	Universitas Negeri Surabaya Faculty of Engineering , Information Technology Education Undergraduate Study Program	**Document Code**

SEMESTER LEARNING PLAN

Courses	CODE	Course Family	Credit Weight			SEMESTER	Compilation Date
Multimedia Compression Techniques	8320703096		**T=3**	**P=0**	**ECTS=4.77**	7	July 18, 2024

AUTHORIZATION	SP Developer	Course Cluster Coordinator	Study Program Coordinator
	.....	.....	Drs. Bambang Sujatmiko, M.T.

Learning model	**Project Based Learning**
Program Learning Outcomes (PLO)	**PLO study program that is charged to the course**
	Program Objectives (PO)
	PLO-PO Matrix

	P.O

PO Matrix at the end of each learning stage (Sub-PO)

P.O	Week															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

Short Course Description	Study of theory and mastery of skills regarding audio-visual media compression, including the ability to build multimedia systems through understanding the concepts of the constituent sub-systems. Lectures are generally divided into 7 (seven) topics, consisting of: (i) Introduction to Multimedia, (ii) Multimedia Content Production, (iii) Multimedia Data Representation, (iv) Multimedia Data Storage and Retrieval, (v) Multimedia Networking, (vi) Multimedia Distribution, and (vii) Multimedia Security. The lecture will begin by providing knowledge about the basics of Multimedia, such as definitions, types of multimedia, applications, including an initial overview of the material that will be provided during the lecture. Furthermore, students will be equipped with knowledge about the general description of the multimedia content production process, including the types of resources needed, both software, hardware and human resources. Next, students are introduced to the types of multimedia data compression and their formats, both for text, sound (speech/voice), audio/music, static images (still images) and moving images (video). After understanding various multimedia data representations, students are given knowledge about multimedia data storage and retrieval techniques, which include multimedia databases, as well as data search and retrieval techniques. Furthermore, students will be equipped with knowledge about networks and multimedia data distribution, such as multimedia network design and various distribution methods. As the end of the subject, students will be introduced to multimedia data protection and security, such as watermarking techniques and digital rights management (DRM). After each material, students are asked to search and analyze international articles which are divided into the 7 subjects above.
References	**Main :**

1. Salomon, D, 2007, Data Compression, The Complete Reference, 4th edition, Springer
2. Sayood, K, 2006, Introduction to Data Compression, Morgan Kaufmann Pub
3. Guojun Lu, 1999, Multimedia Database Management Systems

Supporters:	
Supporting lecturer	Setya Chendra Wibawa, S.Pd., M.T. Martini Dwi Endah Susanti, S.Kom., M.Kom.

Week-	Final abilities of each learning stage (Sub-PO)	Evaluation		Help Learning, Learning methods, Student Assignments, [Estimated time]		Learning materials [References]	Assessment Weight (%)
		Indicator	Criteria & Form	Offline (*offline*)	Online (*online*)		

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1	Can understand the concept and types of multimedia	a. Definition. b. Types of multimedia c. Multimedia applications d. Fields of multimedia application Coverage of lecture material		Presentation, group discussion 3 X 50			0%
2	Knowing the production of Multimedia Content	1. Students are able to name and explain types of multimedia content. 2. Students can name and explain the types of multimedia content production resources such as software, hardware and human resources		3 X 50			0%
3	Know Advanced Multimedia Content production	Students can understand the stages in producing multimedia content.		3 X 50			0%
4	Knowing Multimedia Data Representation	Students know and are able to compress text data using various methods.		3 X 50			0%
5	Know advanced Multimedia Data Representation	Students know and are able to compress voice and audio data and their formats.		Presentation, group discussion and reflection 3 X 50			0%
6	Know advanced Multimedia Data Representation	Students know and are able to compress static image and moving image data and their formats		3 X 50			0%
7	Advanced Multimedia Data Storage and Retrieval	Students are able to design and explain databases used to store multimedia data.		Presentation, group discussion and reflection 3 X 50			0%
8	Advanced Multimedia Data Storage and Retrieval	Students are able to explain methods of searching and retrieving multimedia data. (eg attribute-based, context-based)		Presentation, group discussion and reflection 3 X 50			0%
9	UTS			3 X 50			0%

10	Multimedia Network	Students are able to differentiate and explain multimedia networks using cables and wireless. They can explain the standardization model for multimedia networks, as well as the advantages and disadvantages of these networks.		3 X 50			0%
11	Multimedia Networks (continued)	Students are able to explain the need for QoS in multimedia networks. 2. Students are able to design wired and wireless multimedia networks for multimedia. 3. Students are able to name the types of equipment or multimedia network access media.		Presentation, group discussion and reflection 3 X 50			0%
12	Multimedia Distribution	Students are able to explain and differentiate techniques in multimedia data distribution.		3 X 50			0%
13	Multimedia Distribution (cont.)	Students are able to explain and differentiate techniques in multimedia data distribution.	**Criteria:** Students are able to explain and differentiate techniques in multimedia data distribution.	Presentation, group discussion and reflection 3 X 50			0%
14	Multimedia Security	Students are able to explain and differentiate methods of protecting and securing multimedia data using data hiding between Steganography and Watermaking.		3 X 50			0%
15	Multimedia Security (continued)	Students are able to explain and differentiate methods of protecting and securing multimedia data between Encryption and DRM.		3 X 50			0%
16	UTS			3 X 50			0%

Evaluation Percentage Recap: Project Based Learning

No	Evaluation	Percentage
		0%

Notes

1. **Learning Outcomes of Study Program Graduates (PLO - Study Program)** are the abilities possessed by each Study Program graduate which are the internalization of attitudes, mastery of knowledge and skills according to the level of their study program obtained through the learning process.
2. **The PLO imposed on courses** are several learning outcomes of study program graduates (CPL-Study Program) which are used for the formation/development of a course consisting of aspects of attitude, general skills, special skills and knowledge.
3. **Program Objectives (PO)** are abilities that are specifically described from the PLO assigned to a course, and are specific to the study material or learning materials for that course.
4. **Subject Sub-PO (Sub-PO)** is a capability that is specifically described from the PO that can be measured or observed and is the final ability that is planned at each learning stage, and is specific to the learning material of the course.
5. **Indicators for assessing** ability in the process and student learning outcomes are specific and measurable statements that identify the ability or performance of student learning outcomes accompanied by evidence.
6. **Assessment Criteria** are benchmarks used as a measure or measure of learning achievement in assessments based on predetermined indicators. Assessment criteria are guidelines for assessors so that assessments are consistent and unbiased. Criteria can be quantitative or qualitative.
7. **Forms of assessment:** test and non-test.
8. **Forms of learning:** Lecture, Response, Tutorial, Seminar or equivalent, Practicum, Studio Practice, Workshop Practice, Field Practice, Research, Community Service and/or other equivalent forms of learning.
9. **Learning Methods:** Small Group Discussion, Role-Play & Simulation, Discovery Learning, Self-Directed Learning, Cooperative Learning, Collaborative Learning, Contextual Learning, Project Based Learning, and other equivalent methods.
10. **Learning materials** are details or descriptions of study materials which can be presented in the form of several main points and sub-topics.
11. **The assessment weight** is the percentage of assessment of each sub-PO achievement whose size is proportional to the level of difficulty of achieving that sub-PO, and the total is 100%.
12. TM=Face to face, PT=Structured assignments, BM=Independent study.