ classes, using multiple inheritance, persistent objects, streams and files,

Text:

1. A. R. Venugopal , Rajkumar, T. Ravishankar, "Mastering C++", First edition, 1998, TMH.
2. E. Balaguruswamy, "Objected Oriented Programming with C++", TMH 2nd ed.

References:

1. R. Lafore, "Object Oriented Programming using C++" Galgotia, New Delhi, 1993.

ITS-705   **Operating System Concepts**   **L 3   T 1 C4**

Unit I.

Introduction to the Operating System, Types of OS: Batch System, Time Sharing System, Real Time System, Multiuser/Single User System.

Functions of Operating System: Process Management, Memory Management, File Management, I/O Devices Management, Information Management.

Unit II

Process Management: Process Concept, Process State, Process Control Block, Process Scheduling, Context Switch, CPU Scheduling, Scheduling Criteria, Scheduling Algorithms, Pre Emptive/ Non Preemptive Scheduling, Threads, Thread Structure Introduction to Deadlock.

Unit III

Memory Management: Contiguous Allocation, External Internal Fragmentation, Paging, Segmentation, Segmentation with Paging.

Virtual Memory: Virtual Memory Concept, Demand Paging, Page Replacement, PR Algorithms, Allocation of Frames, Thrashing.

Unit IV

Information Management: File Concept, Access Methods, Directory Structure.

Device Management: Disk Structure, Disk Scheduling Algorithms, Disk Management, Case study on DOS, Windows 2000, Windows XP, Linux

Text:

1.   Silbershatz and Galvin," Operating System Concept", Addition We seley, 2002.

References:

1. A.S. Tannenbaum,"Operating System Concept", Addition Weseley, 2002
2. Flynn, Mchoes, "Understanding Operating System", Thomson Press, Third Edition, 2003
3. Godbole Ahyut, "Operating System",PHI, 2003.

ITS 707   **Software Engineering**   **L-3, T-1, Cr-4**

Unit 1

Software Crisis, Software Myths, Importance of Software Engineering, Difficulties in improving Software Process, Software Characteristics, Software life cycle models: Build & Fix Model, Waterfall, Prototype, Iterative Enhancement, Evolutionary and Spiral models, Rapid Application Development

Unit 2

Steps of Requirement Engineering, Types of Requirements, Requirement Elicitation Techniques, DFD's , Software Requirement specifications

Unit 3

Effort Estimation Techniques, Function Point, COCOMO.

Unit 4

Cohesion & Coupling, Classification of Cohesiveness & Coupling, Strategies of Design.

Unit 5

Functional testing: Boundary value analysis, Equivalence class testing, Introduction to Structural testing, Cyclomatic Complexity. Software maintenance, Categories of software maintenance

Text:

1. K.K. Aggarwal & Yogesh Singh, "Software Engineering", New Age International, 2007.
2. R. S. Pressman, "Software Engineering – A practitioner's approach", 3rd ed., McGraw Hill Int. Ed., 1992.

Reference:

1. R. Fairley, "Software Engineering Concepts", Tata McGraw Hill, 1997.
2. P. Jalote, "An Integrated approach to Software Engineering", Narosa, 1991.

ITS 702   **Computer Architecture**   **L-3,T-1,Cr-4**

Unit-I

Data Representation: Binary numbers, binary codes, fixed point representation, floating point representation, error detection codes. Memory units

Unit-II

Register Transfer and Microoperation: Register transfer language, register transfer, bus and memory transfer, arithmatic microoperations, logic microoperations, shift microoperations., Arithmetic Logic shift Unit

Unit-III

Basic Computer Organization and Design: Instruction codes, computer registers, computer instructions, timing & control, instruction cycle, memory reference instructions, input- output and interrupts ,.

Microprogrammed Control Unit: Control memory, address sequencing. Design of Control Unit

Unit-IV

Central Processing Unit: Introduction, general registers organization, stack organization, instruction formats, and addressing modes.

Input – Output Organization: Peripheral devices, input – Output interface, asynchronous data transfer, modes of data transfer, priority interrupt, direct memory access, input – output processor.

Text:

1. Mano, M "Computer System and Architecture", (3rd edition) Prentice Hall of India, New   Delhi, 1994.

References:

1. Malvino "Digital Principals and Applications, 4/e", Mc Graw Hill.
2. Stallings,W "Computer Organization & Architecture", fifth edition, 2000 PHI.

ITS-704 **Data Structures** **L-3, T-1, Cr-4**

Unit – 1: Introduction to data structures
Introduction to programming methodologies, design of algorithms. Abstract data type, array, array organization, introduction to pointers
Structured data types: Array of records and records of array Differentiation between structured data and data structure

Unit 2: Data Structures: List, Stack
Link Lists: List manipulations, Single link list, double link list and circular link lists, various operations like insertion, deletion and searching in all three lists and their comparison
Stacks: Stack Manipulation, Prefix, infix and postfix expressions, their inter conversion and expression evaluation.

Unit 3: Queues and Trees
Queues: Queue manipulation, Priority queues
Trees, Properties of Trees, Binary trees, Binary Tree traversal, binary search trees,

Unit – 4: Searching and Sorting
Searching – List search, sequential search, and binary search
Sorting concept, order, stability, selection sorts, insertion sort, bubble Sort, merge sort
Hashing: hashing concepts, hashing methods (Direct, modulo division) and collision resolution (by open addressing: linear probe, quadratic probe), Bucket hashing.

Text:

1. T .H . Cormen, C . E . Leiserson, R .L. Rivest "Introduction to Algorithms", Second Edition, 2001 ,Tata McGraw-Hill.
2. A .V. Aho, J . E . Hopcroft, J . D . Ulman "Data Structures and Algorithm", 2nd ed, Addison-Wesley 2001.

Reference

1. S. Sahni and E. Horowitz, "Data Structures", Galgotia Publications,2003.
2. Tanenbaum: "Data Structures using C", Second Edition, 2000, Prentice Hall of India.

ITS-706   **Computer Networks**   **L-3, T-1, Cr-4**

UNIT – I
Networks, Categories and Uses of Computer Networks, Network Hardware, Network Software, Topology, Types of Networks , Theoretical Basis for Data Communication, Reference Model (OSI, TCP/IP Overview), Guided Transmission Media, Unguided Transmission Media : Wireless Transmission, Communication Satellites. Introduction to the Physical Layer

UNIT – II
The Data Link Layer: Ethernet Frame Format, Flow Control Protocols, Stop-and-wait Flow Control, Sliding – Window Flow Control, Error Control, Stop-and-wait ARQ, Go-back-N, Selective-repeat. Introduction to Switches, hubs and repeaters.

UNIT – III
The Network Layer: Circuit Switching & Packet Switching, Packet format IPv4 Addressing Mechanism, Routers, and Routing Techniques.

UNIT – IV
The Transport Layer: Connection Oriented and Connection less Service Protocols: UDP, TCP.
Application Layer: DNS, SMTP, MIME.

Text:
1. Behrouz A. Forouzan, "Data Communications and Networking", 3rd Ed., TMH, 2004
2. A. S. Tanenbaum, "Computer Networks", 4th Ed., Pearson, 2003

References:
1. Comer E. Doughlas, "Computer Networks and Internets", 2nd Ed., Pearson, 2000
2. W. Stallings, "Data and Computer Communications", 7th Ed., Pearson, 2002.

ITS-708   **Software Project Management**   **L-3, T-1, Cr-4**

UNIT – I

Introduction to Software Project Management: Introduction, Why is software project management important? What is a project? Software projects versus other types of project, Activities covered by software project management, Some ways of categorizing software projects, Problems with software projects,

Introduction to Step-Wise project planning, Initiating, Planning Executing and Closing Software Projects

UNIT II
Cost-benefit evaluation techniques: Net Profit, Payback Period, Return on Investment, Net Present Value

UNIT III

Activity planning: Introduction, The objectives of activity planning, Sequencing and scheduling activities, Network planning models, Formulating a network model (CPM), Adding the time dimension, The forward pass, The backward pass, Identifying the critical path

Risk management: Introduction Risk, Categories of risk, A framework for dealing with risk, Risk identification, Risk assessment, Risk planning, Risk management, Applying the PERT techniques

UNIT IV

Resource allocation: Introduction, The nature of resources, identifying resource requirements
Monitoring and control: Introduction, Collecting the data, Visualizing progress The Gantt-Chart, Slip Chart, The Ball Chart, The Timeline
Introduction to Types of Contracts

Text:

1. Bob Hughes & Mike Cotterell "Software project Management" TMH Publication, 4th Edition, 2006.

References:

1. Kathy Schwalbe, "Information Technology Project Management", Thomson, 4th ed. 2005.