**IT-302 F** **Network Programming**

**L T P**
3 1 -

**Class Work:** 50 Marks
**Exam:** 100 Marks
**Total:** 150 Marks
**Duration of Exam:** 3 Hrs.

**NOTE: For setting up the question paper, question no 1 will be set up from all the four sections which will be compulsory and of short answer type. Two questions will be set from each of the four sections. The students have to attempt first common question, which is compulsory, and one question from each of the four sections. Thus students will have to attempt 5 questions out of 9 questions.**

## Section-A

Introduction to networking, TC/IP Protocol architecture, Classful internet addresses, subnets, super netting, address resolution Protocol (RAP) and RARP, IP datagram format, UDP and TCP/data grams , ICMP its purpose , FINGER, NET STAT details & IPconfig, Ping, TRACERT, ROUTE.

## Section-B

Socket introduction, elementary TCP sockets, TCP client sever, I/O functions, select& poll functions, socket options elementary UDP sockets, elementary node and address conversions, echo service (TCP and UDP).

## Section-C

Algorithm and issues in server software design :iterative connectionless servers, (UDP), Iterative, connection oriented servers (TCP), single process, concurrent servers multiprotocol servers (TCP,UDP), multi service servers (TCP,UDP).

## Section-D

Remote procedure call concept (RCP) :RPC models, analogy between RPC of client and server, remote programs and procedures, their multiple versions and mutual exclusion communication semantics, RPC retransmits, dynamic port mapping ,authentication.Network file system concept of data link access, debugging techniques ,Routing sockets, broadcasting to mobile network.

## Text Books:


1. Unix Network programming Vol -2 edition, W.Richard Stevens
2. Internet working with TCP/IP Vol-1, Doubles e-commer.
3. Internetworking TCP/IP Vol III Doubles E comer, David L.Stevens


## Reference Book:


1. Internetworking with TCP/IP, Vol II

**CSE-302 F** **Principles of Software Engineering**

**L T P**
3 1 -

**Class Work:** 50 Marks
**Exam:** 100 Marks
**Total:** 150 Marks
**Duration of Exam:** 3 Hrs.

**NOTE: For setting up the question paper, question no 1 will be set up from all the four sections which will be compulsory and of short answer type. Two questions will be set from each of the four sections. The students have to attempt first common question, which is compulsory, and one question from each of the four sections. Thus students will have to attempt 5 questions out of 9 questions.**

## Section-A

**Introduction:** The process, software products, emergence of software engineering, evolving role of software, software life cycle models, Software Characteristics, Applications, Software crisis.

**Software project management**: Project management concepts, software process and project metrics Project planning, project size estimation metrics, project estimation Techniques, empirical estimation techniques, COCOMO- A Heuristic estimation techniques, staffing level estimation, team structures, staffing, risk analysis and management, project scheduling and tracking.

## Section-B

**Requirements Analysis and specification** requirements engineering, system modeling and simulation Analysis principles modeling, partitioning Software, prototyping: , Prototyping methods and tools; Specification principles, Representation, the software requirements specification and reviews Analysis Modeling: Data Modeling, Functional modeling and information flow: Data flow diagrams, Behavioral Modeling; The mechanics of structured analysis: Creating entity/ relationship diagram, data flow model, control flow model, the control and process specification; The data dictionary; Other classical analysis methods.

**System Design**: Design concepts and principles: the design process: Design and software quality, design principles; Design concepts: Abstraction, refinement, modularity, software architecture, control hierarchy, structural partitioning, data structure, software procedure, information hiding; Effective modular design: Functional independence, Cohesion, Coupling; Design Heuristics for effective modularity; The design model; Design documentation.

## Section-C

**Architectural Design:** Software architecture, Data Design: Data modeling, data structures, databases and the data warehouse, Analyzing alternative Architectural Designs ,architectural complexity; Mapping requirements into a software architecture; Transform flow, Transaction flow; Transform mapping: Refining the architectural design.

**Testing and maintenance:** Software Testing Techniques, software testing fundamentals: objectives, principles, testability; Test case design, white box testing, basis path testing: Control structure testing: Black box testing, testing for specialized environments ,architectures and applications. Software Testing Strategies: Verification and validation, Unit testing, Integration testing,; Validation testing, alpha and beta testing; System testing: Recovery testing, security testing, stress testing, performance testing; The art of debugging, the debugging process debugging approaches. Software re-engineering , reverse engineering ,restructuring, forward engineering.

## Section-D

**Software Reliability and Quality Assurance** :Quality concepts, Software quality assurance , SQA activities;

Software reviews: cost impact of software defects, defect amplification and removal; formal technical reviews: The review meeting, review reporting and record keeping, review guidelines; Formal approaches to SQA; Statistical software quality assurance; software reliability: Measures of reliability and availability ,The ISO 9000 Quality standards: The ISO approach to quality assurance systems, The ISO 9001 standard, Software Configuration Management.

Computer Aided software Engineering: CASE, building blocks, integrated case environments and architecture, repository.

## Text Book:

1. Software Engineering – A Practitioner's Approach, Roger S. Pressman, 1996, MGH.

## 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,

**CSE-304 F** **Intelligent System**

**L T P**
3 1 -

**Class Work:** 50 Marks
**Exam:** 100 Marks
**Total:** 150 Marks
**Duration of Exam:** 3 Hrs.

**NOTE: For setting up the question paper, question no 1 will be set up from all the four sections which will be compulsory and of short answer type. Two questions will be set from each of the four sections. The students have to attempt first common question, which is compulsory, and one question from each of the four sections. Thus students will have to attempt 5 questions out of 9 questions.**

## Section-A

**Foundational issues in intelligent systems:** Foundation and history of AI, Ai problems and techniques – AI programming languages, introduction to LISP and PROLOG- problem spaces and searches, blind search strategies, Breadth first- Depth first- heuristic search techniques Hill climbing: best first- A * algorithm AO* algorithm-game tree, Min max algorithms, game playing- alpha beta pruning.

## Section-B

Knowledge representation issues, predicate logic- logic programming, semantic nets- frames and inheritance, constraint propagation, representing knowledge using rules, rules based deduction systems.
Reasoning under uncertainty, review of probability, Baye's probabilistic interferences and Dempster shafer theory, Heuristic methods.

## Section-C

Symbolic reasoning under uncertainty, Statistical reasoning, Fuzzy reasoning, Temporal reasoning, Non monotonic reasoning.
Planning, planning in situational calculus, representation for planning, partial order planning algorithm,

## Section-D

Learning from examples, discovery as learning, I earning by analogy, explanation based learning, neural nets, genetic algorithms.
Principles of Natural language processing, rule based systems architecture, Expert systems, knowledge acquisition concepts, AI application to robotics, and current trends in intelligent systems.

## Text Book:


1. Artificial Intelligence: A Modern Approach,. Russell & Norvig. 1995, Prentice Hall.


## Reference Books:


1. Artificial Intelligence, Elain Rich and Kevin Knight, 1991, TMH.
2. Artificial Intelligence-A modern approach, Staurt Russel and peter norvig, 1998, PHI.
3. Artificial intelligence, Patrick Henry Winston:, 1992, Addition Wesley 3

**CSE-307 F** **Web Development**

**L T P**
3 1 -

**Class Work:** 50 Marks
**Exam:** 100 Marks
**Total:** 150 Marks
**Duration of Exam:** 3 Hrs.

**NOTE: For setting up the question paper, question no 1 will be set up from all the four sections which will be compulsory and of short answer type. Two questions will be set from each of the four sections. The students have to attempt first common question, which is compulsory, and one question from each of the four sections. Thus students will have to attempt 5 questions out of 9 questions.**

## Section-A

**Introduction to the Internet, The world wide web:** The idea of hypertext and hyper media; How the web works-HTTP, HTML and URLs; How the browser works-MIME types, plugins and helper applications; The standards- HTML, XML, XHTML and the W3C.

**Hypertext markup language:** The anatomy of an HTML document; Marking up for structure and style: basic page markup, absolute and relative links, ordered and unordered lists, embedding images and controlling appearance, table creation and use, frames, nesting and targeting.

**Descriptive markup**: Meta tags for common tasks, semantic tags for aiding search, the doubling code and RDF.

## Section-B

**Separating style from structure with style sheets:** Internal style specifications within HTML, External linked style specification using CSS, page and site design considerations.

**Client side programming:** Introduction to the JavaScript syntax, the JavaScript object model, Event handling, Output in JavaScript, Forms handling, miscellaneous topics such as cookies, hidden fields, and images; Applications.

## Section-C

**Server side programming:** Introduction to Server Side Technologies CGI/ASP/JSP., Programming languages for server Side Scripting, Configuring the server to support CGI, applications; Input/ output operations on the WWW, Forms processing, (using PERL/VBSCRIPT/JavaSCIPT)

## Section-D

**Other dynamic content technologies:** introduction to ASP & JSP, Delivering multimedia over web pages, The VRML idea, The Java phenomenon-applets and servelets, issues and web development. Introduction to Microsoft .NET Technology and its comparison with the competing Technologies.

## Text books:


1. Beginning XHTML by Frank Boumpery, Cassandra Greer, Dave Raggett, Jenny Raggett, Sebastian
2. Schnitzenbaumer & ted Wugofski, 2000, WROX press (Indian Shroff Publ. SPD) 1 edition HTML & XHTML: The Definitive Guide by Chuck Musciano, Bill Kennedy,2000, 4th Edi.


## Reference books:


1. XHTML Black Book by Steven Holzner, 2000
2. CGI Programming on the World Wide Web. O'Reilly Associates.
3. Web Technologies By Achyut S Godbole , Atul Kahate, 2003, T.M.H
4. Scott Guelich, Shishir Gundararam, Gunther Birzniek; CGI Programing with Perl 2/e
5. Doug Tidwell, James Snell, Pavel Kulchenko; Programming Web services, O'Reilly.
6. Intranets by James D.Cimino, 1997, Jaico Publ.
7. Internet and Web Technologies – Raj Kamal, 2002, T.M.H

**EE-402- F** **Wireless Communication**

**L T P**
3 1 0

**Class Work:** 50 Marks
**Exam:** 100 Marks
**Total:** 150 Marks
**Duration of Exam:** 3 Hrs.

**NOTE: For setting up the question paper, question no 1 will be set up from all the four sections which will be compulsory and of short answer type. Two questions will be set from each of the four sections. The students have to attempt first common question, which is compulsory, and one question from each of the four sections. Thus students will have to attempt 5 questions out of 9 questions.**

## Section A

**Introduction To Wireless Communication Systems:** Evolution of mobile radio communications, examples of wireless comm. systems, paging systems, Cordless telephone systems, comparison of various wireless systems.
**Modern Wireless Communication Systems:** Second generation cellular networks, third generation wireless networks, wireless in local loop, wireless local area networks, Blue tooth and Personal Area networks.

## Section-B

**Introduction To Cellular Mobile Systems:** Spectrum Allocation, basic Cellular Systems, performance Criteria, Operation of cellular systems, analog cellular systems, digital Cellular Systems.
**Cellular System Design Fundamentals:** Frequency Reuse, channel assignment strategies, handoff Strategies, Interference and system capacity, tracking and grade off service, improving coverage and capacity.

## Section-C

**Multiple Access Techniques For Wireless Communication:** Introduction to Multiple Access, FDMA, TDMA, Spread Spectrum multiple Access, space division multiple access, packet ratio, capacity of a cellular systems.
**Wireless Networking:** Difference between wireless and fixed telephone networks, development of wireless networks, fixed network transmission hierarchy, traffic routing in wireless networks, wireless data services,

## Section-D

**Intelligent Cell Concept and Application:** common channel signaling, ISDN (Integrated Services digital Networks), advanced intelligent networks. Intelligent cell concept, applications of intelligent micro-cell Systems, in-Building Communication, CDMA cellular Radio Networks.

## Text Books:


1. Wireless Communications: Theodore S. Rappaport; Pearsons.
2. Mobile Cellular Telecommunication: W.C.Y.Lee; McGraw Hill


## Reference Book:


1. Mobile Communications: Jochen Schiller; Pearson

**Math-302- F** **OPERATIONS RESEARCH**

**L T P**
3 1 -

**Class Work:** 50 Marks
**Exam:** 100 Marks
**Total:** 150 Marks
**Duration of Exam:** 3 Hrs.

**NOTE: For setting up the question paper, question no 1 will be set up from all the four sections which will be compulsory and of short answer type. Two questions will be set from each of the four sections. The students have to attempt first common question, which is compulsory, and one question from each of the four sections. Thus students will have to attempt 5 questions out of 9 questions.**

## Section-A

Development – Definition– Characteristics and Phases – Types of models – operation Research models – applications.
ALLOCATION : Linear Programming Problem Formulation – Graphical solution – Simplex method – Artificial variables techniques -Two–phase method, Big-M method – Duality Principle.

## Section – B

TRANSPORTATION PROBLEM – Formulation – Optimal solution, unbalanced transportation problem – Degeneracy. Assignment problem – Formulation – Optimal solution - Variants of Assignment Problem- Traveling Salesman problem.

REPLACEMENT : Introduction – Replacement of items that deteriorate with time – when money value is not counted and counted – Replacement of items that fail completely, group replacement. staffing problem, equipment renewal problem.

## Section – C

System Reliability:Introduction-Definition-Failure Rates-Bath-tub shaped failure rate(Hazard Rate)-Reliability of systems-series arrangement and parallel arrangement-methods of assuring reliability.
Software Reliability - Comparison of Software and Hardware Reliability- Development of Software Reliability Models-Parameter Estimation of Models and Prediction of Reliability Levels- criteria to Compare Software Reliability models.

## Section – D

Information Theory-Introduction, measure of Information, binary unit of information , entropy, properties of average measure of entropy, important relations for various entropies, set of axioms for an entropy function, uniqueness theorem, communication system, noiseless channel, cannel capacity,efficiency and redundanc,exected mutual information,encoding.

**WAITING LINES :** Introduction – Single Channel – Poisson arrivals – exponential service times – with infinite population and finite population models– Multichannel – Poisson arrivals – exponential service times with infinite population single channel Poisson arrivals.

**TEXT BOOK :**


1. Operations Research / S.D.Sharma-Kedarnath
2. Introduction to O.R/Taha/Pearsons


**REFERENCES :**


1. Operation Research/A.P.VERMA/SK KATARIA AND SONS
2. Operations Research/P.K.GUPTA & D.S.HIRA :
3. Software Reliability / John D.musa ,Anthony Iannino and Kajuzuhira Okumoto/ Mac-Grawhill

**IT-304 F** **Networking Programming Lab**

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**Class Work:** 50 Marks
**Exam:** 50 Marks
**Total:** 100 Marks
**Duration of Exam:** 3 Hrs.

**The socket programming can be done on Unix/Linux operating or/and Windows. Socket programming, and the language can be C/VC++ and/or Java**

1. Write a program to Create Sockets For Sending And Receiving Data.
2. Write a program to Obtain The Local & Remote Socket Address.
3. Write a program to Create Sockets For Handling Multiple Connection
4. Write a program to Obtain The Information About The (A) Host (B) Network (C) Protocols (D) Domains
5. Write a program to Manipulate The IP Address.
6. Write a program to Write A Telnet Client.
7. Write a program to Make An FTP Client

**Note:**
At least 5 to 10 more exercises to be given by the teacher concerned .

**CSE-306 F** **Intelligent System Lab**

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**Class Work:** 25 Marks
**Exam:** 25 Marks
**Total:** 50 Marks
**Duration of Exam:** 3 Hrs.

1. Study of PROLOG.
   Write the following programs using PROLOG.
2. Write a program to solve 8 queens problem.
3. Solve any problem using depth first search.
4. Solve any problem using best first search.
5. Solve 8-puzzle problem using best first search
6. Solve Robot (traversal) problem using means End Analysis.
7. Solve traveling salesman problem.

**Note:**
At least 5 to 10 more exercises to be given by the teacher concerned.

**CSE-311 F** **Web Development & Core JAVA Lab**

**L T P**
- - 2

**Class Work:** 25 Marks
**Exam:** 25 Marks
**Total:** 50 Marks
**Duration of Exam:** 3 Hrs.

Java programs using classes & objects and various control constructs such as loops etc , and data structures such as arrays , structures and functions.

Java programs for creating Applets for display of Images ,Texts and Animation

Programs related to interfaces & packages

Input output & Random files programs in java

Java programs using Event driven concept Programs related to Network Programming

Development of Web site for the college or newspaper agency.

**Books recommended for Lab.**


1. Java Elements – Principles of Programming in Java , Duane A. Bailey , Duane W. Bailey, 2000, T.M.H
2. The Java Handbook by Patrick Naughton, TMH, N.Delhi