## SEMESTER LEARNING ACTIVITY PLANS (SLAP) SEMESTER ODD 2022/2023



Three Dimensional Imaging MFF5875 / 2 Credits

Lecturer Coordinator:

Prof. Drs. Gede Bayu Suparta, M.S., Ph.D.

UNIVERSITAS GADJAH MADA FACULTY OF MATHEMATICS AND NATURAL SCIENCE 2022

Universitas Gadjah Mada Faculty of Mathematics and Natural Science Physics Department / Study Program Master Physics Semester Odd 2022/2023						
SEMESTER LEARNING ACTIVITY PLANS (SLAP)						
Course Name	Credits (credits)	Semester	Status	Prerequisite		
Three Dimensional Imaging	2	Odd	Elective	None		
Three Dimension Physics Study F The syllabus of The history of production, disa photography, ra and 3D presents face morpholog Application, Sh The courses are course period is Student evalua evaluation is im minutes. The for of completing a the course, such	of this course is as follows: f 3D imaging, development trends, and application trends. 3D Imaging applications in saster mitigation, health, safety, defence, and environmental industries. Imaging techniques: radiography, laminography, shearography, optical coherence imaging. Geometry projection station. Photostereography: Stereo camera, anaglyph. 3D Morphology: face recognition and ogy. Holography. 3D CT and Multi-slice CT. Structure Light Technique, Time of Flight heet of Flight Application. Research and Development Trends and 3D Imaging Innovations. re held in class for 14 weeks, each week's session last for 2 x 50 minutes. Four weeks of is used for Midterm Exam and Final Exam, each held for two weeks as scheduled. ation for course assessments is performed summative and formative. The summative mplemented as written exams, both Midterm and Final Exam, which take a maximum of 120 formative evaluation is implemented as individual assignments for each student in the form an assignment individually. Monitoring is carried out by observing student activities during the as attendance, Q&A and discussion about the material presented, and student performance					
PLO 2 PLO 3 PLO 4 PLO 5	Mastering further relationship with physics specializ research develop Mastering variou physics, and able computational to problems related Able to plan, mar able to create and physics to study a Physics that prod Able to apply known problems comprese	r knowledge o other discipli ation that allo ments. as mathematic to develop pl ols with an in to an advance nage and carry d use modelin and solve a pr luces models, owledge to an chensively in o	of classical and modern phynes, and has mastered an a ws him to keep up with the al disciplines related to an hysical models using vario ter or multidisciplinary app ed field of physics. y out experiments and concer g and simulations based or oblem in a scientific field methods, or theories tested alyze, synthesize, formula one of advanced field of ph	dvanced field of e latest international advanced field of us mathematical and proach to solving clude the results, or be n the basic principles of of Physics or applied <u>d and innovative</u> . te problems and solve nysics, through		
	Faculty of Ma Physics Depa Semester Odd SEMH Course Name Three Dimensional Imaging Three Dimensio Physics Study F The syllabus of The history of production, disa photography, ra and 3D presenta face morpholog Application, Sh The courses are course period is Student evalua evaluation is im minutes. The fo of completing a the course, such in completing in PLO 2 PLO 3 PLO 4	Faculty of Mathematics and N Physics Department / Study P Semester Odd 2022/2023SEMESTER LEARNCourse Credits (credits)Three22Dimensional Imaging2Three Dimensional Imaging course Physics Study Program, Faculty of The syllabus of this course is as fol The history of 3D imaging, deve production, disaster mitigation, hea photography, radiography, laminog and 3D presentation. Photostereogr face morphology. Holography. 3D Application, Sheet of Flight Applic The courses are held in class for 1 course period is used for Midterm F Student evaluation for course ass evaluation is implemented as writte minutes. The formative evaluation of completing an assignment indivi the course, such as attendance, Q&A in completing individual assignmerPLO 2Having the profeMastering furthe relationship with physics specializ PLO 3Mastering variou physics, and able computational to problems relatedPLO 4Problems related Able to apply kn problems compre- experimental or to	Faculty of Mathematics and Natural Sciem         Physics Department / Study Program Mast Semester Odd 2022/2023         SEMESTER LEARNING ACTIV         Course       Credits       Semester         Three       2       Odd         Dimensional       Imaging       0       0         Three       2       Odd       0         Three Dimensional Imaging course is Elective co       Physics Study Program, Faculty of Mathematics and The syllabus of this course is as follows:         The history of 3D imaging, development trends production, disaster mitigation, health, safety, defe photography, radiography, laminography, shearog and 3D presentation. Photostereography: Stereo cr face morphology. Holography. 3D CT and Multi Application, Sheet of Flight Application. Research         The courses are held in class for 14 weeks, each course period is used for Midterm Exam and Final         Student evaluation for course assessments is p evaluation is implemented as written exams, both M minutes. The formative evaluation is implemented of completing an assignment individually. Monitor the course, such as attendance, Q&A and discussio in completing individual assignments.         PLO 2       Having the professional ability         Mastering further knowledge crelationship with other discipli physics specialization that allo research developments.         PLO 3       research developments.         PLO 4       problems related to an advancec and bet to create and use modeling physics to stud	Faculty of Mathematics and Natural Science         Physics Department / Study Program Master Physics         SEMESTER LEARNING ACTIVITY PLANS (SLAP)         Course       Credits       Semester         Status         Imaging         Three       2       Odd       Elective         Dimensional Imaging course is Elective course 2 credits (Theory) in th         Physics Study Program, Faculty of Mathematics and Natural Science UGM.         The bistory of 3D imaging, development trends, and application trends. 3J         production, disaster mitigation, health, safety, defence, and environmental indu         production, disaster mitigation, health, safety, defence, and environmental indu         photospan="2">photospan="2">photospan="2">Stereo camera, anglyph. 3D Morph         Course assessments is performed summative and for 2 x 2         course are held in class for 14 weeks, each week's session last for 2 x 2         course aster dom disterm Exam, shoth Midterm and Final Exam, wh         minuegraphy. 3D CT and Multi-slice CT. Structure Light 7         Application for course assessments is performed summative and for evaluation for course assessments is performed summative and for evaluation for course assessments is performed summative a		

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Course	Upon comple	etion of this course students should l	ation of this course, students should be able to						
Outcomes	Upon completion of this course, students should be able to:CO1Explain the history of 3D imaging, development, and application trends.								
(CO)	COI	Explain the history of 3D imaging, development, and application trends. 3D Imaging applications in production, disaster mitigation, health, safety, defence,							
()		and environmental industries.							
	CO2		Explain Imaging techniques: photography, radiography, laminography,						
	002		shearography, and optical coherence imaging. Geometry projection and 3D						
		presentation.							
	СОЗ	Explain Photostereography: Stereo camera, anaglyph. 3D Morphology: face recognition							
		and face morphology.							
	<i>CO4</i>	Explain Holography. 3D CT and Multi-s							
			Flight Application, Sheet of Flight Application. Research and Development Trends and						
	<i>C05</i>	3D Imaging Innovations.							
	C05 C06								
	C00 C07	-							
	C07 C08								
The	000	Learning Materials	Learning Methods	Time					
Correlation of		Learning Water lais	Learning Wiethous	Allocation					
CO to				Anocation					
Learning	<i>CO1</i>			2 x 50					
Materials and	01			2 x 30 minutes					
Methods, and	<i>CO1</i>			$2 \times 50$					
Time	COI			minutes					
Allocation	<i>CO1</i>			$2 \times 50$					
	001			minutes					
	<i>CO2</i>			2 x 50					
	002			minutes					
	<i>CO2</i>			2 x 50					
				minutes					
	<i>CO2</i>			2 x 50					
				minutes					
	<i>CO2</i>			2 x 50					
				minutes					
	СОЗ			2 x 50					
				minutes					
	СО3			2 x 50					
				minutes					
	СО3			2 x 50					
				minutes					
	<i>CO4</i>			2 x 50					
				minutes					
	<i>CO4</i>			2 x 50					
				minutes					

	<i>CO4</i>						2 x 50
	<i>CO4</i>						minutes 2 x 50
	001						minutes
		Final Exam/ Proje	ect Task Resu	lts/ Case A	Analysis I	Results	
Learning							
Methods Student	Learn to analyze	and review: , , , , , , , , , ,					
Learning	Learn to analyze		, , , , .				
Experience							
Access to							
Learning Media/ LMS							
and Offline							
and Online							
Percentage							
Assessment			1	1	1		······
Methods and Synchronizati	Assessment	Assessment	Criteria/In				
on with CO	Methods	Percentage	dicators	CO1	CO2	CO3	<b>CO4</b>
	Participatory	7					
	Activity* Project Resu	lts/					
	Case Study	11.57					
	<b>Results/ PBL</b>	,					
	Results*						
	Cognitive		Γ	1	1		
	Assignment	30%		7,5%	7,5%	7,5%	7,5%
	Quiz						
	Midterm Exa			17,5%	17,5%		
	Final Exam	35%				17,5%	17,5%
	*) can also be obtained from the Midterm or Final Exam as the result of participatory activities or project/ case study results. According to IKU 7, the percentage of project results/ case study/ PBL results is at least 50%.						
References	Main referenc	•					
		13. Handbook of 3D N	Machine Visio	n: Optical	Metrology	y and Imag	ging, 1st-ed,
	CRC Press. DC	OI: https://www.routlee	dgehandbooks	.com/doi/1	0.1201/b1	3856-4	-
		nd Distante C, 2020. H					
	3: From Pattern	n to Object. Springer, (	Cham. DOI: ht	ttps://doi.o	org/10.100	//9/8-3-0	50-42378-0
Lecturers	1. Prof. Drs. G	ede Bayu Suparta, M S	. Ph.D.				
(Team	<ol> <li>Prof. Drs. Gede Bayu Suparta, M.S., Ph.D.</li> <li>2.</li> </ol>						
Teaching)	3.						
Authorization	4. Date of		Но	ad of Cur	riculum	Hee	d of Study
	Drafting	Lecturer Coordin	otor 110	au or Cur	incunum	Inea	u or study

	Prof. Drs. Gede Bayu Suparta, M.S., Ph.D.	Dr.Ing. Ari Setiawan	Mirza Satriawan, M.Si., Ph.D
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