WIRELESS NETWORK

B.tech Third Year, Semester-V

UNIT-I

Overview of wireless communication: History, Different Generations, General characteristics of mobile devices, Electromagnetic spectrum, Radio propagation mechanisms, characteristics of wireless medium, wireless topology, cellular system (cell concepts, cell hierarchy, cell fundamentals)

UNIT-II

WLAN: Technical issue (uses, design goal, types, components and services offered by a typical IEEE 802.11 network), IEEE 802.11 standard (physical layer, MAC layer mechanism & functionalities, CSMA/CA mechanism). HIPERLAN: HIPERLAN standard, HyperLAN/1 (physical layer, DLC & RLC layer, MAC sub-layer), HyperLAN/2 (Physical layer, MAC sub-layer, power conservation issues) BLUETOOTH: Specifications, transport protocol group, middleware protocol group, profile.

UNIT-III

Medium access control (wireless): Motivation for a specialized MAC (hidden and exposed terminals, near and far terminals), SDMA, FDMA, TDMA and CDMA.

UNIT- IV

Mobile Network layer: Mobile IP: Goals, assumptions, entities and terminology, IP packet delivery, agent advertisement and discovery, registration, tunneling and encapsulation, optimizations, and dynamic host configuration protocols (DHCP).

UNIT- V

Mobile Transport layer: Traditional TCP, Indirect TCP, Snooping TCP,, Mobile TCP, Fast retransmission/ fast recovery, transmission/time-out freezing, selective retransmission, transaction oriented TCP. Wireless Application Protocol WAP: Introduction, protocol architecture and treatment of protocols of all layers.

Books:
1.   Murthy and Manoj, Ad Hoc Wireless Networks, Pearson Educationpublication.
2.   Jochen Schiller,—Mobile Communicationsll,Addison-Wesley.
3.   Stojmenovic and Cacute, —Handbook of Wireless Networks and Mobile Computingll, Wiley, 2002, ISBN 0471419028.

CLOUD COMPUTING

**CS-302T
Credits: 4 (3-1-0)**

B.tech Third Year, Semester-VI

UNIT-I

Cloud Computing Overview Origins of Cloud computing – Cloud components - Essential characteristics – On-demand selfservice, Broad network access, Location independent resource pooling ,Rapid elasticity , Measured service, Comparing cloud providers with traditional IT service providers, Roots of cloud computing.

UNIT-II

Cloud Insights Architectural influences – High-performance computing, Utility and Enterprise grid computing, Cloud scenarios – Benefits: scalability ,simplicity ,vendors ,security, Limitations – Sensitive information - Application development- security level of third party - security benefits, Regularity issues: Government policies.

UNIT-III

Cloud Architecture- Layers and Models Layers in cloud architecture, Software as a Service (SaaS), features of SaaS and benefits, Platform as a Service (PaaS), features of PaaS and benefits, Infrastructure as a Service (IaaS), features of IaaS and benefits, Service providers, challenges and risks in cloud adoption. Cloud deployment model: Public clouds – Private clouds – Community clouds - Hybrid clouds - Advantages of Cloud computing.

UNIT-IV

Cloud Simulators- CloudSim and GreenCloud Introduction to Simulator, understanding CloudSim simulator, CloudSim Architecture(User code, CloudSim, GridSim, SimJava) Understanding Working platform for CloudSim, Introduction to GreenCloud

UNIT-V

 Introduction to VMWare Simulator Basics of VMWare, advantages of VMware virtualization, using Vmware workstation, creating virtual machines-understanding virtual machines, create a new virtual machine on local host, cloning virtual machines, virtualize a physical machine, starting and stopping a virtual machine.

BOOKS:

1.Cloud computing a practical approach - Anthony T.Velte , Toby J. Velte Robert Elsenpeter,
 TATA McGraw- Hill
2. Cloud Computing: Web-Based Applications That Change the Way You Work and Collaborate
3.Cloud computing for dummies- Judith Hurwitz , Robin Bloor , Marcia Kaufman ,Fern
Halper, Wiley Publishing, InC
4. Cloud Computing (Principles and Paradigms), Edited by Rajkumar Buyya, James Broberg, Andrzej Goscinski, John Wiley & Sons, Inc. 2011

COMPILER DESIGN

CS-304T
Credits: 4 (3-1-0)

B.tech Third Year, Semester-VI

UNIT I
Introduction to Compiling: Compiler, Translator and itsNeed, The phases of a compiler, phases of _C' compiler, Cousins of the Compiler, grouping of Phases, Bootstrapping.
Lexical Analysis: Role of lexical analyzer, Input buffering, specification & Recognition of tokens, Finite automata, Regular sets and expression, Conversion of Regular expression to FNA, Obtaining Regular expression from Finite Automata, Optimization of DFA states.

UNIT II
Basic Parsing Techniques: Context Free Grammar, Derivation and Parse Tree, Parsers: Top-down Parsing (Predictive Parser , Back tracking Parser or Recursive-descent parsing , LL parsing) ,Bottom Up Parsing (Shift –reduce parser, LR, Parser , SLR Parser , LALR Parser).
Syntax Directed Translation: Syntax directed definition, L- attribute and S- attribute definition, 3-address code, Inter mediate Code, Postfix notation, Quadruples, Triples, implementation of syntax directed translator, parse tree and syntax tree.

UNIT III
Symbol Tables : The contents of symbol table, Entering information in to symbol Table , Information about run time storage location, Data structure for symbol tables, representing scope information in Symbol Table , Storage allocation , Activation Record , Static Allocation, (call and return sequence, access to nonlocal names, setting up the access link.)

UNIT IV
Error detection and recovery: Errors, Error recovery, Errors and Recovery in Lexical phase , Syntactic-phase , Semantic phase, LR Parsing , Predictive Parsing .

UNIT V
Code optimization: Principles sources of optimization, loop optimization, DAG representation of basic blocks, values numbers and algebraic laws, Global data-flow analysis.
UNIT 8: Code Generation: Issues in the design of code generator, a simple code generator, register allocation and assignment, code generation from DAG.

References:
1.Aho, Sethi& Ullman, ―Compilers Principles & Techniques & Toolsǁ, Addision Wesley.
2.Aho&Ulman, ―Compiler Design, ―Narosa Publishers, New Delhi.

INTERACTIVE COMPUTER GRAPHICS

CS-306T
Credits: 4 (3-1-0)

B.tech Third Year, Semester-VI

UNIT I
Introduction:
Origin of computer graphics, display devices, General purpose Graphics software display of solid objects.
Input Devices : Pointing and positioning devices, three dimensional input devices. Graph input techniques.
Display Techniques and Devices:
Point plotting techniques, coordinate, system and intcremental methods, line drawing algorithms, circle generators, display devices, CRT, inherited memory devices, the storage tube display, refresh line-drawing display.

UNIT II
Graphics Package and Display Files:
A simple graphics, segment functions for segmenting the display files, posting and unposting, segment naming schemes. Appending to segment refresh concurrent with reconstruction free storage allocation, display file structure, geometric models, defining symbols procedures, display procedure, structured display files.

UNIT III
Two Dimensional Transformations:
Principle concatenation matrix representation, a line dipping algorithm, midpoint division, dipping other graphics entities, polygon dipping viewing transformation, tiny windowing transformation.

UNITIV
Event Handling & Input Fractions:
Introduction, polling, interrupts, the event queue, functions for handling eveifits, polling task design, light pen interrupts, dragging and fix, htt detection, on-line character recognizers.

UNIT V
Raster Graphics:
Introduction, generating a raster image, interactive faster graphics raster display hardware.
3-D Graphics :
Realism of 3D Graphics, 3D Transformation, Projections and its types. Curves & surfaces, hidden line and surface elimination (Z-Buffer Algorithm), Introduction To Virtual Reality.

References:
1) Principles of interactive coinsurer graphics by W. M. Newman & R. F. Sproull, Me Graw Hill.
2)Computer Graphics by Donald Heam & Baker, PHI.
3) Mathematical Approach To Computer Graphics, Rodger,

Artificial Intelligence

CS-444T
Credits: 4 (3-1-0)

Elective (B.Tech. Fourth Year)

Unit-I
Introduction: Introduction to Artificial Intelligence, Foundations and History of Artificial Intelligence,can machine think?, AI techniques, components of AI, Applications of Artificial Intelligence,Intelligent Agents, Structure of Intelligent Agents. Computer vision, Natural Language Possessing.

Unit-II
Introduction to Search : Searching for solutions, Uniformed search strategies(BFS,DFS), Informed search strategies(hill climbing search,best-first search,A* search,IDA*,AO*), Local search algorithms and optimistic problems, Adversarial Search, Search for games, Alpha - Beta pruning.

Unit-III
Knowledge Representation & Reasoning: Propositional logic, Theory of first order logic,Inference in First order logic, Forward & Backward chaining, Resolution, Probabilistic reasoning, Utility theory, Hidden Markov Models (HMM), Bayesian Networks.

Unit-IV
Machine Learning : Supervised and unsupervised learning, Decision trees, Statistical learning models, Learning with complete data - Naive Bayes models, Learning with hidden data – EM algorithm, Reinforcement learning,

Unit-V
Pattern Recognition : Introduction, Design principles of pattern recognition system, Statistical Pattern recognition, Parameter estimation methods - Principle Component Analysis (PCA) and Linear Discriminant Analysis (LDA), Classification Techniques – Nearest Neighbor (NN) Rule, Bayes Classifier, Support Vector Machine (SVM), K – means clustering.

References:
1.Stuart Russell, Peter Norvig, ―Artificial Intelligence – A Modern Approach‖, Pearson Education
2. Elaine Rich and Kevin Knight, ―Artificial Intelligence‖, McGraw-Hill
3.E Charniak and D McDermott, ―Introduction to Artificial Intelligence‖, Pearson Education
4. Dan W. Patterson, ―Artificial Intelligence and Expert Systems‖, Prentice Hall of India,