KANNUR UNIVERSITY

FACULTY OF ENGINEERING

Curricula, Scheme of Examinations & Syllabus for Semesters VII & VIII of B.Tech Degree Programme in INFORMATION TECHNOLOGY
With effect from 2007 Admissions

SEVENTH SEMESTER

Code	Subject	Hours/Week			Sessional Marks	University Examination	
		L	T	P/D		Hrs	Marks
2K6 IT 701	Mobile Communication Technologies	3	1	-	50	3	100
2K6 IT 702	Marketing management	3	1	-	50	3	100
2K6 IT 703	Number Theory & Cryptography	3	1	-	50	3	100
2K6 IT 704	Distributed Computing	3	1	-	50	3	100
2K6 IT 705	Elective II	3	1	-	50	3	100
2K6 IT 706(P)	Graphics & Multimedia Lab	-	-	3	50	3	100
2K6 IT 707(P)	Internet Programming Lab	-	-	3	50	3	100
2K6 IT 708(P)	Mini Project			4	50	-	-
2K6 IT 709(P)	Physical Education, Health & Fitness	-	-		50	-	-
TOTAL		**15**	**5**	**10**	**450**	**-**	**700**

Elective II

2K6IT 705 (A) – Data Mining and Data Warehousing
2K6IT 705 (B)– Network Management
2K6IT 705 (C) – Digital Signal Compression
2K6IT 705 (D)– VLSI Design
2K6IT 705 (E) – Design & Analysis of Algorithms
2K6IT 705 (F) – Adhoc Networks
2K6IT 705 (G)- High Performance Computing

EIGHTH SEMESTER

Code	Subject	Hours/Week			Sessional Marks	University Examination	
		L	T	P/D		Hrs	Marks
2K6 IT 801	Operations Research	3	1	-	50	3	100
2K6 IT 802	Advanced Concepts in Database Systems	3	1	-	50	3	100
2K6 IT 803	E-Commerce & E-Governance	3	1	-	50	3	100
2K6 IT 804	Information Security	3	1	-	50	3	100
2K6 IT 805	Elective III	3	1	-	50	3	100
2K6 IT 806(p)	Seminar	-	-	4	50	-	-
*2K6 IT 807(P)	Project & Industrial Training	-	-	6	100	-	-
2K6IT 808(P)	Viva Voce	-	-	-	-	-	100
TOTAL **Aggregate marks for 8 semesters = 8400**		**15**	**5**	**10**	**400** **3000**	**-**	**600** **5400**

* 25 Marks is allocated for Industrial Training

Elective III

2K6 IT 805 (A)– Embedded Systems and Applications
2K6 IT 805(B)-- Image Processing
2K6 IT 805 (C)– Soft Computing
2K6 IT 805 (D)-- Computational Complexity
2K6 IT 805 (E)-- Management Information Systems
2K6 IT 805 (F)-- Quantum Computing
2K6 IT 805 (G) – Advanced Internet Technologies

2K6 IT 701 Mobile Communication Technologies

3 hours lecture and 1 hour tutorial per week

Module I (14 hours)

Evolution of mobile radio communications, examples of wireless comm. systems, paging systems, Cordless telephone systems, comparison of various wireless systems. Second generation cellular networks, third generation wireless networks, wireless in local loop, wireless local area networks, Blue tooth and Personal Area networks. Difference between wireless and fixed telephone networks, development of wireless networks .

Module II (12 hours)

Wireless transmission: Frequencies for radio Transmission-signals-Antennas-Signal propagation-Spread spectrum-Cellular Systems-Specialized MAC:SDMA-FDMA-TDMA-CDMA-Comparison of S/F/T/CDMA.

Module III (12 hours)

Telecommunication systems-GSM-Mobile services-System Architecture-Radio interface-Protocols-localization and calling-handover-Security- Wireless LAN-Infra red Vs Radio transmission-Infra Structure and Ad-hoc networks-IEEE 802.11-Hyper LAN.

Module IV (12 hours)

Mobile internet-Mobile IP Network Layer, Mobile Transport Layer: IP and Mobile IP Network Layers Packet Delivery and Handover Management, Location Management, Registration, Tunneling and Encapsulation, Route Optimization, Dynamic Host Configuration Protocol. Indirect TCP, Snooping TCP, Mobile TCP, Other Methods of TCP – layer Transmission for Mobile Networks- WAP-WML

Text books

1. Wireless Communications: Theodore S. Rappaport; Pearsons.
2. Schiller.J, Mobile Communication, Second Edition, Pearson Education

Reference books

1. William Stallings, Wireless Communication Network, Second Edition, Pearson Education.
2. Mobile Cellular Telecommunication: W.C.Y.Lee; McGraw Hill

Sessional work assessment

Assignments	2x10 = 20
2 tests	2x15 = 30
Total marks	= 50

University examination pattern

Q I - 8 short answer type questions of 5 marks, 2 from each module
Q II - 2 questions A and B of 15 marks from module I with choice to answer any one
Q III - 2 questions A and B of 15 marks from module II with choice to answer any one
Q IV - 2 questions A and B of 15 marks from module III with choice to answer any one
Q V - 2 questions A and B of 15 marks from module IV with choice to answer any one

2K6 IT 702: Marketing Management

3 hours lecture and 1 hour tutorial per week

Module I (14 hours)

Introduction to marketing - concept of market and marketing - marketing environment - controllable factors - factors directed by top management - factors directed by marketing - uncontrollable factors - demography, economic conditions, competition, social and cultural forces, political and legal forces, and technology

Module II (14 hours)

Marketing planning - marketing planning process - Boston consultancy group model - marketing mix - marketing mix variables - market segmentation and market targeting - introduction to segmentation - targeting and product positioning

Module III (12 hours)

Marketing research - need and scope - marketing research process - research objectives, developing research plan, collecting information, analysis, and findings - consumer behaviour - factors influencing consumer behaviour - perceived risks - product life cycle - marketing strategies for different stages of product life cycle

Module IV (12 hours)

Marketing communication - marketing mix variables - steps in developing effective communication - identification of target audience - determination of communication objectives - designing the message - selecting the communication channels - promotion mix evaluation - advertising and sales promotion - factors in advertising - sales promotion tools

Text books

1. Kotler P., *Marketing Management: Analysis, Planning, Implementation and Control*, Prentice Hall of India Private Limited
2. Ramaswamy V.S. & Namkumari S., *Marketing Management: Planning, Implementation and Control*, Macmillan India Limited

Reference books

1. Stanton W.J., Etzel M.J. & Walker B.J., *Fundamentals of Marketing,* McGraw Hill International Edition
2. Majumdar R., *Marketing Research*, *Text, Applications and Case Studies*, New Age International (P) Limited Publishers
3. Robert, *Marketing Research,* Prentice Hall of India

Sessional work assessment	
Assignments	2x10 = 20
2 tests	2x15 = 30
Total marks	= 50

University examination pattern

Q I - 8 short answer type questions of 5 marks, 2 from each module
Q II - 2 questions A and B of 15 marks from module I with choice to answer any one
Q III - 2 questions A and B of 15 marks from module II with choice to answer any one
Q IV - 2 questions A and B of 15 marks from module III with choice to answer any one
Q V - 2 questions A and B of 15 marks from module IV with choice to answer any one

2K6IT 703 NUMBER THEORY AND CRYPTOGRAPHY

3 hours lecture and 1 hour tutorial per week

Module 1 (14Hrs)

Divisibility - The division algorithms- gcd, lcm, primes- Fundamental theorem of arithmetic- Euler function, Congruence- Complete residue system- Reduced residue system- Euler theorem- Fermatt's little theorem- Wilson's theorem- The Chinese reminder theorem- Quadratic Residues - Legendre symbol

Module II (14 Hrs)

Security goals – Attacks – Services and Mechanisms – Techniques – Symmetric key encryption – Introduction – Substitution and Transposition ciphers – Stream and block ciphers –Modern symmetric key ciphers-DES-Structure, Analysis ,Security-AES- Introduction, AES Ciphers .

Module III (15 Hrs)

Asymmetric key Cryptography – Introduction – RSA cryptosystem – Rabin cryptosystem – Elgamal Cryptosystem – Elliptic Curve Cryptosystem

Message Integrity – Message Authentication – Hash Functions – SHA 512 – Digital Signature – Digital Signature Schemes –Entity authentication , Introduction.

Module IV (11 Hrs)

E mail Security – PGP & S/MIME – Transport layer Security – SSL & TLS – Network layer security – IP Sec

Text books

1. An Introduction to the theory of numbers. Ivan Niven, Herbert S Zuckerman, Hugh L Montgomery- Wiely Student Edition
2. Cryptography and Network Security, Behrouz A. Forouzan, Tata McGraw-Hill

Reference books 1.

1 Elementary Theory of Numbers- C Y Hsuing - Allied publishers Tom M Apostol Introduction to analytic Number Theory - Springer International Student Edition

2. Niven I., Zuckerman H.S. and Montgomery H. L., An Introduction to the Theory of Numbers, John Wiley and Sons.

2. Stallings W., Cryptography and Network Security: Principles and Practice, Pearson Education Asia.

3. Mano W., Modern Cryptography: Theory & Practice, Pearson Education.

4. D. A. Burton, Elementary Number Theory, 6/e, Tata McGraw Hill.

5. Delfs H. and Knebel H., Introduction to Cryptography: Principles and Applications, Springer.

Sessional work assessment

Assignments	2x10 = 20
2 tests	2x15 = 30
Total marks	= 50

University examination pattern

Q I - 8 short answer type questions of 5 marks, 2 from each module
Q II - 2 questions A and B of 15 marks from module I with choice to answer any one
Q III - 2 questions A and B of 15 marks from module II with choice to answer any one
Q IV - 2 questions A and B of 15 marks from module III with choice to answer any one
Q V - 2 questions A and B of 15 marks from module IV with choice to answer any one

2K6IT 704 DISTRIBUTED COMPUTING

3 hours lecture and 1 hour tutorial per week

Module I (16 hours)

Characterization of Distributed Systems: Introduction, Examples of distributed Systems,Issues in Distributes Operating Systems, Resource sharing and the Web Challenges. **System Models:** Architectural models, Fundamental Models **Theoretical Foundation for Distributed System**: Limitation of Distributed system, absence of global clock, shared memory, Logical clocks, Lamport's & vectors logical clocks, Causal ordering of messages, global state, termination detection. **Distributed Mutual Exclusion**: Classification of distributed mutual exclusion, requirement of mutual exclusion theorem, Token based and non token based algorithms, performance metric for distributed mutual exclusion algorithms.

Module II (14 hours)

Distributed Deadlock Detection: system model, resource Vs communication deadlocks, deadlock prevention, avoidance, detection & resolution, centralized dead lock detection, distributed dead lock detection, path pushing algorithms, edge chasing algorithms. **Agreement Protocols**: Introduction, System models, classification of Agreement Problem-Interactive consistency Problem, Applications of Agreement algorithms.

Module III (12 hours)

Distributed Objects and Remote Invocation: Communication between distributed objects, Remote procedure call, Events and notifications, Java RMI case study. **Transactions and Concurrency Control**: Transactions, Nested transactions, Locks, Optimistic Concurrency control, Timestamp ordering, Comparison of methods for concurrency control

Module IV (12 hours)

Distributed Transactions: Introduction, Flat and nested distributed transactions, Atomic commit protocols, concurrency control in distributed transactions, Distributed deadlocks, Transaction recovery. **Distributed shared memory** – Design and Implementation issues, consistency models..**CORBA Case Study**: CORBA RMI, CORBA services.

Text books

1. Mukesh Singhal And Niranjan G Shivaratri, "Advanced Concept in Operating Systems",Tata McGraw Hill.
2. Coulouris, Dollimore, Kindberg: "Distributed System: Concepts and Design", Pearson Education

Reference books

1. Tanenbaum S , "Distributed Operating Systems",Pearson Education.
2. P K Sinha, ""Distributed System: Concepts and Design", PHI

Sessional work assessment

Assignments	2x10 = 20
2 tests	2x15 = 30
Total marks	= 50

University examination pattern

Q I - 8 short answer type questions of 5 marks, 2 from each module
Q II - 2 questions A and B of 15 marks from module I with choice to answer any one
Q III - 2 questions A and B of 15 marks from module II with choice to answer any one
Q IV - 2 questions A and B of 15 marks from module III with choice to answer any one
Q V - 2 questions A and B of 15 marks from module IV with choice to answer any one

2K6IT 705(A): DATA MINING AND DATA WAREHOUSING

3 hours lecture and 1 hour tutorial per week

Module I (12 hours)
Introduction to warehousing, Need for strategic information,evolution of decision support systems, dataware house environment, modelling a datawarehouse, granularity in the dataware house, dataware house lifecycle, building a datawarehouse, Online Analytical Processing.

Module II (12 hours)
Data Mining, demands, potential and major issues, classification of datamining techniques,discovery and analysis of patterns trends and deviations.Data Mining Primitives, Data Mining Query Languages, Designing Graphical User Interfaces Based on a Data Mining Query Language Architectures of Data Mining Systems.

Module III (12 hours)
DataMining models,Decision Trees,Genetic Algorithms,Neural networks,Back Propagation,data cleaning,enabling data mining through data warehouse.DataMining applications.

Module IV (12 hours)
Mining Complex Types of Data: Multidimensional Analysis and Descriptive Mining of Complex, Data Objects, Mining Spatial Databases, Mining Multimedia Databases, Mining Time-Series and Sequence Data, Mining Text Databases, Mining the World Wide Web.

Text books

1. Data Mining – Concepts and Techniques - JIAWEI HAN & MICHELINE KAMBER , Harcourt India.
2. **Data ware housing in the realworld-Anahory and Murray,Addition Wesley**

Reference books

1. Data Mining Introductory and advanced topics –MARGARET H DUNHAM, PEARSON EDUCATION
2. **Data Mining Techniques – ARUN K PUJARI, University Press**

Sessional work assessment

Assignments	2x10 = 20
2 tests	2x15 = 30
Total marks	= 50

University examination pattern

Q I - 8 short answer type questions of 5 marks, 2 from each module
Q II - 2 questions A and B of 15 marks from module I with choice to answer any one
Q III - 2 questions A and B of 15 marks from module II with choice to answer any one
Q IV - 2 questions A and B of 15 marks from module III with choice to answer any one
Q V - 2 questions A and B of 15 marks from module IV with choice to answer any one

2K6IT 705(B) : Network Management

3 hours lecture and 1 hour tutorial per week

Module I (12 hours)
Data Communications and Network Management Overview- Review of Computer Network Technology- SNMP, Broadband, and TMN(Telecommunications Management Network) Management- Basic Foundations: Standards, Models, and Language..

Module II (12 hours)
SNMPv1 Network Management: Organization and Information Models- SNMPv1 Network Management: Communication and Functional Models- SNMP Management: SNMPv2- SNMP Management: SNMPv3- SNMP Management: RMON(Remote Network Monitoring).

Module III (14 hours)
Broadband Network Management: ATM Networks- Broadband Network Management- Telecommunications Management Network.

Module IV (12 hours)
Management Tools, Systems, and Applications- Network Management Tools and Systems- Network Management Applications- Web-Based Management- OSI Network and System Management.

Text Book
M. Subramanian, Network Management: Principles and Practice, Addison- Wesley, 2000

Reference books

1 J. Burke, Network Management Concepts and Practice, A Hands- On Approach, Pearson Education, 2000.
2. Larry L. Peterson and Bruce S. Davie, Computer Networks, A System Approach, Elsevier, 3rd edition.

Sessional work assessment

Assignments	2x10 = 20
2 tests	2x15 = 30
Total marks	= 50

University examination pattern
Q I - 8 short answer type questions of 5 marks, 2 from each module
Q II - 2 questions A and B of 15 marks from module I with choice to answer any one
Q III - 2 questions A and B of 15 marks from module II with choice to answer any one
Q IV - 2 questions A and B of 15 marks from module III with choice to answer any one
Q V - 2 questions A and B of 15 marks from module IV with choice to answer any one

2K6 IT 705 (C) : DIGITAL SIGNAL COMPRESSION

MODULE I (12 HOURS)
Introduction - signal compression - fixed rate vs variable rate - lossless Vs lossy compression - source,channel and codes - component of compression system - issues - quantization - optimal and adipative quantization - delta coding - DPCMA - linear prediction - adaptive predication - delta modulation - adiptive delta modulation.

MODULE II (14 HOURS)
Transform coding - ortogonal transformation - bit allocation - performance gain of transform coding - subband coding - coding based on modles of human perception(human autiotory system and visual system).

MODULE III (14 HOURS)
Vector quantization - intoduction - memoryless vector quantizer - llyod algorithm - vector quantisation design - tree strucrured VQ - multistep VQ - product codes - grain/shape VQ - laticce VQ - feedback vector quantization - vector predictive quantization - vecto tree and trellis coders - adaptive VQ - VQ for coding - VQ fo imaging.

MODULE IV (12 HOURS)
Compression standards - CELP standard for sppech - JPEG standard for still image - IOS/MPEG standard for audio and video - introduction to fractal image compression - application of wavelet analysis in signal compression - data compression - review of entropy codding - huffman,runlength,arithmatic and ziv - lempel coding.

Reference books

1. Allen Gersho, Robert M Gray, Vector Quantization and Signal Compression, Kluwer Academic Publishers
2. Jayanthi N S, Noll P, Digital Coding of wave forms – Principles and application of speech and vedio, Prentice Hall
3. Mark Nelson, Jean and Loup Gaily, The Data Compression Book, BPB Publications
4. Stephen Solari, Digital Video/Audio Compression, MGH
5. Kondoz A M, Digital speech, John Wiley and sons..

Sessional work assessment

Assignments	2x10 = 20
2 tests	2x15 = 30
Total marks	= 50

University examination pattern

Q I - 8 short answer type questions of 5 marks, 2 from each module
Q II - 2 questions A and B of 15 marks from module I with choice to answer any one
Q III - 2 questions A and B of 15 marks from module II with choice to answer any one
Q IV - 2 questions A and B of 15 marks from module III with choice to answer any one
Q V - 2 questions A and B of 15 marks from module IV with choice to answer any one

2K6 IT 705(D) VLSI DESIGN

3 hours lecture and 1 hour tutorial per week

Module I (16 hours)
Introduction to MOS technology-IC technology-MOC and VLSI NMOS and CMOS fabrication-thermal aspects-MOS circuits tub ties and latchup-wire paarsitic-design rules and layouts-multilayer CMOS process-layout diagrams-stick diagrams-hierarchial stick diagrams-layout design analysis tools.

Module II (12 hours)
Logic gates-review of combinational logic circuits-basic gate layouts-delay-power consumption-speed power product-wires and delay-combinational logic networks-layout methods-network delay-cross talk-power optimization-switch logic networks.

Module III (13 hours)
Sequential machines-latches and flipflops-sequential system design-subsystem design-pipelining-data paths-adders-ALU-ROM-RAM-FPGA-PLA-multipliers.

Module IV (13 hours)
Floor planning-methods-floor plan of a 4 bit processor-off chip connections-architecture design-register transfer design-architecture for low power-architecture testing-cad systems and algoritms- simulation- layout synthesis.

Reference books

1. Puck nell D A & Eshraghm K, "Basic VLSI Design Systems and Circuits".
2. Mead C , Conway L, "Introduction to VLSI System " Addison Wesley
3. Wayne wolf, "Modern VLSI Design"

Sessional work assessment

Assignments	2x10 = 20
2 tests	2x15 = 30
Total marks	= 50

University examination pattern
Q I - 8 short type questions of 5 marks, 2 from each module
Q II - 2 questions A and B of 15 marks from module I with choice to answer any one
Q III - 2 questions A and B of 15 marks from module II with choice to answer any one
Q IV - 2 questions A and B of 15 marks from module III with choice to answer any one
Q V - 2 questions A and B of 15 marks from module IV with choice to answer any one

2K6 IT 705(E) DESIGN AND ANALYSIS OF ALGORITHMS

3 hours lecture and 1 hour tutorial per week

Module I (12 hours)

Role of algorithms in computing – RAM model – growth of functions – asymptotic notations (Big-Oh,Little-Oh, Big omega,Little omega,Theta)- solution to recurrences – substitution method-recursion tree-master theorem (proof not expected)-Analysis of sorting algorithms – merge sort, heap sort, quick sort- Analysis of string matching algorithms -KMP algorithm. Amortized Analysis –Aggragate –Accounting –Potential Methods

Module II (15 hours)

Different approaches to algorithm design: **Divide and conquer** – Strassens matrix multiplication –Median Finding-**Greedy method** – Huffman code-Minimum cost spanning tree-Kruskals and Prims algorithm- **Dynamic programming** –Optimal binary search tree– Chain matrix multiplication **Back tracking** – Queens problem–**Branch and bound**-assignment problem-TSP

Module III (12 hours)

Complexity: complexity classes – P,NP,Co-NP, NP-hard and NPC problems – cooks theorm (proof not expected) – NP completeness reductions for clique – vertex cover – subset sum – Hamiltonian cycle – TSP- approximation algorithms – vertex cover – TSP – set covering and subset sum

Module IV (15 hours)

Randomized algorithms: Some complexity classes randomized algorithm for n-Queen , Quick sort-Probabilistic algorithms: pseudo random number generation methods - Monte Carlo algorithms - probabilistic counting - verifying matrix multiplication - primality testing - miller rabin test - integer factorization - Dixon's integer factorization algorithm -Pollard's rho heuristic amplification of stochastic advantage - Les Vegas algorithms.

Text books

1. Corman T H, Lieserson C E & Rivest R L, Introduction to Algorithms, PHI
2. Motwani R & Raghavan P, Randomized algorithms, Cambridge university press
3. Gilles Brassard, Paul Bratley, "Fundamentals of Algorithms", PHI

Reference books

1. Basse S, Computer Algorithms : Introduction to design and analysis, Addison Wesley
2. S K Basu , Design methods and analysis of algorithms, PHI
3. Berman and Paul, "Algorithms",Cenage Learning Indian Edition

Sessional work assessment

Assignments	2x10 = 20
2 tests	2x15 = 30
Total marks	= 50

University examination pattern

Q I - 8 short answer type questions of 5 marks, 2 from each module
Q II - 2 questions A and B of 15 marks from module I with choice to answer any one
Q III - 2 questions A and B of 15 marks from module II with choice to answer any one
Q IV - 2 questions A and B of 15 marks from module III with choice to answer any one
Q V - 2 questions A and B of 15 marks from module IV with choice to answer any one

2K6 IT 705(F) ADHOC NETWORKS

3 hours lecture and 1 hour tutorial per week

Module I (12 hours)

INTRODUCTION: Ad hoc Networks: Introduction, Issues in Ad hoc wireless networks, Ad hoc wireless internet.. MAC Protocols for Ad hoc wireless Networks: Introduction, Issues in designing a MAC protocol for Ad hoc wireless Networks, Design goals of a MAC protocol for Ad hoc wireless Networks, Classification of MAC protocols, Contention based protocols with reservation mechanisms.

Module II (12 hours)

Contention-based MAC protocols with scheduling mechanism, MAC protocols that use directional antennas, Other MAC protocols. Routing protocols for Ad hoc wireless Networks: Introduction, Issues in designing a routing protocol for Ad hoc wireless Networks, Classification of routing protocols, Table drive routing protocol, On-demand routing protocol.

Module III (13 hours)

Hybrid routing protocol, Routing protocols with effective flooding mechanisms, Hierarchical routing protocols, Power aware routing protocols. **TRANSPORT LAYER:** Transport layer protocols for Ad hoc wireless Networks: Introduction, Issues in designing a transport layer protocol for Ad hoc wireless Networks, Design goals of a transport layer protocol for Ad hoc wireless Networks, Classification of transport layer solutions, TCP over Ad hoc wireless Networks, Other transport layer protocols for Ad hoc wireless Networks.

Module IV (13 hours)

SECURITY: Security: Security in wireless Ad hoc wireless Networks, Network security requirements, Issues & challenges in security provisioning, Network security attacks, Key management, Secure routing in Ad hoc wireless Networks.

QoS: Quality of service in Ad hoc wireless Networks: Introduction, Issues and challenges in providing QoS in Ad hoc wireless Networks, Classification of QoS solutions, MAC layer solutions, network layer solutions.

Text books

Ad hoc Wireless Networks – C. Siva Ram Murthy & B. S. Manoj, 2nd Edition, Pearson Education

Reference books

1. **Ad hoc Wireless Networks – Ozan K. Tonguz and Gianguigi Ferrari, John Wiley, 2006.**
2. **Ad hoc Wireless Networking – Xiuzhen Cheng, Xiao Hung, Ding-Zhu Du, Kluwer Academic Publishers, 2004.**
3. **Adhoc Mobile Wireless Networks - C.K. Toh, Protocols and Systems, Prentice-Hall PTR, 2002**

Sessional work assessment

Assignments	2x10 = 20
2 tests	2x15 = 30

Total marks = 50

University examination pattern

Q I - 8 short answer type questions of 5 marks, 2 from each module
Q II - 2 questions A and B of 15 marks from module I with choice to answer any one
Q III - 2 questions A and B of 15 marks from module II with choice to answer any one
Q IV - 2 questions A and B of 15 marks from module III with choice to answer any one
Q V - 2 questions A and B of 15 marks from module IV with choice to answer any one

2K6IT 705 (G) : HIGH PERFORMANCE COMPUTING

3 hours lecture and 1 hour tutorial per week

Module 1 (12Hrs)
The state of computing − Multiprocessors and multicomputers − Multivector and SIMD computers − PRAM and VLSI Models − Architectural development tracks − Conditions of parallelism − Program partitioning and scheduling − Program flow mechanisms − System interconnect architectures.

Module 2 (15 Hrs)
Instruction set architectures − CISC, RISC, Super scalar and Vector processors − Memory hierarchy technology − Virtual memory technology − Backplane bus systems − Cache Memory organizations − Shared Memory organizations − Consistency models − Linear and Nonlinear Pipeline processors − Instruction and Arithmetic Pipeline Designs − Superscalar and superline designs.

Module 3 (13 Hrs)
Multiprocessor System Interconnects − Cache Coherence and Synchronization Mechanisms − Message passing mechanisms − Vector processing principles − Compound vector processing − Latency hiding techniques − Principles of multithreading

Module 4(14 Hrs)
Parallel programming models − Parallel languages and compilers − Dependence analysis of data − Code optimization and scheduling − Loop parallelization and pipelining − Parallel programming environments − Shared variable program structures − Message passing program development − Mapping programs onto multicomputers.

Text book
Advanced Computer Architecture: Parallelism Scalability Programmability, Kai Hwang, McGraw Hill

Reference books
1. Computer Architecture and Parallel Processing, K. Hwang and Briggs, McGrawHill.
2. Computer Architecture: A Quantitative Approach, J L. Hennessy, D. A. Patterson, Elsevier
3. Parallel Computer Architecture: A Hardware Software Approach, D. E. Culler & Jaswinder Pal Singh, Morgan Kaufmann Publishers

Sessional work assessment

Assignments	2x10 = 20
2 tests	2x15 = 30
Total marks	= 50

University examination pattern
Q I - 8 short answer type questions of 5 marks, 2 from each module
Q II - 2 questions A and B of 15 marks from module I with choice to answer any one
Q III - 2 questions A and B of 15 marks from module II with choice to answer any one
Q IV - 2 questions A and B of 15 marks from module III with choice to answer any one
Q V - 2 questions A and B of 15 marks from

2K6 IT 706(P) GRAPHICS AND MULTIMEDIA LAB

3 hours practical per week

1. Implement Bresenham's algorithms for line, circle and ellipse drawing.
2. Perform 2D Transformations such as translation, rotation, scaling, reflection and sharing.
3. Implement Cohen-Sutherland 2D clipping and window-viewport mapping
4. Perform 3D Transformations such as translation, rotation and scaling.
5. Visualize projections of 3D images.
6. Convert between color models.
7. Implement text compression algorithm
8. Implement image compression algorithm
9. Perform animation using any Animation software
10. Perform basic operations on image using any image editing software

Sessional work assessment
Laboratory practical and record - 35 marks
Tests – 15 marks
Total – 50 marks

2K6 IT 707(P) INTERNET PROGRAMMING LAB

3 hours practical per week

1 Web Page Creation using HTML and DHTM and Client side Scripting Languages

2 Write a application/GUI program in java for getting time and data information from the server using TCP/UDP

3 Design a FTP Server through which download /Upload files.

4 Write a program in java to implement Database Connectivity

5 Write a JSP program for order processing

6 Write a Servlet, bean program to access information from databases
Write a ASP program using the components

Sessional work assessment
Laboratory practical and record - 35 marks
Tests – 15 marks
Total – 50 marks

2K6 IT 706(P): MINI PROJECT

4 hours pratical per week

Each group consisting of not more than five members is expected to design and develop a moderately complex Software /hardware with software system . The assessment of all the mini-projects will be done by a committee consisting of three faculty members, specialized in various fields of Information Technology. The students will present and demonstrate the project work before the committee**.** The guides will award the marks for the individual students in a project maintaining the group average - each group will prepare the project report and submit to the department through the guide - the Head of the department will certify the copies and shall retain one copy in the departmental library

Sessional work assessment
Presentation - 30 marks
Report- 20 marks
Total Marks – 50 marks

2K6 IT 709(P): PHYSICAL EDUCATION, HEALTH & FITNESS

Introductory Lectures:

Unit 1: Health and fitness: Modern concept of health and fitness, meaning, scope, need and importance of health, fitness and wellness.

Unit II: Exercise and fitness: Means and methods of developing fitness. Importance of physical activities and exercises in developing and maintaining good health, Physical fitness and well being.

Unit III : Sports and Physical education: Meaning and scope, role and importance of sports and games in the development of physical fitness and personality. Social values of sports. Rules of major games.

Practical Sessions:

(All classes will be conducted after the normal working hours of the college)

50 sessions of minimum 1 hour duration each are envisaged (including Theory and Practical). The student can opt for one of the following activities in line with the specific programme / schedule announced by the faculty.

Athletics, Badminton, Basketball, Cricket, Football, General fitness, Hockey, Kabadi, Table Tennis, Ball Badminton, Archery, Volley ball, Yoga (not all activities may be offered in a particular semester. More disciplines will be offered based on the availability of infrastructure and expertise).

In addition, health and fitness assessment such as height, Weight, Resting Pulse rate and blood Pressure will be carried out.

Objective :

1. Basically to inculcate awareness of health, general fitness and attitude to voluntary physical involvement.
2. To promote learning of basic skills in sports activities and secondarily to pave the way for mastering some of the skills through continued future involvement.

Scheme of assessment:

The student will be continuously assessed on his performance on the field of play. There will not be minimum mark for pass or fail. Total 50 marks will be given assessing their attendance, regularity, punctuality and performance for 50 hours of activity from 1st semester to 7th semester.

2K6 IT 801: OPERATIONS RESEARCH

3 hours lecture and 1 hour tutorial per week

Module I: Linear algebra (13 hours)

Vectors - vector space and Euclidean space - vector operations - matrix operations - unit vector - sum vector - linear dependence - bases - spanning set - rank - simultaneous equations - basic solutions - point sets - lines and hyper planes - linear inequalities - convex sets - extreme points - fundamental theorem of linear programming

Module II: Linear programming (13 hours)

Statement of the LP problem - slack and surplus variables - basic feasible solutions - reduction of a feasible solution to basic feasible solution - artificial variables - optimality conditions - unbounded solutions - Charnes' M method - two phase method - degeneracy - duality

Module III: Transportation, assignment and game problems (13 hours)

Transportation problem - coefficient matrix and its properties - basic set of column vectors - linear combination of basic vectors - tableau format - stepping stone algorithm - UV method - inequality constraints - degeneracy in transportation problems - assignment problem as a maximally degenerate transportation problem - Köning's method - rectangular zero sum games - von Neuman's theorem - saddle points - pure and mixed strategies - formulation of the primal and dual LP problem for fixed strategies - dominance - graphical solutions

Module IV: Queuing theory (13 hours)

Basic structure of queuing models - exponential and Poisson distributions - birth and death processes - queuing models based on Poisson inputs and exponential service times - basic model with constant arrival rate and service rate - finite queue - limited source queue models involving non-exponential distributions - single service model with Poisson arrival and any service time distribution - Poisson arrival with constant service time - Poisson arrival and Erlang service times - priority disciplines - dynamic programming - Bellman's principle of optimality - formulation and solution of simple problems

Text books

1. Riggs J.L., *Economic Decision Models for Engineers and Managers*, McGraw Hill International Students Edition
2. Weist & Levy, *A Management Guide to PERT & CPM*, Prentice Hall of India
3. Starr & Miller, *Inventory Control - Theory & Practice*, Prentice Hall of India
4. Samuel Eilon, *Production Planning & Control*, Universal Book Corporation
5. Francis & White, *Facility Layout & Location*, Prentice Hall Inc.

Reference books

1. Hillier & Lieberman, *Introduction to Operations Research*, Holden Day Inc.
2. Biegel, *Production Control,* Prentice Hall of India
3. James Moore, *Plant Layout & Design*, The Macmillan Company

Sessional work assessment

Assignments	2x10 = 20
2 tests	2x15 = 30
Total marks	= 50

University examination pattern

Q I - 8 short answer type questions of 5 marks, 2 from each module
Q II - 2 questions A and B of 15 marks from module I with choice to answer any one
Q III - 2 questions A and B of 15 marks from module II with choice to answer any one
Q IV - 2 questions A and B of 15 marks from module III with choice to answer any one
Q V - 2 questions A and B of 15 marks from module IV with choice to answer any one

2K6 IT 802 : ADVANCED CONCEPTS IN DATABASE SYSTEMS

3 hours lecture and 1 hour tutorial per week

Module I (14 hours)

Object-Based Databases - Complex Data Types - Structured Types and Inheritance in SQL - Table Inheritance - Array and Multiset Types in SQL - Object-Identity and Reference Types in SQL - Implementing O-R Features - Persistent Programming Languages - Object-Oriented versus Object-Relational models

Module II (13 hours)

Data Analysis and Mining - Decision-Support Systems - Data Analysis and OLAP - DataWarehousing - Data Mining. Information Retrieval - Relevance Ranking Using Terms - Relevance Using Hyperlinks - Synonyms, Homonyms and Ontologies - Indexing of Documents - Measuring Retrieval Effectiveness - Web Search Engines - Information Retrieval and Structured Data.

Module III (14 hours)

Database-System Architectures – Centralized, Client–Server and Server System Architectures – Parallel and Distributed Systems. Parallel Databases - I/O Parallelism – Interquery, Intraquery, Intraoperation and Interoperation Parallelism - Design of Parallel Systems. Distributed Databases - Homogeneous and Heterogeneous Databases - Distributed Data Storage - Distributed Transactions - Commit Protocols - Concurrency Control in Distributed Databases - Distributed Query Processing - Heterogeneous Distributed Databases.

Module IV (13 hours)

Advanced Data Types and New Applications - Time in Databases - Spatial and Geographic Data - Multimedia Databases - Mobility and Personal Databases. Advanced Transaction Processing - Transaction-Processing Monitors - Transactional Workflows - E-Commerce - Main-Memory Databases - Real-Time Transaction Systems - Long-Duration Transactions - Transaction Management in Multidatabases.

Text books

Database System Concepts, 5/E, A. Silberschatz, H. F. Korth and S. Sudarshan, Mc-Graw Hill

Reference books

1. R. Elmasri and S. B. Navathe: Fundamentals of Database Systems, 5th Edition, Addison-Wesley
2. Database Management Systems, 3/E, Raghu Ramakrishnan and J. Gehrke, Mc-Graw Hill

Sessional work assessment

Assignments	2x10 = 20
2 tests	2x15 = 30
Total marks	= 50

University examination pattern

Q I - 8 short answer type questions of 5 marks, 2 from each module
Q II - 2 questions A and B of 15 marks from module I with choice to answer any one
Q III - 2 questions A and B of 15 marks from module II with choice to answer any one
Q IV - 2 questions A and B of 15 marks from module III with choice to answer any one
Q V - 2 questions A and B of 15 marks from module IV with choice to answer any one

2K6 IT 803 : E- Commerce & E-Governance

3 hours lecture and 1 hour tutorial per week

Module I (14 hours)

Web commerce concepts - electronic commerce environment - - web based tools for e - commerce - e - commerce softwares - hosting services and packages .

Security issues threats to e commerce - approaches to safe - e - commerce - secure transactions and

protocols - encryption - - protection e - commerce assets protecting client machines - servers and channels - transaction integrity

Module II (12hours)

Electronic payment systems- types of e-payment-internet monetary payment and security requirements- payment and purchase order process- electronic cash – electronic wallets –smart cards –credit and charge cards.

Module III (14 hours)

Strategies for marketing - creating web presence identifying and reaching customers - web branching

sales - on the web strategies for purchasing and support activities - mode of e - commerce- EDI - supply chain management software for purchasing - strategies for web auctions virtual communities and web portals inter national legal - ethical and tax issues - planning and managing e - commerce project .

Module IV (12 hours)

Introduction to e-governance-Understanding eGoverment as information systems – Understanding eGoverment management-Approaches to management of eGoverment systems – Centralized, decentralized, hybrid – eGoverment strategy

Text books

1. Kalkota R & Whinston A B "Frontiers of Electronic Commerce" Addison Wesley.
2. Scheider, "Electronic Commerce"
3. Implementing and Managing eGoverment, Richard Heeks

Reference books

1. Minoli D and Minoli E Web commerce Technology Handbook
2. W. Stallings "Cryptography"

Sessional work assessment

Assignments	2x10 = 20
2 tests	2x15 = 30
Total marks	= 50

University examination pattern

Q I - 8 short answer type questions of 5 marks, 2 from each module
Q II - 2 questions A and B of 15 marks from module I with choice to answer any one
Q III - 2 questions A and B of 15 marks from module II with choice to answer any one
Q IV - 2 questions A and B of 15 marks from module III with choice to answer any one
Q V - 2 questions A and B of 15 marks from module IV with choice to answer any one

2K6 IT 804 INFORMATION SECURITY

3 hours lecture and 1 hour tutorial per week

Module I (13 hours)

History, What is Information Security?, Critical Characteristics of Information, NSTISSC Security Model, Components of an Information System, Securing the Components, Balancing Security and Access, The SDLC, The Security SDLC

Module II (13 hours)

Security investigation-Need for Security, Business Needs, Threats, Attacks, Legal, Ethical and Professional Issues

Module III (13 hours)

Security analysis and design-Risk Management: Identifying and Assessing Risk, Assessing and Controlling Risk Blueprint for Security, Information Security Poicy, Standards and Practices, ISO 17799/BS 7799, NIST Models, VISA International Security Model, Design of Security Architecture, Planning for Continuity

Module IV (13hours)

Physical design. Security Technology, IDS, Scanning and Analysis Tools, Cryptography, Access Control Devices, Physical Security, Security and Personnel

Text books

1. Michael E Whiteman and Herbert J Mattord, " Principles of Information Security" Vikas Publishing House, New Delhi, 2004
2. Micki Krause Harold F Tipton, "Hand Book of Information Security Management" Vol 1-3 CRC Press LLC 2004

Reference books

1. Stuart Mc Clure Joel Scrambray George Kurtz " Hacking Exposed" Tata McGraw Hill 2003
2. Mat Bishop " Computer Security Arts and Science Pearson / PHI 2005.

Sessional work assessment

Assignments	2x10 = 20
2 tests	2x15 = 30
Total marks	= 50

University examination pattern

Q I - 8 short answer type questions of 5 marks, 2 from each module
Q II - 2 questions A and B of 15 marks from module I with choice to answer any one
Q III - 2 questions A and B of 15 marks from module II with choice to answer any one
Q IV - 2 questions A and B of 15 marks from module III with choice to answer any one
Q V - 2 questions A and B of 15 marks from module IV with choice to answer any one

2K6 IT 805 (A) : EMBEDDED SYSTEMS AND APPLICATIONS

3 hours lecture and 1 hour tutorial per week

Module I (12 hours)

Embedded Computers – Characteristics of Embedded Computing Applications – Challenges in Embedded Computing System Design – Embedded System Design –Process Requirements – Specification – Architectural Design – Designing Hardware and Software Components – System Integration – Formalism for System Design – Structural Description, Behavioral Description – Design Example: Model Train Controller.

Module II (13 hours)

ARM Processor – Processor and Memory Organization – Data Operations – Flow of Control – SHARC Processor – Memory Organization – Data Operations – Flow of Control – Parallelism with Instructions – CPU Bus Configuration, ARM Bus, SHARC Bus – Memory Devices, Input/output Devices – Component Interfacing – Designing with Microprocessor Development and Debugging – Design Example Alarm Clock .

Module III(13 hours)

Distributed Embedded Architecture – Hardware and Software Architectures – Networks for Embedded Systems – I2C, CAN Bus – SHARC Link Ports – Ethernet – Myrinet– Internet, Network – Based Design – Communication Analysis – System Performance Analysis – Hardware Platform Design – Allocation and Scheduling – Design Example Elevator Controller

Module IV (14 hours)

Clock Driven Approach – Weighted Round Robin Approach – Priority Driven Approach – Dynamic versus Static Systems – Effective Release Times and Deadlines – Optimality of the Earliest Deadline First (EDF) Algorithm – Challenges in Validating Timing Constraints in Priority Driven Systems – Off–Line versus On–Line Scheduling.

TEXT BOOKS

1. Wayne Wolf, "Computers as Components Principles of Embedded Computing System Design", Morgan Kaufman Publishers, 2001.
2. Frank Vahid and Tony Givargi, "Embedded System Design A Unified Hardware/Software", John Wiley & Sons, 2000.

REFERENCES

1. Jane W S Liu, "Real Time systems", Pearson Education, Asia, 2000.
2. C M Krishna and K G Shin, "Real Time Systems", McGraw Hill 1997.

Sessional work assessment

Assignments	2x10 = 20
Tests	2x15 = 30
Total marks	= 50

University examination pattern

Q I - 8 short answer type questions of 5 marks, 2 from each module
Q II - 2 questions A and B of 15 marks from module I with choice to answer any one
Q III - 2 questions A and B of 15 marks from module II with choice to answer any one
Q IV - 2 questions A and B of 15 marks from module III with choice to answer any one
Q V - 2 questions A and B of 15 marks from module IV with choice to answer any one

2K6 IT 805(B): IMAGE PROCESSING

3 hours lecture and 1 hour tutorial per week

Module I (12 hours)
Introduction - digital image representation - fundamental steps in image processing - elements of digital image processing systems - digital image fundamentals - elements of visual perception - a simple image model - sampling and quantization - basic relationship between pixels - image geometry - image transforms - introduction to Fourier transform - discrete Fourier transform - some properties of 2-fourier transform (DFT) - the FFT - other separable image transforms - hotelling transform

Module II (12 hours)
Image enhancement - point processing - spatial filtering - frequency domain - color image processing - image restoration - degradation model - diagonalization of circulant and block circulant matrices - inverse filtering - least mean square filter

Module III (12 hours)
Image compression - image compression models - elements of information theory - error-free compression - lossy compression - image compression standards

Module IV (12 hours)
Image reconstruction from projections - basics of projection - parallel beam and fan beam projection - method of generating projections - Fourier slice theorem - filtered back projection algorithms - testing back projection algorithms

Reference books

1. Rafael C., Gonzalez & Richard E. Woods, Digital Image Processing, Addison Wesley, New Delhi
2. Rosenfeld A. & Kak A.C., Digital Picture Processing, Academic Press
3. Jain A.K, Fundamentals of Digital Image Processing, Prentice Hall, Englewood Cliffs, N.J.
4. Schalkoff R. J., Digital Image Processing and Computer Vision, John Wiley and Sons, New York
5. Pratt W.K., Digital Image Processing, 2nd edition, John Wiley and Sons, New York

Sessional work assessment

Assignments	2x10 = 20
2 tests	2x15 = 30
Total marks	= 50

University examination pattern
Q I - 8 short answer type questions of 5 marks, 2 from each module
Q II - 2 questions A and B of 15 marks from module I with choice to answer any one
Q III - 2 questions A and B of 15 marks from module II with choice to answer any one
Q IV - 2 questions A and B of 15 marks from module III with choice to answer any one
Q V - 2 questions A and B of 15 marks from module IV with choice to answer any one

2K6 IT 805(C): SOFTCOMPUTING

3 hours lecture and 1 hour tutorial per week

Module I (12 hours)
Introduction, Soft Computing concept explanation. Importance of tolerance of imprecision and uncertainty.Biological and artificial neuron, neural networks. Adaline, Perceptron. Madaline and BP (Back Propagation) neural networks. Supervised Learning Neural Networks – Perceptrons - Adaline – Backpropagation Mutilayer Perceptrons – Radial Basis Function Networks – Unsupervised Learning Neural Networks – Competitive Learning Networks – Kohonen Self-Organizing Networks – Learning Vector Quantization – Hebbian Learning.

Module II (14 hours)
Introduction to Neuro – Fuzzy and Soft Computing – Fuzzy Sets – Basic Definition and Terminology – Set-theoretic Operations – Member Function Formulation and Parameterization – Fuzzy Rules and Fuzzy Reasoning – Extension Principle and Fuzzy Relations – Fuzzy If-Then Rules – Fuzzy Reasoning – Fuzzy Inference Systems – Mamdani Fuzzy Models – Sugeno Fuzzy Models – Tsukamoto Fuzzy Models – Input Space Partitioning and Fuzzy Modeling.

Module III (12 hours)
Adaptive Neuro-Fuzzy Inference Systems – Architecture – Hybrid Learning Algorithm – Learning Methods that Cross-fertilize ANFIS and RBFN – Coactive Neuro Fuzzy Modeling – Framework Neuron Functions for Adaptive Networks – Neuro Fuzzy Spectrum.

Module IV (12 hours)
Derivative-based Optimization – Descent Methods – The Method of Steepest Descent – Classical Newton's Method – Step Size Determination – Derivative-free Optimization – Genetic Algorithms – Simulated Annealing – Random Search – Downhill Simplex Search.

Text books

Timothy J.Ross, "Fuzzy Logic with Engineering Applications", McGraw-Hill, 1997.

Reference Book

1. Davis E.Goldberg, "Genetic Algorithms: Search, Optimization and Machine Learning", Addison Wesley, N.Y., 1989.
2. S. Rajasekaran and G.A.V.Pai, "Neural Networks, Fuzzy Logic and Genetic Algorithms", PHI, 2003.

Sessional work assessment

Assignments	2x10 = 20
2 tests	2x15 = 30
Total marks	= 50

University examination pattern

Q I - 8 short answer type questions of 5 marks, 2 from each module
Q II - 2 questions A and B of 15 marks from module I with choice to answer any one
Q III - 2 questions A and B of 15 marks from module II with choice to answer any one
Q IV - 2 questions A and B of 15 marks from module III with choice to answer any one
Q V - 2 questions A and B of 15 marks from module IV with choice to answer any one

2K6 IT 805(D) : COMPUTATIONAL COMPLEXITY

3 hours lecture and 1 hour tutorial per week

Module I (12hours)
Review of Complexity Classes, NP and NP Completeness, Space Complexity, Hierarchies, Circuit satisfiability, Karp Lipton Theorem.

Module II (12 hours)
Randomized Computation, PTMs, Examples, Important BPP Results, Randomized Reductions, Counting Complexity, Permanent's and Valiant's Theorem

Module III (12 hours)
Review of Interactive Proofs, Lowerbounds: Randomized Decision Trees, Yao's minimax lemma, Communication Complexity, Multiparty Communication Complexity

Module IV (14 hours)
Advanced Topics: Selected topics from Average case Complexity, Levin's theory, Polynomial time samplability, random walks, expander graphs, derandomization, Error Correcting Codes, PCP and Hardness of Approximation, Quantum Computation

Reference books

1. Papadimtriou C. H.., Computational Complexity, Addison Wesley, First Edition, 1993.
2. Motwani R, *Randomized Algorithms*, Cambridge University Press, 1995
3. Vazirani V., Approximation Algorithms, Springer, First Edition, 2004.
4. Mitzenmacher M and Upfal E., *Probability and Computing, Randomized Algorithms and Probabilistic Analysis*, Cambridge University Press, 2005

Sessional work assessment

Assignments	2x10 = 20
2 tests	2x15 = 30
Total marks	= 50

University examination pattern

Q I - 8 short answer type questions of 5 marks, 2 from each module
Q II - 2 questions A and B of 15 marks from module I with choice to answer any one
Q III - 2 questions A and B of 15 marks from module II with choice to answer any one
Q IV - 2 questions A and B of 15 marks from module III with choice to answer any one
Q V - 2 questions A and B of 15 marks from module IV with choice to answer any one

2K6 IT 805(E) : MANAGEMENT INFORMATION SYSTEMS

3 hours lecture and 1 hour tutorial per week

Module 1 (12Hrs)
Information systems – functions of management – levels of management – framework for information systems – systems approach – systems concepts – systems and their environment – effects of system approach in information systems design – using systems approach in problem solving – strategic uses of information technology.

Module 2 (10 Hrs)
An overview of computer hardware and software components – file and database management systems – introduction to network components – topologies and types – remote access – the reasons for managers to implement networks – distributed systems – the internet and office communications

Module 3 (14 Hrs)
Applications of information systems to functional – tactical and strategic areas of management, decision support systems and expert systems .

Module 4(16 Hrs)
Information systems plannings – critical success factor – business system planning – ends /means analysis – organizing the information systems plan – systems analysis and design – alternative applications development approaches – organization of data processing – security and ethical issues of information systems .

Text books
Robert Schultheis & Mary summer , "Management Information System – The Manager's View" ,TMH.

Reference books

1. Landon K C & Landon J P, "Management Information Systems – Organization and Technology",4th Edition TMH.
2. Sadagopan s, "Management Information Systems", PHI
3. Basandra S K ," Management Information Systems",Wheeler Publishing.
4. Alter S, "Information Systems – A Management Perspective" 3/e Addison Wesley

Sessional work assessment

Assignments	2x10 = 20
2 tests	2x15 = 30
Total marks	= 50

University examination pattern
Q I - 8 short answer type questions of 5 marks, 2 from each module
Q II - 2 questions A and B of 15 marks from module I with choice to answer any one
Q III - 2 questions A and B of 15 marks from module II with choice to answer any one
Q IV - 2 questions A and B of 15 marks from module III with choice to answer any one
Q V - 2 questions A and B of 15 marks from module IV with choice to answer any one

2K6 IT 805(F): QUANTUM COMPUTING

3 hours lecture and 1 hour tutorial per week

Module I (12 hours)
Review of Linear Algebra. The postulates of quantum mechanics. Review of Theory of Finite Dimensional Hilbert Spaces and Tensor Products.

Module II (12 hours)
Models of computation – Turing machines. Quantifying resources. Computational complexity and the various complexity classes. Models for Quantum Computation. Qubits. Single and multiple qubit gates. Quantum circuits. Bell states. Single qubit operations. Controlled operations and measurement. Universal quantum gates.

Module III (14 hours)
Quantum Algorithms – Quantum search algorithm - geometric visualization and performance. Quantum search as a quantum simulation. Speeding up the solution of NP Complete problems. Quantum search as an unstructured database. Grover's and Shor's Algorithms.

Module IV (12 hours)
Introduction to Quantum Coding Theory. Quantum error correction. The Shor code. Discretization of errors, Independent error models, Degenerate Codes. The quantum Hamming bound. Constructing quantum codes – Classical linear codes, Shannon entropy and Von Neuman Entropy.

Text books

1Nielsen M.A. and I.L. Chauang, Quantum Computation and Quantum Information, Cambridge University Press, 2002.

Reference Book

1. Gruska, J. Quantum Computing, McGraw Hill, 1999.
2. Halmos, P. R. Finite Dimensional Vector Spaces, Van Nostrand, 1958

Sessional work assessment

Assignments	2x10 = 20
2 tests	2x15 = 30
Total marks	= 50

University examination pattern

Q I - 8 short answer type questions of 5 marks, 2 from each module
Q II - 2 questions A and B of 15 marks from module I with choice to answer any one
Q III - 2 questions A and B of 15 marks from module II with choice to answer any one
Q IV - 2 questions A and B of 15 marks from module III with choice to answer any one
Q V - 2 questions A and B of 15 marks from module IV with choice to answer any one

2K6 IT 805(G) : ADVANCED INTERNET TECHNOLOGIES

3 hours lecture and 1 hour tutorial per week

Module I (12 hours)

Computer Networks and the Internet-What is Internet-Network edge-network core-ISPs and internet backbones-Delay and loss in packet switched networks. Layered architecture-principles of application layer protocols-DNS-Socket programming with TCP/UDP-multimedia network-Examples of multimedia applications-audio and video compression-accessing audio and video through a web server-sending multimedia from a streaming server to a helper application-RTSP-RTP-RTCP-RSVP.

Module II (12 hours)

Evolution of Internet, TCP/IP: addressing and routing. Internet applications: FTP, Telnet, Email, Chat. World Wide Web: HTTP protocol. Designing web pages: HTML, forms, CGI scripts and clickable maps, Perl. DHTML, XML. E-Commerce and security issues including symmetric and asymmetric key, encryption and digital signature, authentication. Emerging trends, Internet telephony, virtual reality over the web, etc. Intranet and extranet, firewall design issues.

Module III (14 hours)

Java fundamentals: Classes – Inheritance – Packages – Interfaces – Exceptions Handling – Multi threading - Applets

Server side Programming – Active server pages – Java server pages – Java Servlets: Servlet container – Exceptions – Sessions and Session Tracking – Using Servlet context – Dynamic Content Generation – Servlet Chaining and Communications.

Module IV (12 hours)

Simple applications – Internet Commerce – Database connectivity – Online databases – EDI Applications in Business – Plug-ins – Firewalls

Text books

1. James F Kurose, Computer Networking-A Top Down approach featuring Internet, Third dition, Pearson Education
2. D.Norton and H. Schildt, "Java 2: The complete Reference", Fifth Edition, TMH..

Reference Book

1 Elliotte Rusty Herold , "Java Network Programming", O'Reilly Publications, 3rd Edition, 2004.
2 Eric Ladd and Jim O'Donnell, et al, "USING HTML 4, XML, and JAVA1.2", PHI publications, 2003.
3. Jeffy Dwight, Michael Erwin and Robert Nikes "USING CGI", PHI Publications, 1997

Sessional work assessment

Assignments	2x10 = 20
2 tests	2x15 = 30
Total marks	= 50

University examination pattern

Q I - 8 short answer type questions of 5 marks, 2 from each module
Q II - 2 questions A and B of 15 marks from module I with choice to answer any one
Q III - 2 questions A and B of 15 marks from module II with choice to answer any one
Q IV - 2 questions A and B of 15 marks from module III with choice to answer any one
Q V - 2 questions A and B of 15 marks from module IV with choice to answer any one

2K6 IT 806(P) SEMINAR

4 hours per week

Each student is expected to give a seminar on a topic of current relevance in Information Technology –they have to refer published papers from standard journals-the seminar report must not be the reproduction of the original paper

Sessional work assessment	
Presentation	= 30 marks
Report	= 10 marks
Discussion	= 10 marks
Total marks	= 50 marks

2K6 IT 807(P) PROJECT & INDUSTRIAL TRAINING

6 hours per week

Each student group consisting of not more than five members is expected to develop a complete product- the design and development of which may include hardware and /or software- the students will present and demonstrate the project work before the committee - a detailed report is also to be submitted - sixty percent of total marks will be awarded by the guide and the remaining forty percent will be awarded by the evaluation committee. An industrial training of minimum one week should be carried out to have an industrial exposure to the students. A report on Industrial visit should be submitted also.

Sessional work assessment	
Design and Development	= 30 marks
Presentation & Demonstration	= 35 marks
Project Report	= 10 marks
Industrial visit Report	= 25 marks
Total marks	= 100 marks

2K6 IT 808 (P) : VIVA VOCE

There is only University examination for Viva Voce. Examiners will be appointed by the university for conducting the viva voce. The viva voce exam will be based on the subjects studied for the B.Tech course, mini project, project & Industrial training and seminar reports of the student - the relative weightages would be as follows

Sessional work assessment

Subjects	: 30
Mini project	: 20
Project & Industrial Training	: 30
Seminar	: 20
Total marks	: 100