



**Universitas Negeri Surabaya**  
**Faculty of Mathematics and Natural Sciences**  
**Undergraduate Chemistry Study Program**

Document  
Code

## SEMESTER LEARNING PLAN

Courses	CODE	Course Family	Credit Weight			SEMESTER	Compilation Date																																																																																						
<b>INORGANIC CHEMISTRY PRACTICUM</b>	4720102217	Compulsory Study Program Subjects	T=0	P=2	ECTS=3.18	4	July 17, 2023																																																																																						
<b>AUTHORIZATION</b>	<b>SP Developer</b>		<b>Course Cluster Coordinator</b>			<b>Study Program Coordinator</b>																																																																																							
	Prof. Dr. Sari Edi Cahyaningrum, M.Si., Dr. Amaria, M.Si., Dr. Dina Kartika Maharani, M.Sc., Amalia Putri Purnamasari, M.Si., Herry Wijayanto, M.Sc., D.Sc.		Prof. Dr. Achmad Lutfi, M.Pd.			Dr. Amaria, M.Si.																																																																																							
<b>Learning model</b>	<b>Project Based Learning</b>																																																																																												
<b>Program Learning Outcomes (PLO)</b>	<b>PLO study program that is charged to the course</b>																																																																																												
	<b>Program Objectives (PO)</b>																																																																																												
	<b>PO - 1</b>	Utilize learning resources and tools and practicum materials to support the design and implementation of practicum for main group and transition elements																																																																																											
	<b>PO - 2</b>	Have the skills to think and work scientifically through laboratory practicum for elements of the main group and transition group																																																																																											
	<b>PO - 3</b>	Have experimental skills through performance in the laboratory																																																																																											
	<b>PLO-PO Matrix</b>																																																																																												
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<b>PO Matrix at the end of each learning stage (Sub-PO)</b>																																																																																													
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<b>Short Course Description</b>	Inorganic Practicum is to develop experimental skills and develop scientific thinking and working skills on how to identify, understand the physical and chemical properties of elements, compounds and laboratory manufacture of main group and transition group elements.																																																																																												
<b>References</b>	<b>Main :</b>																																																																																												
	<ol style="list-style-type: none"> <li>1. Lee, J.D. 1991. Concise Inorganic Chemistry . Four Edition. London: Chapman &amp; Hall.</li> <li>2. Madan, R.D. 1997. Modern Inorganic Chemistry . New Delhi: S. Chand and Company LDT.</li> <li>3. Manku, G.S. 1980. Inorganic Chemistry. India: Tata Mc Graw Hill Book Co.</li> <li>4. Sugiarto, B. dkk. 1997. Kimia Anorganik . Surabaya: Unipress IKIP Surabaya</li> </ol>																																																																																												

	<b>Supporters:</b>						
<b>Supporting lecturer</b>	Prof. Dr. Achmad Lutfi, M.Pd. Dr. Amaria, M.Si. Prof. Dr. Sari Edi Cahyaningrum, M.Si. Dr. Muchlis, S.Pd., M.Pd. Dr. Kusumawati Dwiningsih, S.Pd., M.Pd. Rusly Hidayah, S.Si., M.Pd. Dr. Dina Kartika Maharani, S.Si., M.Sc. Antina Delhita, M.Pd. Amalia Putri Purnamasari, S.Si., M.Si. Herry Wijayanto, S.Pd., M.Sc., D.Sc.						
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	Understanding, physico-chemical properties, laboratory preparation of main group elements and compounds (alkali, alkaline earth, boron family, carbon family, nitrogen family, oxygen family, halogen and hydrogen) and transitions		<b>Form of Assessment :</b> Participatory Activities, Practical Assessment	100 minutes			5%
2		1.Know how to make hydrogen gas 2.Know the properties of hydrogen gas and its compounds	<b>Form of Assessment :</b> Participatory Activities		100		5%
3		1.Know how to make carbon dioxide gas 2.Know the properties of carbon and its compounds 3.Identify carbon and its compounds	<b>Form of Assessment :</b> Participatory Activities	240			5%
4		1.Know the properties of nitrogen and its compounds 2.Identify ammonium Nitrogen gas and compounds	<b>Form of Assessment :</b> Participatory Activities	240			5%
5		Know how to make oxygen gas	<b>Form of Assessment :</b> Participatory Activities	240			5%
6		Know the properties of Sulfur	<b>Form of Assessment :</b> Participatory Activities	240			0%

7		1. Know the properties of chlorine, bromine and iodine and their compounds 2. Know how to make chlorine, bromine and iodine gas and their compounds	<b>Form of Assessment :</b> Participatory Activities	240			0%
8			<b>Form of Assessment :</b> Test	100			20%
9		Know the properties of sodium, potassium and their compounds	<b>Form of Assessment :</b> Participatory Activities	240			0%
10		Know the properties of calcium and its compounds	<b>Form of Assessment :</b> Participatory Activities	240			0%
11		Know the properties of magnesium and its compounds	<b>Form of Assessment :</b> Participatory Activities	240			5%
12			<b>Form of Assessment :</b> Participatory Activities	240			5%
13		1. Study the reactions of transition metal salts 2. Get to know the formation of transition metal complex ions	<b>Form of Assessment :</b> Participatory Activities	240			5%
14		Know how to make cuprous ammonium sulfate double salt and copper (II) sulfate monohydrate tetraamine double salt	<b>Form of Assessment :</b> Participatory Activities	240			5%
15		1. Study the difference in league field strength between ammonium and water ligands 2. Know how to find the wavelength at maximum absorbance	<b>Form of Assessment :</b> Participatory Activities	240			5%

16			Form of Assessment : Test				30%
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#### Evaluation Percentage Recap: Project Based Learning

No	Evaluation	Percentage
1.	Participatory Activities	47.5%
2.	Practical Assessment	2.5%
3.	Test	50%
		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.**