	Universitas Negeri Surabaya Faculty of Engineering, Electrical Engineering Undergraduate Study Program	Document Code

SEMESTER LEARNING PLAN

Courses	CODE	Course Family	Credit Weight			SEMESTER	Compilation Date
Multimedia Data and Signal Processing Practicum	2020101384	Compulsory Study Program Subjects	T=1	P=0	ECTS=1.59	5	April 10, 2023

AUTHORIZATION	SP Developer	Course Cluster Coordinator	Study Program Coordinator
	Dr. Lusia Rakhmawati, S.T., M.T.	Prof. Dr. I Gusti Putu Asto B., M.T.	Dr. Lusia Rakhmawati, S.T., M.T.

Learning model	**Project Based Learning**

Program Learning Outcomes (PLO)

PLO study program that is charged to the course

Program Objectives (PO)

PO - 1	Able to apply knowledge of mathematics and multimedia signals to gain a thorough understanding of engineering principles.
PO - 2	Able to design multimedia signal processing applications to be applied in the field of electrical engineering
PO - 3	Able to communicate effectively both orally and in writing in presenting the results of multimedia signal processing
PO - 4	Able to plan, complete and evaluate tasks related to multimedia signal processing.
PO - 5	Able to apply engineering principles, identify, formulate and analyze data/information to solve problems in the fields of Telecommunications and intelligent computing

PLO-PO Matrix

P.O
PO-1
PO-2
PO-3
PO-4
PO-5

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
PO-1																
PO-2																
PO-3																
PO-4																
PO-5																

Short Course Description	This course discusses digital images and videos starting from acquisition, storage, compression, sending and processing such as repair, restoration, recognition and visualization of objects from digital images or videos. This course is presented in the form of theory and practice

References

Main :

1. Ze Nian Li, Mark S drew. Fundamentals of Multimedia. 2004 Person Lars W. DSP Integrated Circuit. 1999. Academi Press Ze Nian Li, Mark S drew. Fundamentals of Multimedia. 2004 Person Lars W. DSP Integrated Circuit. 1999. Academi Press

Supporters:

1. Parag Havaldar and Gérard Medioni, MULTIMEDIA SYSTEMS: ALGORITHMS, STANDARDS, AND INDUSTRY PRACTICES, Course technology: USA

Supporting lecturer	Dr. Lusia Rakhmawati, S.T., M.T.

Week-	Final abilities of each learning	Evaluation	Help Learning, Learning methods, Student Assignments, [Estimated time]	Learning materials [References]	Assessment Weight (%)

	stage (Sub-PO)	Indicator	Criteria & Form	Offline (*offline*)	Online (*online*)		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1	Students are able to understand an introduction to Multimedia	1. Students are able to understand what multimedia is 2. Students are able to understand Multimedia and Hypermedia 3. Students are able to understand the World Wide Web 4. Students are able to understand various types of multimedia software	**Criteria:** 1. The assessment criteria are carried out by looking at aspects: 2. 1. Participation: carried out by observing student activities (weight 2) 3. 2. UTS: carried out with an assessment during the middle of the semester (weight 2) 4. 3. UAS: carried out every semester to measure all indicators (weight 3) 5. 4. Task: carried out on each indicator (weight 3) 6. Student Final Grade: 7. Participation Score (2)%2 Lever Score (3)%2 UTS Score (2)%2 UAS Score (3) divided by 10 **Form of Assessment** : Participatory Activities	Discussion and Questions and Answers Presentation 2 X 50		**Material:** Meeting material 1 **References:** *Ze Nian Li, Mark S drew. Fundamentals of Multimedia. 2004 Person Lars W. DSP Integrated Circuits. 1999. Academi Press* *Ze Nian Li, Mark S drew. Fundamentals of Multimedia. 2004 Person Lars W. DSP Integrated Circuits. 1999. Academic Press*	5%
2	Students are able to understand an introduction to Multimedia	1. Students are able to understand what multimedia is 2. Students are able to understand Multimedia and Hypermedia 3. Students are able to understand the World Wide Web 4. Students are able to understand various types of multimedia software	**Criteria:** 1. The assessment criteria are carried out by looking at aspects: 2. 1. Participation: carried out by observing student activities (weight 2) 3. 2. UTS: carried out with an assessment during the middle of the semester (weight 2) 4. 3. UAS: carried out every semester to measure all indicators (weight 3) 5. 4. Task: carried out on each indicator (weight 3) 6. Student Final Grade: 7. Participation Score (2)%2 Lever Score (3)%2 UTS Score (2)%2 UAS Score (3) divided by 10 **Form of Assessment** : Participatory Activities	Discussion and Questions and Answers Presentation 2 X 50		**Material:** Meeting material 2 **Bibliography:** *Parag Havaldar and Gérard Medioni, MULTIMEDIA SYSTEMS: ALGORITHMS, STANDARDS, AND INDUSTRY PRACTICES, Course technology: USA*	5%

3	Students are able to understand multimedia equipment and writing	1. students are able to understand multimedia writing 2. Students are able to understand the use of editing and writing equipment in Multimedia 3. students are able to understand VRML	**Criteria:** 1. The assessment criteria are carried out by looking at aspects: 2. 1. Participation: carried out by observing student activities (weight 2) 3. 2. UTS: carried out with an assessment during the middle of the semester (weight 2) 4. 3. UAS: carried out every semester to measure all indicators (weight 3) 5. 4. Task: carried out on each indicator (weight 3) 6. Student Final Grade: 7. Participation Score (2)%2 Lever Score (3)%2 UTS Score (2)%2 UAS Score (3) divided by 10 **Form of Assessment** : Participatory Activities	Questions and answersDiscussionPresentation 2 X 50		**Material:** Meeting material 3 **References:** *Ze Nian Li, Mark S drew. Fundamentals of Multimedia. 2004 Person Lars W. DSP Integrated Circuits. 1999. Academi Press Ze Nian Li, Mark S drew. Fundamentals of Multimedia. 2004 Person Lars W. DSP Integrated Circuits. 1999. Academic Press*	5%
4	Students are able to understand multimedia equipment and writing	1. students are able to understand multimedia writing 2. Students are able to understand the use of editing and writing equipment in Multimedia 3. students are able to understand VRML	**Criteria:** 1. The assessment criteria are carried out by looking at aspects: 2. 1. Participation: carried out by observing student activities (weight 2) 3. 2. UTS: carried out with an assessment during the middle of the semester (weight 2) 4. 3. UAS: carried out every semester to measure all indicators (weight 3) 5. 4. Task: carried out on each indicator (weight 3) 6. Student Final Grade: 7. Participation Score (2)%2 Lever Score (3)%2 UTS Score (2)%2 UAS Score (3) divided by 10 **Form of Assessment** : Participatory Activities	Questions and answersDiscussionPresentation 2 X 50		**Material:** Meeting material 4 **Bibliography:** *Parag Havaldar and Gérard Medioni, MULTIMEDIA SYSTEMS: ALGORITHMS, STANDARDS, AND INDUSTRY PRACTICES, Course technology: USA*	0%

5	Students are able to understand graphs and image representation of data	1. Graphic / Image data type 2. Various file formats	**Criteria:** 1. The assessment criteria are carried out by looking at aspects: 2. 1. Participation: carried out by observing student activities (weight 2) 3. 2. UTS: carried out with an assessment during the middle of the semester (weight 2) 4. 3. UAS: carried out every semester to measure all indicators (weight 3) 5. 4. Task: carried out on each indicator (weight 3) 6. Student Final Grade: 7. Participation Score (2)%2 Lever Score (3)%2 UTS Score (2)%2 UAS Score (3) divided by 10 **Form of Assessment** : Participatory Activities	Discussion and question and answer presentation 2 X 50		**Material:** Meeting material 5 **Bibliography:** *Parag Havaldar and Gérard Medioni, MULTIMEDIA SYSTEMS: ALGORITHMS, STANDARDS, AND INDUSTRY PRACTICES, Course technology: USA*	5%
6	Students are able to understand graphs and image representation of data	1. Graphic / Image data type 2. Various file formats	**Criteria:** 1. The assessment criteria are carried out by looking at aspects: 2. 1. Participation: carried out by observing student activities (weight 2) 3. 2. UTS: carried out with an assessment during the middle of the semester (weight 2) 4. 3. UAS: carried out every semester to measure all indicators (weight 3) 5. 4. Task: carried out on each indicator (weight 3) 6. Student Final Grade: 7. Participation Score (2)%2 Lever Score (3)%2 UTS Score (2)%2 UAS Score (3) divided by 10 **Form of Assessment** : Participatory Activities	Discussion and question and answer presentation 2 X 50		**Material:** Meeting material 6 **Bibliography:** *Parag Havaldar and Gérard Medioni, MULTIMEDIA SYSTEMS: ALGORITHMS, STANDARDS, AND INDUSTRY PRACTICES, Course technology: USA*	5%

7	Students are able to understand and study coloring in images and videos	Students are able to learn various coloring methods Students are able to study coloring models on images Students are able to study coloring models on videos	**Criteria:** 1. The assessment criteria are carried out by looking at aspects: 2. 1. Participation: carried out by observing student activities (weight 2) 3. 2. UTS: carried out with an assessment during the middle of the semester (weight 2) 4. 3. UAS: carried out every semester to measure all indicators (weight 3) 5. 4. Task: carried out on each indicator (weight 3) 6. Student Final Grade: 7. Participation Score (2)%2 Lever Score (3)%2 UTS Score (2)%2 UAS Score (3) divided by 10 **Form of Assessment** : Participatory Activities	Discussion and questions and answers Presentation 2 X 50		**Material:** Meeting material 7 **References:** *Ze Nian Li, Mark S drew. Fundamentals of Multimedia. 2004 Person Lars W. DSP Integrated Circuits. 1999. Academi Press* *Ze Nian Li, Mark S drew. Fundamentals of Multimedia. 2004 Person Lars W. DSP Integrated Circuits. 1999. Academic Press*	5%
8	Students are able to understand and study coloring in images and videos	Students are able to learn various coloring methods Students are able to study coloring models on images Students are able to study coloring models on videos	**Criteria:** 1. The assessment criteria are carried out by looking at aspects: 2. 1. Participation: carried out by observing student activities (weight 2) 3. 2. UTS: carried out with an assessment during the middle of the semester (weight 2) 4. 3. UAS: carried out every semester to measure all indicators (weight 3) 5. 4. Task: carried out on each indicator (weight 3) 6. Student Final Grade: 7. Participation Score (2)%2 Lever Score (3)%2 UTS Score (2)%2 UAS Score (3) divided by 10	Discussion and questions and answers Presentation 2 X 50		**Material:** Meeting material 1-7 **References:** *Ze Nian Li, Mark S drew. Fundamentals of Multimedia. 2004 Person Lars W. DSP Integrated Circuits. 1999. Academi Press* *Ze Nian Li, Mark S drew. Fundamentals of Multimedia. 2004 Person Lars W. DSP Integrated Circuits. 1999. Academic Press*	10%

9	Students are able to understand and study coloring in images and videos	Students are able to learn various coloring methods Students are able to study coloring models on images Students are able to study coloring models on videos	**Criteria:** 1. The assessment criteria are carried out by looking at aspects: 2. 1. Participation: carried out by observing student activities (weight 2) 3. 2. UTS: carried out with an assessment during the middle of the semester (weight 2) 4. 3. UAS: carried out every semester to measure all indicators (weight 3) 5. 4. Task: carried out on each indicator (weight 3) 6. Student Final Grade: 7. Participation Score (2)%2 Lever Score (3)%2 UTS Score (2)%2 UAS Score (3) divided by 10	Discussion and questions and answers Presentation 2 X 50		**Material:** Meeting material 1-7 **References:** *Ze Nian Li, Mark S drew. Fundamentals of Multimedia. 2004 Person Lars W. DSP Integrated Circuits. 1999. Academi Press* *Ze Nian Li, Mark S drew. Fundamentals of Multimedia. 2004 Person Lars W. DSP Integrated Circuits. 1999. Academic Press*	10%
10	Students are able to understand and study coloring in images and videos	Students are able to learn various coloring methods Students are able to study coloring models on images Students are able to study coloring models on videos	**Criteria:** 1. The assessment criteria are carried out by looking at aspects: 2. 1. Participation: carried out by observing student activities (weight 2) 3. 2. UTS: carried out with an assessment during the middle of the semester (weight 2) 4. 3. UAS: carried out every semester to measure all indicators (weight 3) 5. 4. Task: carried out on each indicator (weight 3) 6. Student Final Grade: 7. Participation Score (2)%2 Lever Score (3)%2 UTS Score (2)%2 UAS Score (3) divided by 10	Discussion and questions and answers Presentation 2 X 50		**Material:** Meeting material 1-7 **References:** *Ze Nian Li, Mark S drew. Fundamentals of Multimedia. 2004 Person Lars W. DSP Integrated Circuits. 1999. Academi Press* *Ze Nian Li, Mark S drew. Fundamentals of Multimedia. 2004 Person Lars W. DSP Integrated Circuits. 1999. Academic Press*	10%

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12	Students are able to understand and study coloring in images and videos	Students are able to learn various coloring methods Students are able to study coloring models on images Students are able to study coloring models on videos	**Criteria:** 1. The assessment criteria are carried out by looking at aspects: 2. 1. Participation: carried out by observing student activities (weight 2) 3. 2. UTS: carried out with an assessment during the middle of the semester (weight 2) 4. 3. UAS: carried out every semester to measure all indicators (weight 3) 5. 4. Task: carried out on each indicator (weight 3) 6. Student Final Grade: 7. Participation Score (2)%2 Lever Score (3)%2 UTS Score (2)%2 UAS Score (3) divided by 10	Discussion and questions and answers Presentation 2 X 50		**Material:** Meeting material 1-7 **References:** *Ze Nian Li, Mark S drew. Fundamentals of Multimedia. 2004 Person Lars W. DSP Integrated Circuits. 1999. Academi Press* *Ze Nian Li, Mark S drew. Fundamentals of Multimedia. 2004 Person Lars W. DSP Integrated Circuits. 1999. Academic Press*	10%

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Evaluation Percentage Recap: Project Based Learning

No	Evaluation	Percentage
1.	Participatory Activities	30%
		30%

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** abilities in the process and student learning outcomes are specific and measurable statements that identify the abilities 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.