

## ELECTIVE –5 (GROUP E)

Written by Administrator  
Saturday, 07 November 2009 06:24 -

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### Multimedia Communications

Subject Code		:
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IA Marks		: 25
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No. of Lecture Hrs/Week		: 04
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Exam Hours		: 03
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Total no. of Lecture Hrs.		: 52
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Exam Marks		: 100
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### 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.

Real Time Operating Systems

Subject Code		:
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IA Marks		: 25
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No. of Lecture Hrs/Week		: 04
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Exam Hours		: 03
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Total no. of Lecture Hrs.		: 52
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Exam Marks		: 100
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Part - A

Unit - 1

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

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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<sub>x</sub> 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

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



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5 Hours

Part - B

Unit - 5

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

4 Hours

Unit - 6

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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

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.

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5 Hours

### **Text Book:**

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

### **Reference Books:**

1. **Embedded Systems**, Raj Kamal, Tata Mc Graw Hill, India, 2008.
2. **Real-Time Systems Design and Analysis**, Phillip. A. Laplante, second edition, PHI, 2005.
3. **Real Time Systems**, Jane. W. S. Liu, Pearson education, 2005.

**OPTICAL NETWORKS**

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### PART - A

#### Unit - 1

**Introduction to optical networks:** Telecommunication networks, First generation optical networks, Multiplexing techniques, Second generation optical networks, System and network evolution. Non linear effects SPM, CPM, four wave mixing, Solitons.







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**7 Hours**

### **Text Book:**

1. **Optical networks: A practical perspective** Kumar Sivarajan and Rajiv Ramaswamy:  
Morgan Kauffman  
1998.

### **Reference BOOKS:**

1. **Optical Communication Networks**: Biswajit Mukherjee: TMG 1998.
2. **Optical Networks**, Ulysees Black: Pearson education 2007.

**GSM**



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### PART - A

## Unit - 1

**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.









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### Text Book:

1. **“Principles of Applications of GSM”**, Vijay K. Garg & Joseph E. Wilkes, Pearson education/ PHI, 1999.

### Reference Books:

1. **GSM: Evolution towards 3<sup>rd</sup> Generation Systems**, (Editor), Z. Zvonar Peter Jung, Kammerlander Springer; 1<sup>st</sup>

edition

1998

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

## ADHOC WIRELESS NETWORKS









**Unit - 6**

**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**

**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.

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**6 Hours**

**Unit - 8**

**Quality of service in Ad hoc wireless Networks:** Introduction, Issues and challenges in



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### OPTICAL COMPUTING

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## PART - A

### Unit - 1

**Mathematical and Digital Image Fundamentals:** Introduction, Fourier Transform, discrete Fourier transform, basic diffraction theory, Fourier transform property of lens , sampling and quantization, image enhancement, image restoration.

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### 6 Hours

### Unit - 2

**Liner Optical Processing:** Introduction, photographic film, spatial filtering using binary filters, holography, inverse filtering, Deblurring.

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1992.

### **Reference Books:**

1. **Optical Signal Processing** by Vanderlugt John willy & sons NY 1992.

**Signal Processing in Optics** - Bradly G Boore Oxford University Press 1998