

Multimedia Computing and Technology

BEG376CO

Year: III

Semester: II

Teaching Schedule Hours/Week			Examination Scheme				
Theory	Tutorial	Practical	Internal		Final		Total
3	1	3/2	Theory	Practical	Theory	Practical	125
			20	25	80	-	

Course Objectives

To introduce the technologies, concept and techniques associated with the development of multimedia system.

- 1. Multimedia System** **4 hours**
 - 1.1 Introduction concept and structure
 - 1.2 media aspect properties
 - 1.3 Definition of multimedia system.
 - 1.4 Media combination and independence
 - 1.5 Traditional data stream characteristics introduction units.

- 2. Sound and Audio** **4 hours**
 - 2.1 Basic sound concept representation and formats, basic music (MDI) concepts devices
 - 2.2 Message
 - 2.3 Standards and software speech: generation analysis and transformation.

- 3. Image and Graphics** **4 hours**
 - 3.1 Basic image graphics representation and formats
 - 3.2 Image processing fundamentals Synthesis analysis and transformation.

- 4. Video and Animation** **2 hours**
 - 4.1 Basic Video concepts representation and format
 - 4.2 Basic concept of animation,
 - 4.3 Animation Language, Control and transformation.

- 5. Data compression** **6 hours**
 - 5.1 Data compression and coding fundamentals
 - 5.2 Basic data compression, techniques, data compression
 - 5.3 Coding standard JPEG MPEG and DVI

6. Optical Storage Media	3 hours
6.1 Basic technology	
6.2 Video disk fundamentals	
6.3 CD audio, CD ROM and extended Architecture	
6.4 Principles of CD Write-Once and CD Magneto Capital.	
7. Documentation Hypertext and MHEG	4 hours
7.1 Document architecture and multimedia integration	
7.2 Hypertext, hypermedia and multimedia	
7.3 Hypermedia System: Architecture, nodes and pointers document	
7.4 Architecture: SGML and ODA MEG.	
8. Advanced Technologies in Multimedia	
8.1 Multimedia Operation System	4 hours
8.1.1. Introduction	
8.1.2. Resource management	
8.1.3. Resource requirement allocation scheme	
8.1.4. Continuous media resource model	
8.1.5. Process management	
8.1.6. Real-time processing requirement	
8.1.7. Real-time scheduling	
8.1.8. Earliest deadline first algorithm	
8.1.9. Rate monotonic algorithm	
8.1.10. System Architecture.	
8.2 Multimedia communication system	4 hours
8.2.1. Multimedia communication architecture	
8.2.2. Application subsystem	
8.2.3. Transport subsystem	
8.2.4. Quality of service and resource management	
8.3 Abstraction of programming	4 hours
8.3.1. Abstraction levels	
8.3.2. Libraries system software	
8.3.3. Toolkits Higher programming language	
8.3.4. Object-oriented approaches	
8.4 Abstraction of programming Synchronization	4 hours
8.4.1. Introduction	
8.4.2. Notion of synchronization	
8.4.3. Presentation requirements	
8.4.4. Reference model for multimedia synchronization	
8.4.5. Synchronization specification	
9. Multimedia Application	2 hours
9.1 Video-On demand	
9.2 Video Conferencing	
9.3 Educational Application, Industrial Application	
9.4 Information System, Multimedia archives & digital libraries, Media editors.	

Laboratory Exercises

1. Integration of multimedia (Audio, Speech, and Music Video, Static and, Movie, Animation Programming etc.)
2. Image Enhancement in Photoshop.
3. 2D & 3D animation in OpenGL/Maya/Flash/C++
4. Image Compression Algorithm :JPEG
5. Real Time Scheduling Algorithm

References

1. Steinmet, R. Nahrstedt K, Multimedia Computing Communications and applications, Pearson Education asia 2001, ISBN 81-7808-319-1
2. Andleigh P. Thakrar, Multimedia System Design Prentice Hall, NJ 1996
3. Gibbs S.J. Tsichritzis, D.C. Multimedia Programming objects, Environment and frameworks Addison-wesley-1995
4. Koegel-Buford J.F. Multimedia System Addison-Wesley, 1994
5. J.Jeffcoate, Multimedia in Practise: Technology &Application, PHI

Marks Distribution

Chapter	Hrs	Marks
1	4	8
2	4	8
3	4	8
4	2	4
5	6	12
6	3	4
7	4	4
8	16	28
9	2	4
Total		80