

ELECTIVE – 3 (GROUP E)

Written by Administrator
Sunday, 08 November 2009 05:33 -

Multimedia Communications

Subject Code

:

	06EC841
IA Marks	

:

25

No. of Lecture Hrs/ Week

:

ELECTIVE – 3 (GROUP E)

Written by Administrator
Sunday, 08 November 2009 05:33 -

04

Exam Hrs

:

03

Total no. of Lecture Hrs.

:

52

Exam Marks

:

100

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PART - A

Unit - 1

Multimedia communications: Introduction, multimedia information representation, multimedia networks, multimedia applications, media types, communication modes, network types, multipoint conferencing, network QoS application QoS.

8 Hours

Unit - 2

Multimedia information representation: Introduction, digital principles, text, images, audio, video.

5 Hours

Unit - 3

Text and image compression: introduction, compression principles, text compression, image compression.

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6 Hours

Unit - 4 Introduction to audio and video compression, DPCM, ADPCM, APC, LPC, video compression, video compression principles, H.261, H.263, MPEG, MPEG-1, MPEG-2, and MPEG-4.

Audio and video compression: introduction, audio compression, DPCM, ADPCM, APC, LPC, video compression, video compression principles, H.261, H.263, MPEG, MPEG-1, MPEG-2, and MPEG-4.

7 Hours

PART – B

Unit - 5 Introduction to multimedia information networks, LANs, Ethernet, Token ring, Bridges, FDDI High-speed LANs, LAN protocol.

Multimedia information networks: Introduction, LANs, Ethernet, Token ring, Bridges, FDDI High-speed LANs, LAN protocol.

7 Hours

Unit - 6 Introduction to multimedia information networks, LANs, Ethernet, Token ring, Bridges, FDDI High-speed LANs, LAN protocol.

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Text book:

1. **Multimedia Communications: Applications, Networks, Protocols, and Standards** – Fred Halsall, , Pearson Education, Asia, Second Indian reprint 2002.

Reference Books:

1. **Multimedia Information Networking** –, Nalin K. Sharda, PHI, 2003.
2. **Multimedia Fundamentals: Vol 1-Media Coding and Content Processing** – Ralf Steinmetz, Klara Narstedt,
Pearson Education, 2004.
3. **Multimedia Systems Design** – Prabhat K. Andleigh, Kiran Thakrar, PHI, 2004.

ELECTIVE – 3 (GROUP E)

Written by Administrator
Sunday, 08 November 2009 05:33 -

Real Time Operating Systems

Subject Code

:

06TE842

IA Marks

:

25

No. of Lecture Hrs/ Week

:

04

Exam Hrs

ELECTIVE – 3 (GROUP E)

Written by Administrator
Sunday, 08 November 2009 05:33 -

:

03

Total no. of Lecture Hrs.

:

52

Exam Marks

:

100

Part - A

Unit - 1

ELECTIVE – 3 (GROUP E)

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Sunday, 08 November 2009 05:33 -

Definition and Classification of Real time systems: Concept of computer control, sequence, loop and supervisor control, centralized, hierarchical and distributed systems, Human Computer interface, hardware requirement for real time applications, specialized processors, interfaces, communications.

6 Hours

Unit - 2

Special features of languages for real time application, review of data types, concurrency, exception handling, coroutines, low-level facilities. Overview of Real time languages, modula 2 and Ada as a Real Time Languages.

6 Hours

Unit - 3

Real Time Operating Systems: (PSOS+V_x WORKS). Scheduling strategies, priority structures, Task management, Real Time Clock Handler, Code sharing, Resource Control, Inter task Communication and Control, Example of Creating and RTOS based on modula 2 kernel; Practical Real Time Operating Systems.

10 Hours

Unit - 4

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Introduction to Design of Real Time Systems, Specification, Preliminary Design, multitasking Approach, monitors, Rendezvous.

5 Hours

PART - B

Unit - 5

Development Methodologies: Yourdon, Methodology, Ward and Mellor Method, HATLEY & Pribhai method, MASXOT, PAISLEY System.

4 Hours

Unit - 6

Design analysis: Introduction, Petrinets, Analysis of Petri Nets, Scheduling problem Real Time Database, Real Time Vs General Purpose Databases, Transaction priorities and Aborts, Concurrency Control, Disk Scheduling Algorithms, Maintaining Serialization Consistency.

10 Hours

Unit - 7

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Fault tolerance techniques: Introduction, Faults, Errors and Failures, Fault types, Detection and Containment, Redundancy, Integrated Failure Handling.

6 Hours

Unit - 8

Reliability evaluation: Introduction, Parameters, Reliability Models for Hardware, Software Error Models.

5 Hours

Text Book:

1. **Real Time Systems** – C. M. Krishna, Kang. G. Shin, , Mc Graw Hill, India, 1997.

Reference Books:

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1. **Embedded systems** – Raj Kamal, , Tata Mc Graw Hill, India, 2005.
2. **Real-time systems design and analysis**– 2.Phillip. A. Laplante, , second edition, PHI, 2005.
3. **Real time systems** – Jane. W. S. Liu, , Pearson education, 2005.

PATTERN RECOGNITION

Subject Code

:

06TE843

IA Marks

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Written by Administrator
Sunday, 08 November 2009 05:33 -

:

25

No. of Lecture Hrs/ Week

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04

Exam Hrs

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52

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Exam Marks

:

100

PART - A

Unit - 1

Introduction: Applications of pattern recognition, statistical decision theory, image processing and analysis.

2 Hours

Unit - 2

Probability: Introduction, probability of events, random variables, joint distributions and densities, moments of random variables, estimation of parameters from samples, minimum risk estimators.

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8 Hours

Unit - 3

Statistical Decision Making: Introduction, Bayes' theorem, multiple features, conditionally independent features, decision boundaries, unequal costs of error, estimation of error rates, the leaving-one-out technique, characteristic curves, estimating the composition of populations.

12 Hours

Unit - 4

Nonparametric Decision Making: Introduction, histograms, kernel and window estimators, nearest neighbor classification techniques, adaptive decision boundaries, adaptive discriminant functions, minimum squared error discriminant functions, choosing a decision making technique.

9 Hours

Unit - 5

Clustering: Introduction, hierarchical clustering, partitional clustering.

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Text BOOK:

1. **Pattern Recognition and Image Analysis** – Earl Gose, Richard Johnsonbaugh and Steve Jost,, Prentice-Hall of India, 2003.

GSM

Subject Code

:

06EC844

IA Marks

:

25

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Written by Administrator
Sunday, 08 November 2009 05:33 -

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04

Exam Hrs

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03

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52

Exam Marks

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Sunday, 08 November 2009 05:33 -

100

PART - A

Unit - 1 Introduction, GSM frequency bands, GSM PLMN, Objectives of a GSM PLMN, GSM PLMN Services, GSM Subsystems, GSM Subsystems entities, GSM interfaces, The radio interface (MS to BSC), A interface (BTS to BSC), A interface (BSC to MSC), Interfaces between other GSM entities, Mapping of GSM layers onto OSI layers.

GSM architecture and interfaces: Introduction, GSM frequency bands, GSM PLMN, Objectives of a GSM PLMN, GSM PLMN Services, GSM Subsystems, GSM Subsystems entities, GSM interfaces, The radio interface (MS to BSC), A

bits interface (BTS to BSC), A interface (BSC to MSC), Interfaces between other GSM entities, Mapping of GSM layers onto OSI layers.

5 Hours

Unit - 2 Introduction, Radio link measurements, Radio link features of GSM, Dynamic power control, Discontinuous transmission (DTX), SFH, Future techniques to reduce interface in GSM, Channel borrowing, Smart antenna.

Radio link features in GSM systems: Introduction, Radio link measurements, Radio link features of GSM, Dynamic power control, Discontinuous transmission (DTX), SFH, Future techniques to reduce interface in GSM, Channel borrowing, Smart antenna.

5 Hours

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8 Hours

Unit - 6 Introduction, Wireless security requirements, Privacy of communications, Authentication requirements, System lifetime requirements, Physical requirements, SIM cards, Security algorithms for GSM, Token-based authentication, Token-based registration, Token-based challenge.

Privacy and security in GSM: Introduction, Wireless security requirements, Privacy of communications, Authentication requirements, System lifetime requirements, Physical requirements, SIM cards, Security algorithms for GSM, Token-based authentication, Token-based registration, Token-based challenge.

5 Hours

Unit - 7 Introduction, Tele traffic models, Call model, Topology model, Mobility in cellular / PCS networks, Application of a fluid flow model, Planning of a wireless network, Radio design for a cellular / PCS network, Radio link design, Coverage planning, Design of a wireless system, Service requirements, Constraints for hardware implementation, Propagation path loss, System requirements, Spectral efficiency of a wireless

Planning and design of a GSM wireless network: Introduction, Tele traffic models, Call model, Topology model, Mobility in cellular / PCS networks, Application of a fluid flow model, Planning of a wireless network, Radio design for a cellular / PCS network, Radio link design, Coverage planning, Design of a wireless system, Service requirements, Constraints for hardware implementation, Propagation path loss, System requirements, Spectral efficiency of a wireless

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system, Receiver sensitivity and link budget, Selection of modulation scheme, Design of TDMA frame, Relationship between delay spread and symbol rate, Design example for a GSM.

10 Hours

UNIT - 8

Management of GSM networks: Introduction, Traditional approaches to NM, TMN, TMN layers, TMN nodes, TMN interface, TMN management services, Management requirements for wireless networks, Management of radio resources, Personal mobility management, Terminal mobility, Service mobility management, Platform-centered management, SNMP, OSI systems management, NM interface and functionality, NMS functionality, OMC functionality, Management of GSM network, TMN applications, GSM information model, GSM containment tree, Future work items.

8 Hours

Text Book:

1. **Principles of Applications of GSM** – Vijay K. Garg & Joseph E. Wilkes, Pearson education, 1999.

Reference BookS:

1. Z. Zvonar Peter Jung.
2. **GSM: Evolution towards 3rd Generation Systems**, (Editor), Karl Kammerlander Springer; 1st edition 1998.

3. **The Creation of Global Mobile Communication** – [Friedhelm Hillebrand](#), GSM & UMTS, John Wiley & Sons; 2001.

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Written by Administrator
Sunday, 08 November 2009 05:33 -

AD HOC WIRELESS NETWORKS

Subject Code

:

06EC845

IA Marks

:

25

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04

Exam Hrs

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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.

7 Hours

PART - B

Unit - 5 [Placeholder text]

Hybrid routing protocol, Routing protocols with effective flooding mechanisms, Hierarchical routing protocols, Power aware routing protocols.

6 Hours

Unit - 6 [Placeholder text]

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.

7 Hours

Unit - 7 [Placeholder text]

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Reference Books:

1. **Ad hoc wireless Networks** – Ozan K. Tonguz and Gianguigi Ferrari, Wiley.
2. **Ad hoc wireless Networking**– Xiuzhen Cheng, Xiao Hung, Ding-Zhu Du, Kluwer Academic publishers.

OPTICAL COMPUTING

Subject Code

:

06EC846

IA Marks

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Written by Administrator
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:

25

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Unit - 7

Optical Matrix Processing: Introduction, Multiplication, and Multiplication using convolution, Matrix operations, Cellular logic architecture, and Programmable logic array.

6 Hours

Unit - 8

Artificial Intelligent computations: Introduction, Neural networks, Associative memory, Optical implementations, Interconnections, Artificial Intelligence.

7 Hours

Text book :

- Optical Computing An Introduction** – Mohammed A. Karim – John Wiley & Sons,

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1992.

Reference Books:

1. **Optical Signal Processing** – Vanderlugnt John willy & sons NY 1992.
2. **Signal Processing in Optics** – Bradly G Boore Oxford University Press 1998.