	Universitas Negeri Surabaya Faculty of Mathematics and Natural Sciences Bachelor of Science Education Study Program	Document Code

SEMESTER LEARNING PLAN

Courses	CODE	Course Family	Credit Weight			SEMESTER	Compilation Date
Fluid	8420103048		T=3	P=0	ECTS=4.77	4	July 18, 2024

AUTHORIZATION	SP Developer	Course Cluster Coordinator	Study Program Coordinator
	.....	.....	Prof. Dr. Erman, M.Pd.

Learning model	**Project Based Learning**	
Program Learning Outcomes (PLO)	**PLO study program that is charged to the course**	
	PLO-5	Demonstrate scientific, critical, and innovative attitudes in integrated science learning, laboratory activities, and professional-related tasks
	PLO-7	Communicate ideas and research results effectively both in oral and written form
	PLO-11	Design and conduct research about learning of integrated science, and acquire, analyze, and interpret the research data
	PLO-13	Demonstrate knowledge of integrated science (physics, chemistry, and biology)
	Program Objectives (PO)	
	PO - 1	Able to show a responsible attitude, demonstrate a scientific, critical and innovative attitude independently during the lecture process
	PO - 2	Able to master basic substantive concepts of fluids, fluid properties, principles/laws of static fluids, typical properties of liquids, principles/laws of dynamic fluids, typical properties of gaseous fluids and their application to solve problems in life daily
	PO - 3	Able to demonstrate independent, quality and measurable performance as well as making appropriate decisions and being able to work individually and in a team
	PLO-PO Matrix	

P.O	PLO-5	PLO-7	PLO-11	PLO-13
PO-1				
PO-2				
PO-3				

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																

Short Course Description	This course discusses the meaning of fluids, properties of fluids, pressure on solid objects and fluids, principles/laws of static fluids, typical properties of liquids, principles/laws of dynamic fluids, typical properties of gaseous fluids , and solve application problems in the field of science such as blood pressure, diffusion in respiratory events, osmotic pressure. Lectures are carried out with modeling, presentations, discussions and practicums.
References	**Main :**

1. Bansal, R.K.2008.A Textbook of Fluid Mechanics.Delhi : Ajit Printers, Old Maujpur.
2. Bruce, dkk.2003.Mekanika Fluida Jilid 1 Edisi Keempat. Jakarta: Erlangga.
3. Currie, I.G. 2012.Fundamental Mechanics of Fluids, Fourth Edition. USA: CRC Press
4. Giancoli, Douglas. 2014. Physics: Principles with Applications I Ed 7E. California: Addison-Wesley.
5. Giancoli, Douglas. 2010. Fisika I. Jakarta: Erlangga.
6. Giordano, Nicholas J. 2010. College Physics: Reasoning and Relationships, First Edition. Canada: Nelson Education, Ltd..

Supporters:

Supporting lecturer	Tutut Nurita, S.Pd., M.Pd. An Nuril Maulida Fauziah, S.Pd., M.Pd. Enny Susiyawati, S.Si., M.Sc., M.Pd., Ph.D. Muhamad Arif Mahdiannur, S.Pd., M.Pd.

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	Analyze the properties of fluids to solve relevant problems, make strategic decisions based on data and information, be responsible for self-learning, tasks, and agreements with the team, by utilizing science and technology in solving problems	1. Analyze fluid concepts in everyday life 2. Identify fluid characteristics 3. Analyze fluid properties 4. Utilizing science and technology to solve problems of fluid characteristics and properties	**Criteria:** Accuracy and mastery according to assessment indicators (assessment rubric) **Form of Assessment** : Participatory Activities, Tests	Case based learning and peer interaction 3 X 50'	Case based learning and peer interaction (synchronous) via Zoom/Google Meet Asynchronous via LMS Unesa 3 x 60'	**Material:** Fluids **Library:** *Bansal, RK(2008).A Textbook of Fluid Mechanics.Delhi : Ajit Printers, Old Maujpur.* **Material:** Fluids **Reference:** *Bruce, et al. (2003). Fluid Mechanics Volume 1 Fourth Edition. Jakarta: Erlangga.* **Material:** Fluids **Reference:** *Currie, IG (2012). Fundamental Mechanics of Fluids, Fourth Edition. USA: CRC Press.* **Material:** Fluids **References:** *Giancoli, Douglas. (2014). Physics: Principles with Applications I Ed 7E. California: Addison-Wesley.*	5%

2	Analyze the concepts of static fluids and hydrostatic pressure to solve relevant problems, make strategic decisions based on data and information, be responsible for self-learning, tasks, and agreements with his team, by utilizing science and technology in solving problems	1. Analyze the concept of static fluids in everyday life 2. Analyzing hydrostatic pressure in everyday life 3. Carry out scientific method steps in solving examples of hydrostatic pressure problems 4. Prepare practical reports related to hydrostatic pressure 5. Utilizing science and technology to solve problems related to hydrostatic pressure	**Criteria:** Accuracy and mastery according to assessment indicators (assessment rubric) **Form of Assessment** : Participatory Activities, Practical Assessment	Case based learning and peer interaction 3 X 50‘	Case based learning and peer interaction (synchronous) via Zoom/Google Meet Asynchronous via LMS Unesa 3 x 60‘	**Material:** Fluids **Library:** *Bansal, RK(2008).A Textbook of Fluid Mechanics.Delhi : Ajit Printers, Old Maujpur.* **Material:** Fluids **Reference:** *Bruce, et al. (2003). Fluid Mechanics Volume 1 Fourth Edition. Jakarta: Erlangga.* **Material:** Fluids **Reference:** *Currie, IG (2012). Fundamental Mechanics of Fluids, Fourth Edition. USA: CRC Press.* **Material:** Fluids **References:** *Giancoli, Douglas. (2014). Physics: Principles with Applications I Ed 7E. California: Addison-Wesley.*	10%
3	Analyzing Pascal‘s law to solve relevant problems, making strategic decisions based on data and information, being responsible for self-learning, tasks, and agreements with his team, by utilizing science and technology in solving problems	1. Analyzing the concept of Pascal's law in everyday life 2. Carry out the steps of the scientific method in solving examples of Pascal's legal problems 3. Prepare practicum reports related to Pascal‘s law 4. Utilizing science and technology to solve problems related to Pascal's law	**Criteria:** Accuracy and mastery according to assessment indicators (assessment rubric) **Form of Assessment** : Participatory Activities, Practical Assessment	Case based learning and peer interaction 3 X 50‘	Case based learning and peer interaction (synchronous) via Zoom/Google Meet Asynchronous via LMS Unesa 3 x 60‘	**Material:** Fluids **Library:** *Bansal, RK(2008).A Textbook of Fluid Mechanics.Delhi : Ajit Printers, Old Maujpur.* **Material:** Fluids **Reference:** *Bruce, et al. (2003). Fluid Mechanics Volume 1 Fourth Edition. Jakarta: Erlangga.* **Material:** Fluids **Reference:** *Currie, IG (2012). Fundamental Mechanics of Fluids, Fourth Edition. USA: CRC Press.* **Material:** Fluids **References:** *Giancoli, Douglas. (2014). Physics: Principles with Applications I Ed 7E. California: Addison-Wesley.*	10%

4	Analyze Archimedes‘ law to solve relevant problems, make strategic decisions based on data and information, be responsible for self-learning, tasks, and agreements with his team, by utilizing science and technology in solving problems	1. Analyzing Archimedes‘ law in everyday life 2. Carry out the steps of the scientific method in solving examples of Archimedes‘ law problems 3. Compile a practical report related to Archimedes‘ law 4. Utilizing science and technology to solve problems related to Archimedes‘ law	**Criteria:** Accuracy and mastery according to assessment indicators (assessment rubric) **Form of Assessment** : Participatory Activities, Practical Assessment	Case based learning and peer interaction 3 X 50‘	Case based learning and peer interaction (synchronous) via Zoom/Google Meet Asynchronous via LMS Unesa 3 x 60‘	**Material:** Fluids **Library:** *Bansal, RK(2008).A Textbook of Fluid Mechanics.Delhi : Ajit Printers, Old Maujpur.* **Material:** Fluids **Reference:** *Bruce, et al. (2003). Fluid Mechanics Volume 1 Fourth Edition. Jakarta: Erlangga.* **Material:** Fluids **Reference:** *Currie, IG (2012). Fundamental Mechanics of Fluids, Fourth Edition. USA: CRC Press.* **Material:** Fluids **References:** *Giancoli, Douglas. (2014). Physics: Principles with Applications I Ed 7E. California: Addison-Wesley.*	10%
5	Analyze viscosity to solve relevant problems, make strategic decisions based on data and information, be responsible for self-learning, tasks, and agreements with his team, by utilizing science and technology in solving problems	1. Analyzing viscosity in everyday life 2. Carry out scientific method steps in solving examples of viscosity problems 3. Prepare practical reports related to viscosity 4. Leveraging science and technology to solve viscosity problems	**Criteria:** Accuracy and mastery according to assessment indicators (assessment rubric) **Form of Assessment** : Participatory Activities, Practical Assessment	Case based learning and peer interaction 3 X 50‘	Case based learning and peer interaction (synchronous) via Zoom/Google Meet Asynchronous via LMS Unesa 3 x 60‘	**Material:** Fluids **Library:** *Bansal, RK(2008).A Textbook of Fluid Mechanics.Delhi : Ajit Printers, Old Maujpur.* **Material:** Fluids **Reference:** *Bruce, et al. (2003). Fluid Mechanics Volume 1 Fourth Edition. Jakarta: Erlangga.* **Material:** Fluids **Reference:** *Currie, IG (2012). Fundamental Mechanics of Fluids, Fourth Edition. USA: CRC Press.* **Material:** Fluids **References:** *Giancoli, Douglas. (2014). Physics: Principles with Applications I Ed 7E. California: Addison-Wesley.*	5%

6	Analyzing capillarity to solve relevant problems, making strategic decisions based on data and information, being responsible for self-learning, tasks, and agreements with his team, by utilizing science and technology in solving problems	1. Analyzing capillarity in everyday life 2. Carry out the steps of the scientific method in solving examples of capillarity problems 3. Prepare practical reports related to capillarity 4. Utilizing science and technology to solve problems related to capillarity	**Criteria:** Accuracy and mastery according to assessment indicators (assessment rubric) **Form of Assessment** : Participatory Activities, Practical Assessment	Case based learning and peer interaction 3 X 50'	Case based learning and peer interaction (synchronous) via Zoom/Google Meet Asynchronous via LMS Unesa 3 x 60'	**Material:** Fluids **Library:** *Bansal, RK(2008).A Textbook of Fluid Mechanics.Delhi : Ajit Printers, Old Maujpur.* **Material:** Fluids **Reference:** *Bruce, et al. (2003). Fluid Mechanics Volume 1 Fourth Edition. Jakarta: Erlangga.* **Material:** Fluids **Reference:** *Currie, IG (2012). Fundamental Mechanics of Fluids, Fourth Edition. USA: CRC Press.* **Material:** Fluids **References:** *Giancoli, Douglas. (2014). Physics: Principles with Applications I Ed 7E. California: Addison-Wesley.*	5%
7	Analyze blood pressure, diffusion in respiratory events, osmosis pressure to solve relevant problems, make strategic decisions based on data and information, be responsible for self-learning, tasks, and agreements with his team, by utilizing science and technology in solving problems	1. Analyzing blood pressure in animals and humans in daily life 2. Analyzing diffusion in respiratory events in everyday life 3. Analyzing osmotic pressure in everyday life 4. Utilizing science and technology to solve problems related to blood pressure, diffusion in respiration events, osmosis pressure	**Criteria:** Accuracy and mastery according to assessment indicators (assessment rubric) **Form of Assessment** : Participatory Activities	Case based learning and peer interaction 3 X 50'	Case based learning and peer interaction (synchronous) via Zoom/Google Meet Asynchronous via LMS Unesa 3 x 60'	**Material:** Fluids **Library:** *Bansal, RK(2008).A Textbook of Fluid Mechanics.Delhi : Ajit Printers, Old Maujpur.* **Material:** Fluids **Reference:** *Bruce, et al. (2003). Fluid Mechanics Volume 1 Fourth Edition. Jakarta: Erlangga.* **Material:** Fluids **Reference:** *Currie, IG (2012). Fundamental Mechanics of Fluids, Fourth Edition. USA: CRC Press.* **Material:** Fluids **References:** *Giancoli, Douglas. (2014). Physics: Principles with Applications I Ed 7E. California: Addison-Wesley.*	5%
8	-	Sub-CMPK 1st to 7th Meetings	**Criteria:** Accuracy and mastery according to the UTS assessment indicators (assessment rubric). **Form of Assessment** : Test	Mid-Semester Evaluation/Mid-Semester Exam 2 X 50'		**Material:** - **Library:**	0%

9	Analyze dynamic fluid and continuity equations to solve relevant problems, make strategic decisions based on data and information, be responsible for self-learning, tasks, and agreements with his team, by utilizing science and technology in solving problems	1. Analyzing dynamic fluids in everyday life 2. Analyze continuity equations in everyday life 3. Carry out the steps of the scientific method in solving examples of continuity equation problems 4. Prepare a practicum report related to the continuity equation 5. Utilize science and technology to solve problems related to continuity equations	**Criteria:** Accuracy and mastery according to assessment indicators (assessment rubric) **Form of Assessment** : Participatory Activities	Case based learning and peer interaction 3 X 50‘	Case based learning and peer interaction (synchronous) via Zoom/Google Meet Asynchronous via LMS Unesa 3 x 60‘	**Material:** Fluid dynamics **Reference:** *Bansal, RK(2008).A Textbook of Fluid Mechanics.Delhi : Ajit Printers, Old Maujpur.* **Material:** Dynamic fluids **Reference:** *Bruce, et al. (2003). Fluid Mechanics Volume 1 Fourth Edition. Jakarta: Erlangga.* **Material:** Dynamic fluids **Reference:** *Currie, IG (2012). Fundamental Mechanics of Fluids, Fourth Edition. USA: CRC Press.* **Material:** Dynamic fluids **References:** *Giancoli, Douglas. (2014). Physics: Principles with Applications I Ed 7E. California: Addison-Wesley.* **Material:** Fluid dynamics **References:** *Giordano, Nicholas J. (2010). College Physics: Reasoning and Relationships, First Edition. Canada: Nelson Education, Ltd.*	10%

10	Analyze Bernoulli's law to solve relevant problems, make strategic decisions based on data and information, be responsible for self-learning, tasks, and agreements with his team, by utilizing science and technology in solving problems	1. Analyzing Bernoulli's law in everyday life 2. Carry out the steps of the scientific method in solving examples of Bernoulli's law problems 3. Prepare practical reports related to Bernoulli's law 4. Utilizing science and technology to solve problems related to Bernoulli's law	**Criteria:** Accuracy and mastery according to assessment indicators (assessment rubric) **Form of Assessment** : Participatory Activities	Case based learning and peer interaction 3 X 50'	Case based learning and peer interaction (synchronous) via Zoom/Google Meet Asynchronous via LMS Unesa 3 x 60'	**Material:** Fluid dynamics **Reference:** *Bansal, RK(2008).A Textbook of Fluid Mechanics.Delhi : Ajit Printers, Old Maujpur.* **Material:** Dynamic fluids **Reference:** *Bruce, et al. (2003). Fluid Mechanics Volume 1 Fourth Edition. Jakarta: Erlangga.* **Material:** Dynamic fluids **Reference:** *Currie, IG (2012). Fundamental Mechanics of Fluids, Fourth Edition. USA: CRC Press.* **Material:** Dynamic fluids **References:** *Giancoli, Douglas. (2014). Physics: Principles with Applications I Ed 7E. California: Addison-Wesley.* **Material:** Fluid dynamics **References:** *Giordano, Nicholas J. (2010). College Physics: Reasoning and Relationships, First Edition. Canada: Nelson Education, Ltd.*	10%

11	Analyze gas kinetic theory to solve relevant problems, make strategic decisions based on data and information, be responsible for self-learning, tasks, and agreements with his team, by utilizing science and technology in solving problems	1. Analyzing the kinetic theory of gases in everyday life 2. Utilize science and technology to solve problems related to the kinetic theory of gases	**Criteria:** Accuracy and mastery according to assessment indicators (assessment rubric) **Form of Assessment** : Participatory Activities, Tests	Case based learning and peer interaction 3 X 50‘	Case based learning and peer interaction (synchronous) via Zoom/Google Meet Asynchronous via LMS Unesa 3 x 60‘	**Material:** Fluid dynamics **Reference:** *Bansal, RK(2008).A Textbook of Fluid Mechanics.Delhi : Ajit Printers, Old Maujpur.* **Material:** Dynamic fluids **Reference:** *Bruce, et al. (2003). Fluid Mechanics Volume 1 Fourth Edition. Jakarta: Erlangga.* **Material:** Dynamic fluids **Reference:** *Currie, IG (2012). Fundamental Mechanics of Fluids, Fourth Edition. USA: CRC Press.* **Material:** Dynamic fluids **References:** *Giancoli, Douglas. (2014). Physics: Principles with Applications I Ed 7E. California: Addison-Wesley.* **Material:** Fluid dynamics **References:** *Giordano, Nicholas J. (2010). College Physics: Reasoning and Relationships, First Edition. Canada: Nelson Education, Ltd.*	5%

12	Analyze the zeroth law of thermodynamics to solve relevant problems, make strategic decisions based on data and information, be responsible for self-learning, tasks, and agreements with his team, by utilizing science and technology in solving problems	1. Analyzing the zeroth law of thermodynamics in everyday life 2. Carry out the steps of the scientific method in solving examples of zeroth law of thermodynamics problems 3. Prepare a practical report related to the zeroth law of thermodynamics 4. Utilize science and technology to solve problems related to the zeroth law of thermodynamics	**Criteria:** Accuracy and mastery according to assessment indicators (assessment rubric) **Form of Assessment** : Participatory Activities, Practical Assessment	Case based learning and peer interaction 3 X 50'	Case based learning and peer interaction (synchronous) via Zoom/Google Meet Asynchronous via LMS Unesa 3 x 60'	**Material:** Fluid dynamics **Reference:** *Bansal, RK(2008).A Textbook of Fluid Mechanics.Delhi : Ajit Printers, Old Maujpur.* **Material:** Dynamic fluids **Reference:** *Bruce, et al. (2003). Fluid Mechanics Volume 1 Fourth Edition. Jakarta: Erlangga.* **Material:** Dynamic fluids **Reference:** *Currie, IG (2012). Fundamental Mechanics of Fluids, Fourth Edition. USA: CRC Press.* **Material:** Dynamic fluids **References:** *Giancoli, Douglas. (2014). Physics: Principles with Applications I Ed 7E. California: Addison-Wesley.* **Material:** Fluid dynamics **References:** *Giordano, Nicholas J. (2010). College Physics: Reasoning and Relationships, First Edition. Canada: Nelson Education, Ltd.*	5%

13	Analyze the 1st law of thermodynamics to solve relevant problems, make strategic decisions based on data and information, be responsible for self-learning, tasks, and agreements with his team, by utilizing science and technology in solving problems	1. Analyzing the 1st law of thermodynamics in everyday life 2. Carry out the steps of the scientific method in solving examples of problems in the 1st law of thermodynamics 3. Prepare a practical report related to the 1st law of thermodynamics 4. Utilize science and technology to solve problems related to the 1st law of thermodynamics	**Criteria:** Accuracy and mastery according to assessment indicators (assessment rubric) **Form of Assessment** : Participatory Activities, Practical Assessment	Case based learning and peer interaction 3 X 50'	Case based learning and peer interaction (synchronous) via Zoom/Google Meet Asynchronous via LMS Unesa 3 x 60'	**Material:** Fluid dynamics **Reference:** *Bansal, RK(2008).A Textbook of Fluid Mechanics.Delhi : Ajit Printers, Old Maujpur.* **Material:** Dynamic fluids **Reference:** *Bruce, et al. (2003). Fluid Mechanics Volume 1 Fourth Edition. Jakarta: Erlangga.* **Material:** Dynamic fluids **Reference:** *Currie, IG (2012). Fundamental Mechanics of Fluids, Fourth Edition. USA: CRC Press.* **Material:** Dynamic fluids **References:** *Giancoli, Douglas. (2014). Physics: Principles with Applications I Ed 7E. California: Addison-Wesley.* **Material:** Fluid dynamics **References:** *Giordano, Nicholas J. (2010). College Physics: Reasoning and Relationships, First Edition. Canada: Nelson Education, Ltd.*	5%

14	Analyze the 2nd law of thermodynamics to solve relevant problems, make strategic decisions based on data and information, be responsible for self-learning, tasks, and agreements with his team, by utilizing science and technology in solving problems	1. Analyzing the 2nd law of thermodynamics in everyday life 2. Carry out the steps of the scientific method in solving examples of problems in the 2nd law of thermodynamics 3. Prepare a practical report related to the 2nd law of thermodynamics 4. Utilize science and technology to solve problems related to the 2nd law of thermodynamics	**Criteria:** Accuracy and mastery according to assessment indicators (assessment rubric) **Form of Assessment** : Participatory Activities, Practical Assessment	Case based learning and peer interaction 3 X 50‘	Case based learning and peer interaction (synchronous) via Zoom/Google Meet Asynchronous via LMS Unesa 3 x 60‘	**Material:** Fluid dynamics **Reference:** *Bansal, RK(2008).A Textbook of Fluid Mechanics.Delhi : Ajit Printers, Old Maujpur.* **Material:** Dynamic fluids **Reference:** *Bruce, et al. (2003). Fluid Mechanics Volume 1 Fourth Edition. Jakarta: Erlangga.* **Material:** Dynamic fluids **Reference:** *Currie, IG (2012). Fundamental Mechanics of Fluids, Fourth Edition. USA: CRC Press.* **Material:** Dynamic fluids **References:** *Giancoli, Douglas. (2014). Physics: Principles with Applications I Ed 7E. California: Addison-Wesley.* **Material:** Fluid dynamics **References:** *Giordano, Nicholas J. (2010). College Physics: Reasoning and Relationships, First Edition. Canada: Nelson Education, Ltd.*	10%

15	Analyze the 3rd law of thermodynamics to solve relevant problems, make strategic decisions based on data and information, be responsible for self-learning, tasks, and agreements with his team, by utilizing science and technology in solving problems	1. Analyzing the 3rd law of thermodynamics in everyday life 2. Carry out the steps of the scientific method in solving examples of problems in the 3rd law of thermodynamics 3. Prepare a practical report related to the 3rd law of thermodynamics 4. Utilize science and technology to solve problems related to the 3rd law of thermodynamics	**Criteria:** Accuracy and mastery according to assessment indicators (assessment rubric) **Form of Assessment** : Participatory Activities, Practical Assessment	Case based learning and peer interaction 3 X 50'	Case based learning and peer interaction (synchronous) via Zoom/Google Meet Asynchronous via LMS Unesa 3 x 60'	**Material:** Fluid dynamics **Reference:** *Bansal, RK(2008).A Textbook of Fluid Mechanics.Delhi : Ajit Printers, Old Maujpur.* **Material:** Dynamic fluids **Reference:** *Bruce, et al. (2003). Fluid Mechanics Volume 1 Fourth Edition. Jakarta: Erlangga.* **Material:** Dynamic fluids **Reference:** *Currie, IG (2012). Fundamental Mechanics of Fluids, Fourth Edition. USA: CRC Press.* **Material:** Dynamic fluids **References:** *Giancoli, Douglas. (2014). Physics: Principles with Applications I Ed 7E. California: Addison-Wesley.* **Material:** Fluid dynamics **References:** *Giordano, Nicholas J. (2010). College Physics: Reasoning and Relationships, First Edition. Canada: Nelson Education, Ltd.*	5%
16	-	Sub-CMPK 1 to 15	**Criteria:** Accuracy and mastery according to the UAS assessment indicators (assessment rubric). **Form of Assessment** : Test	Final Semester Evaluation/Final Semester Exam 2 x 50'		**Material:** - **Library:**	0%

Evaluation Percentage Recap: Project Based Learning

No	Evaluation	Percentage
1.	Participatory Activities	62.5%
2.	Practical Assessment	32.5%
3.	Test	5%
		100%

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.