UNIVERSITAS BAKRIE

LECTURER GUIDANCE and DETAIL DESCRIPTION

Subject : MULTIMEDIA SYSTEM
Code Number : TIF311
Program : S-1 Teknik Informatika
Credit Semester : 3 (Three)

Studying and Learning Process

a. The lecturers : Explain, give examples, discuss, give assignments / homework

b. The students : Listen, study, active in discussion and do the assignments / homework, presentation

Learning and Teaching Guidance for General Objective

1 Pre-Test
2 Brainstorming
3 Evaluation

Types of delivery the Specific Objectives

1 Introduction
2 Concept
3 Discussion
4 Conclusion
5 Role Play

Media :
a. LCD Projector
b. White Board
c. Text Book
d. Handout
e. Note book

Evaluation :
a. Mid-Term Test (UTS) = 20%
b. Final Test (UAS) = 30%
c. Assignments/Quiz = 20%
d. Presentations = 20%
e. Class participation = 10%

Main Reference :
[1] Ze-Nian Li, Mark S. Drew, "Fundamentals of Multimedia", Prentice-Hall, 2004

Additional :
[2] Yao Wang, Jorn Ostermann, Ya-Qin Zhang, "Video Processing and Communications", Prentice Hall, 2002

[3] K. Rao, A. Bojkovic and D. Milovanovic, "Introduction to Multimedia Communication: Application, Middleware & Networking", Wiley Intersc. Publisher, 2006

Session	General Objective (GO)	No	Specific Objective (SO)	Directions: Focus of delivery	Exercise: Section	Exercise: No	Level of Difficulty	Lecture's Remarks
MULTIMEDIA SYSTEMS								
I	Understanding the concept of multimedia, its history and various applications that uses multimedia	1	Understanding the terminology and description of informatics and multimedia	Concept & Discussion	Ch. 1	3	Easy	Exercise Type: Problem
		2	Understanding the components of multimedia	Concept & Discussion	Ch. 1	4	Easy	
		3	Understanding hypermedia	Concept & Discussion	Ch. 1	5	Medum	
		4	Understanding WWW	Concept & Discussion	Ch. 1	6	Medum	
		5	Knowing various research topics in multimedia informatics	Concept & Discussion				
II	Understanding the basic processing of audio signals	1	Understanding Human auditory system	Concept & Discussion	Ch. 6	1	Easy	Exercise Type: Problem
		2	Understanding the concept of Sampling	Concept & Discussion	Ch. 6	6	Easy	
		3	Understanding Digitization of sound	Concept & Discussion	Ch. 6	9	Easy	
		4	Knowing quality measurement of audio signals	Concept & Discussion	Ch. 6	10	Medum	
III	Understanding the basic concept of audio compression	1	Understanding CD Audio	Concept & Discussion	Ch. 6	13	Easy	Exercise Type: Problem
		2	Understandig the Basic PCM (Pulse Code Modulation)	Concept & Discussion	Ch. 6	14	Easy	Practical problems / projects
		3	Understanding Adaptive PCM	Concept & Discussion	Ch. 13	5	Medum	
		4	Perceptual coding	Concept & Discussion	Ch. 14	4	Easy	
		5	MPEG Audio	Concept & Discussion	Ch. 14	8	Medum	
IV	Understanding the fundamental mechanics of the human visual system (HVS)	1	Structure of the human eye	Concept & Discussion	Ch. 4.1	1	Easy	Exercise Type: Problem
		2	Image formation in the eye	Concept & Discussion	Ch. 4.1	2	Easy	
		3	Brightness adaptation and discrimination	Concept & Discussion	Ch. 4.1	5	Easy	
		4	Contrast	Concept & Discussion	Ch. 4.1	6	Easy	
		5	Masking	Concept & Discussion	Ch. 4.1	7	Medum	
V	Introducing Image/Video Data representations	1	Understanding image data types	Concept & Discussion	Ch. 3.1	1	Easy	Exercise Type: Problem
		2	Understanding file formats to represent images	Concept & Discussion	Ch. 3.2	3	Easy	
		3	Understanding various types of video signals	Concept & Discussion	Ch. 5.1	1	Easy	
		4	Understanding analog video	Concept & Discussion	Ch. 5.2	3	Easy	
		5	Understanding digital video	Concept & Discussion	Ch. 5.3	4	Medum	
				Concept & Discussion	Ch. 5	6	Medum	
					Ch. 5	10	Medum	
VI	Understanding basic compression	1	Introducing Lossless compression algorithm	Concept & Discussion	Ch. 7.1-7.2	1, 2	Easy	Exercise Type: Problem
		2	Understanding RLC, VLC	Concept & Discussion	Ch. 7.3-7.4	3, 5	Easy	
		3	Understanding Huffman coding, arithmetic coding	Concept & Discussion	Ch. 7.6	6	Medum	
		4	Introducing Lossy compression algorithms	Concept & Discussion	Ch. 8.1-8.2	4	Easy	
		5	Understanding Rate distortion theory	Concept & Discussion	Ch. 8.3	5	Easy	
		6	Understanding Quantization	Concept & Discussion	Ch. 8.4	6	Medum	
		7	Understanding Transform coding	Concept & Discussion	Ch. 8.5	7	Medum	
VII	Review to go over materials before mid exam and Project Discussions			Concept, discussion				
	MID SEMESTER TEST							
VIII	Understanding Image Compression Standard	1	Understanding image compression basic	Concept & Discussion	Ch. 9.1	1, 2	Easy	Exercise Type: Problem
		2	Understanding JPEG Standard	Concept & Discussion	Ch. 9.1	4	Easy	Practical problems / projects
		3	Understanding JPEG2000 Standard	Concept & Discussion	Ch. 9.2	5,6	Easy	
		4	Understanding other image compression standards	Concept & Discussion	Paper articles		Medum	
IX	Understanding Basic Video Compression Standards	1	Understanding video compression techniques	Concept & Discussion	Ch. 10.1	1, 3	Easy	Exercise Type: Problem
		2	Understanding motion compensation	Concept & Discussion	Ch. 10.2	7	Easy	
		3	Understanding methods for searching motion vectors	Concept & Discussion	Ch. 10.3	9	Medum	
		4	Understanding video coding standards: MPEG 1/2/4	Concept & Discussion	Ch. 11.2-3	1, 3, 4, 5	Easy	
		5	Understanding Object based video coding in MPEG4	Concept & Discussion	Ch. 12.1-4	1, 3	Easy	
		6	Understanding video coding standards: H.261, H.263, H.264	Concept & Discussion	Ch. 10.4-5, 12.5	4, 7, 8	Medum	
X	Understanding advanced topics in video coding	1	Understanding AVC	Concept & Paper Discussion	Paper articles			Exercise Type: Practical
		2	Understanding HEVC	Concept & Paper Discussion	Paper articles			Practical problems / projects
		3	Understanding Watermarking	Concept & Paper Discussion	Paper articles			
		4	Understanding Segmentation	Concept & Paper Discussion	Paper articles			
		5	Understanding Streaming	Concept & Paper Discussion	Paper articles			
XI	Understanding Error Control in Multimedia Communications Systems	1	Understanding Error Resilience techniques: data partitioning, FEC	Concept & Paper Discussion	Paper articles			Exercise Type: Problem
		2	Understanding Error Concealment methods	Concept & Paper Discussion	Paper articles			
		3	Understanding congestion control	Concept & Paper Discussion	Paper articles			
				Concept & Paper Discussion	Paper articles			
				Concept & Paper Discussion	Paper articles			
XII	Understanding network layer support for multimedia communication systems	1	Knowing network function to support multimedia system	Concept & Discussion	Ch. 15	1	Easy	Exercise Type: Problem
		2	Analyzing network traffic in multimedia systems	Concept & Discussion	Ch. 15	5	Easy	
		3	Understanding QoS	Concept & Discussion	Ch. 15	6	Easy	
		4	Understanding Access and Core Broadband Network	Concept & Discussion	Ch. 15	8	Medum	
		5	Understanding Content Delivery Network	Concept & Discussion	Ch. 15	10	Medum	
XIII	Understanding multimedia networking	1	Understanding Internet protocols to support multimedia networking	Concept & Discussion	Ch. 16	1	Easy	Exercise Type: Problem
		2	Knowing different types of multimedia applications over the network	Concept & Discussion	Ch. 16	4	Easy	
		3	Understanding RTP, RTCP	Concept & Discussion	Ch. 16	5	Medum	
		4	Understanding audio and video streaming	Concept & Discussion	Ch. 16	7	Easy	
					Ch. 16	9	Medum	
XIV	Review to go over materials before final exam and Project Final Presentation			Concept, discussion				

FINAL SEMESTER TEST

Jakarta, 1 April 2016

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