



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

Document Code

SEMESTER LEARNING PLAN

Courses	CODE	Course Family	Credit Weight	SEMESTER	Compilation Date		
Inorganic Chemistry II: Coordination	8420402116		T=2 P=0 ECTS=3.18	5	July 18, 2024		
AUTHORIZATION	SP Developer		Course Cluster Coordinator	Study Program Coordinator			
	Prof. Dr. Utiya Azizah, M.Pd.			
Learning model	Project Based Learning						
Program Learning Outcomes (PLO)	PLO study program which is charged to the course						
	Program Objectives (PO)						
	PLO-PO Matrix						
		P.O					
Short Course Description	Study of the concepts: chemical bonding, stereochemistry, reaction mechanisms, properties, spectra, creation and stability of coordination chemistry through discussions, presentations, structured assignments.						
References	Main :						
	1. Sugiarto, Bambang. 2006. Teori Senyawa Koordinasi. Surabaya: Unesa University Press. 2. Basolo, F and Johnson, R. C. 1986. Coordination Chemistry, 2nd Edition. New York: W. A. Benjamin, Inc. 3. Huheey, E. James, Ellen, A. K, and Richardl. K. 1978. Inorganic Chemistry, Principle of Structure and Reactivity. USA: Harper Collins College Publishers						
	Supporters:						
Supporting lecturer	Dr. Amaria, M.Si.						
	Prof. Dr. Sari Edi Cahyaningrum, M.Si. Dr. Dina Kartika Maharani, S.Si., M.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	Understand the development of the concept of coordination compounds	1. Compare double salts and coordination compounds.	Criteria: 1.1. Participation during lectures (weight 2) 2.2. Sub-summative test, assessed all relevant indicators through a written exam, given a weight of (2) 3.3. Assignment value for working on questions and writing papers (weight 3) 4.4. 3x UAS score (3) 5. The final NA is (participation value x2) (assignment value x 3) (UTS value x 2) UAS value (3) divided by 10	Discussion and questions and answers 2 X 50		0%
2	Understand the development of the concept of coordination compounds	Explain the development and nomenclature of coordination compounds.	Criteria: 1.1. Participation during lectures (weight 2) 2.2. Sub-summative test, assessed all relevant indicators through a written exam, given a weight of (2) 3.3. Assignment value for working on questions and writing papers (weight 3) 4.4. 3x UAS score (3) 5. The final NA is (participation value x2) (assignment value x 3) (UTS value x 2) UAS value (3) divided by 10	Discussion and questions and answers 2 X 50		0%
3	Apply various basic bond theories used in coordination compounds	1. Apply the concept of electron pair bonding. 2. Apply the concept of effective atomic number	Criteria: 1.1. Participation during lectures (weight 2) 2.2. Sub-summative test, assessed all relevant indicators through a written exam, given a weight of (2) 3.3. Assignment value for working on questions and writing papers (weight 3) 4.4. 3x UAS score (3) 5. The final NA is (participation value x2) (assignment value x 3) (UTS value x 2) UAS value (3) divided by 10	Discussion and questions and answers 2 X 50		0%

4	Apply various basic bond theories used in coordination compounds	1. Apply Valence Bond Theory 2. Apply Crystal Field Theory	Criteria: 1.1. Participation during lectures (weight 2) 2.2. Sub-summative test, assessed all relevant indicators through a written exam, given a weight of (2) 3.3. Assignment value for working on questions and writing papers (weight 3) 4.4. 3x UAS score (3) 5. The final NA is (participation value x2) (assignment value x 3) (UTS value x 2) UAS value (3) divided by 10	Discussion and questions and answers 2 X 50			0%
5	Apply various basic bond theories used in coordination compounds	Applying Molecular Orbital Theory	Criteria: 1.1. Participation during lectures (weight 2) 2.2. Sub-summative test, assessed all relevant indicators through a written exam, given a weight of (2) 3.3. Assignment value for working on questions and writing papers (weight 3) 4.4. 3x UAS score (3) 5. The final NA is (participation value x2) (assignment value x 3) (UTS value x 2) UAS value (3) divided by 10	Discussion and questions and answers 2 X 50			0%
6	Understand the geometry and isomers of coordination compounds	1. Determine the geometry of coordination compounds	Criteria: 1.1. Participation during lectures (weight 2) 2.2. Sub-summative test, assessed all relevant indicators through a written exam, given a weight of (2) 3.3. Assignment value for working on questions and writing papers (weight 3) 4.4. 3x UAS score (3) 5. The final NA is (participation value x2) (assignment value x 3) (UTS value x 2) UAS value (3) divided by 10	Discussion and questions and answers 2 X 50			0%

7	Understand the geometry and isomers of coordination compounds	Understand the geometry and isomers of coordination compounds	Criteria: 1.1. Participation during lectures (weight 2) 2.2. Sub-summative test, assessed all relevant indicators through a written exam, given a weight of (2) 3.3. Assignment value for working on questions and writing papers (weight 3) 4.4. 3x UAS score (3) 5. The final NA is (participation value x2) (assignment value x 3) (UTS value x 2) UAS value (3) divided by 10	Discussion and questions and answers 2 X 50			0%
8	UTS	meeting indicators 1-7	Criteria: 1.1. Participation during lectures (weight 2) 2.2. Sub-summative test, assessed all relevant indicators through a written exam, given a weight of (2) 3.3. Assignment value for working on questions and writing papers (weight 3) 4.4. 3x UAS score (3) 5. The final NA is (participation value x2) (assignment value x 3) (UTS value x 2) UAS value (3) divided by 10	Test 2 X 50			0%
9	Understand the manufacturing reactions and mechanisms of coordination compounds	1. Write down substitution reactions in aqueous and non-aqueous solutions. 2. Explain the occurrence of thermal dissociation	Criteria: 1.1. Participation during lectures (weight 2) 2.2. Sub-summative test, assessed all relevant indicators through a written exam, given a weight of (2) 3.3. Assignment value for working on questions and writing papers (weight 3) 4.4. 3x UAS score (3) 5. The final NA is (participation value x2) (assignment value x 3) (UTS value x 2) UAS value (3) divided by 10	Discussion and questions and answers 2 X 50			0%

10	Understand the manufacturing reactions and mechanisms of coordination compounds	Write down the reaction for making optically active compounds	Criteria: 1.1. Participation during lectures (weight 2) 2.2. Sub-summative test, assessed all relevant indicators through a written exam, given a weight of (2) 3.3. Assignment value for working on questions and writing papers (weight 3) 4.4. 3x UAS score (3) 5. The final NA is (participation value x2) (assignment value x 3) (UTS value x 2) UAS value (3) divided by 10	Discussion and questions and answers 2 X 50			0%
11	Understanding complex stability	1. Explain the function of the stability constant. 2. Explain the factors that influence the stability constant	Criteria: 1.1. Participation during lectures (weight 2) 2.2. Sub-summative test, assessed all relevant indicators through a written exam, given a weight of (2) 3.3. Assignment value for working on questions and writing papers (weight 3) 4.4. 3x UAS score (3) 5. The final NA is (participation value x2) (assignment value x 3) (UTS value x 2) UAS value (3) divided by 10	Discussion and questions and answers, presentation of 2 X 50 papers			0%
12	Understanding complex stability	Determine the stability constant	Criteria: 1.1. Participation during lectures (weight 2) 2.2. Sub-summative test, assessed all relevant indicators through a written exam, given a weight of (2) 3.3. Assignment value for working on questions and writing papers (weight 3) 4.4. 3x UAS score (3) 5. The final NA is (participation value x2) (assignment value x 3) (UTS value x 2) UAS value (3) divided by 10	Discussion, questions and answers, presentation of 2 X 50 papers			0%

13	Understand the terms symbols, multiplicity, organ diagrams, and Tanabe-Sugano diagrams	Explain the meaning of the term symbol, multiplicity	Criteria: 1.1. Participation during lectures (weight 2) 2.2. Sub-summative test, assessed all relevant indicators through a written exam, given a weight of (2) 3.3. Assignment value for working on questions and writing papers (weight 3) 4.4. 3x UAS score (3) 5. The final NA is (participation value x2) (assignment value x 3) (UTS value x 2) UAS value (3) divided by 10	Discussion, questions and answers, presentation of 2 X 50 papers		0%
14	Understand the terms symbols, multiplicity, organ diagrams, and Tanabe-Sugano diagrams	Explain the meaning of organ diagrams	Criteria: 1.1. Participation during lectures (weight 2) 2.2. Sub-summative test, assessed all relevant indicators through a written exam, given a weight of (2) 3.3. Assignment value for working on questions and writing papers (weight 3) 4.4. 3x UAS score (3) 5. The final NA is (participation value x2) (assignment value x 3) (UTS value x 2) UAS value (3) divided by 10	Discussion, questions and answers, presentation of 2 X 50 papers		0%
15	Understand the terms symbols, multiplicity, organ diagrams, and Tanabe-Sugano diagrams	Explain the meaning of the Tanabe Sugano diagram	Criteria: 1.1. Participation during lectures (weight 2) 2.2. Sub-summative test, assessed all relevant indicators through a written exam, given a weight of (2) 3.3. Assignment value for working on questions and writing papers (weight 3) 4.4. 3x UAS score (3) 5. The final NA is (participation value x2) (assignment value x 3) (UTS value x 2) UAS value (3) divided by 10	Discussion, questions and answers, presentation of 2 X 50 papers		0%

16	UAS (end of meeting ability 9-15)	Meeting indicators 9-15	Criteria: 1.1. Participation during lectures (weight 2) 2.2. Sub-summative test, assessed all relevant indicators through a written exam, given a weight of (2) 3.3. Assignment value for working on questions and writing papers (weight 3) 4.4. 3x UAS score (3) 5. The final NA is (participation value x2) (assignment value x 3) (UTS value x 2) UAS value (3) divided by 10	Test 2 X 50			0%
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Evaluation Percentage Recap: Project Based Learning

No	Evaluation	Percentage
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Notes

- 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.
- 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.
- 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.
- 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.
- 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.
- 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.
- Forms of assessment:** test and non-test.
- 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.
- 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.
- Learning materials** are details or descriptions of study materials which can be presented in the form of several main points and sub-topics.
- 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%.
- TM=Face to face, PT=Structured assignments, BM=Independent study.