IPB UNIVERSITY
FAKULTAS MATEMATIKA DAN ILMU PENGETAHUAN ALAM
DEPARTEMEN KIMIA

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SEMESTER LEARNING PLAN

KIM1359B
INTEGRATED PRACTICUM II
CR 2 (0–2)

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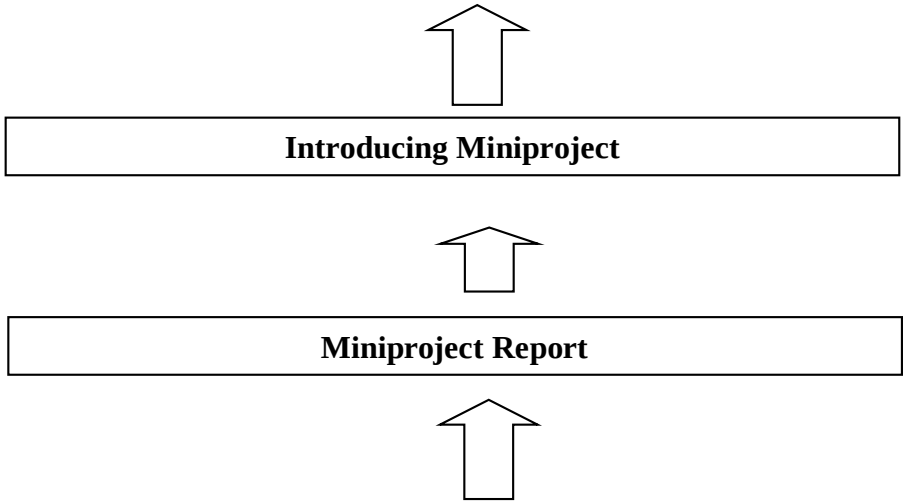
INSTRUCTIONAL ANALYSIS

Learning Outcomes

Students can

1. Exploring for creative ideas to be a topic in a miniproject.
2. Transfering creative ideas into miniproject proposals.
3. Arrange equipment and chemical needs to run a miniproject in the miniproject proposal.
4. Conduct a simple chemical risk assessment according to the theme of the miniproject.
5. Communicate miniproject proposals in the form of scientific presentations.
6. Using laboratory equipment needed in miniprojects by paying attention to the concepts of green chemistry and sustainable chemistry.
7. Compile practicum reports systematically and meet the rules of good and correct scientific writing.
8. Communicate the results of the miniproject in the form of scientific presentations.



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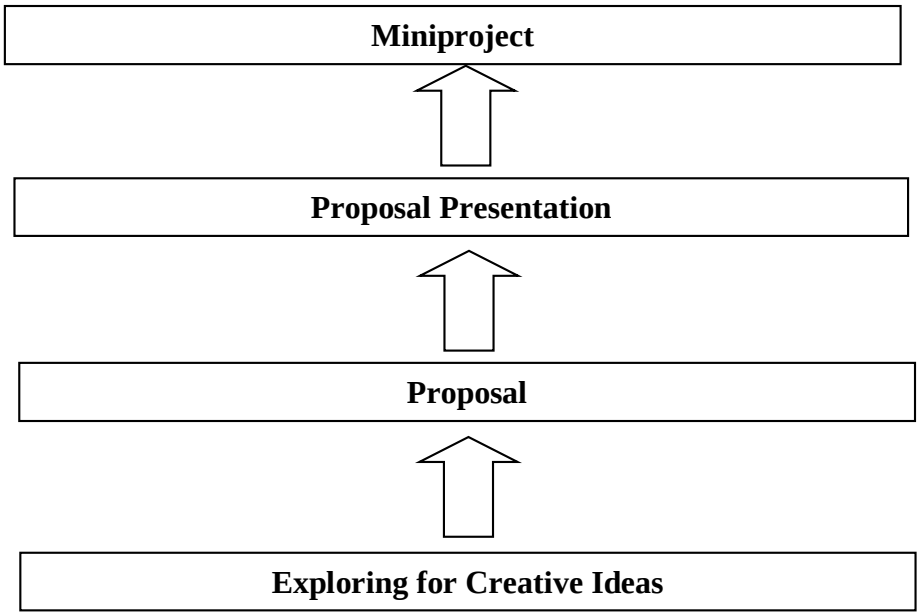

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SEMESTER LEARNING PLAN

Course Name	:	Integrated Practicum II
Code / SKS	:	KIM1359B/2(0–2)
Semester	:	6
Course Description	:	This course is given in the form of a mini-research project. Students learn to do simple research by working in laboratories. Mini-research project topics include natural materials chemistry; environmental chemistry; biological chemistry; and synthesis and characterization of materials (organic and inorganic materials).
Prerequisite Courses	:	None
Graduate Learning Outcomes		**KNOWLEDGE** A.1 Can relate structure and universe systematically through observation and experiments that utilize science and technology as basic science applications including mathematics, physics, chemistry, and biology. A.2 Can describe the theoretical concepts of structure, properties, and changes kinetically and thermodynamically, identification, separation, characterization, transformation, material synthesis, and their application. **SPECIFIC SKILLS** B.1 Can organize the standard operations of the functions and operations of chemical instruments, as well as analyze data and information to produce appropriate conclusions. B.2 Can use software for analysis, synthesis, and modeling of molecules in the field of chemistry.

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	B.3 Can demonstrate good practical work in the laboratory to support theoretical aspects by considering aspects of safety, occupational health, and the environment. B.4 Can solve science and technology problems in the field of chemistry including identification, analysis, isolation, transformation, and synthesis of simple materials through the application of knowledge of structure, properties, molecular changes, kinetics, and thermodynamics **GENERAL ATTITUDES AND SKILLS** C.1 Can show devotion to God Almighty; uphold human values; contribute to improving the quality of community life; pride and love of the motherland; respect for diversity; can cooperate; law-abiding and discipline-abiding; internalization of values, norms, and ethics; responsible; internalize the spirit of independence, struggle, and entrepreneurship. C.2 Can communicate orally and scientifically in writing; interpret, process, and present data; demonstrate skills in numeracy and mathematical thinking; demonstrate skills in problem-solving; demonstrate ethical responsibilities; sourcing information, teamwork, and time management well; demonstrate soft skills such as organizational skills, creativity, and leadership.
Course Learning Outcomes	: Students can 1. Look for creative ideas to be a topic in a miniproject. 2. Pour creative ideas into miniproject proposals. 3. Arrange equipment and chemical needs to run a miniproject in the mini-project proposal. 4. Conduct a simple chemical risk assessment according to the theme of the miniproject.

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	5. Communicate miniproject proposals in the form of scientific presentations. 6. Using laboratory equipment needed in miniprojects by paying attention to the concepts of green chemistry and sustainable chemistry. 7. Compile practicum reports systematically and meet the rules of good and correct scientific writing. 8. Communicate the results of *the* miniproject in the form of scientific presentations.
Study Material on *the Royal Society of Chemistry (RSC)*[2)] *Chemistry Curriculum Map 2)*	:
Divisions/Fields of Science	: Department
Lecturer (Teaching Team)	: Integrated Practicum II Teaching Team

[1)]Response/practicum activities are expressed in credits, not in the number of hours
[2)]see Excel file Chemistry Curriculum Map from RSC

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I. LESSON PLAN

Week of	Expected end capability	Study materials (teaching materials)	Learning methods	Estimation time	Student learning experience	Valuation			Reference
						Criterion	Indicator	Weight (%)	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1, 8	Can get creative ideas to be used as miniproject themes. Can explain the safety of working in the laboratory. Can explain how to work in a good and correct laboratory. Can find reference libraries that can help to realize miniprojects.	a Introduction to Integrated Practicum II (Rules, Procedures, Safety of Working in the Laboratory, Working in a Good and Correct Laboratory) b Creative Idea Search Strategy Integrated Practicum c Reference/Library Search Strategy for Integrated Practicum Proposals/Reports	Synchronous-Off-Network/Offline Face-to-Face Lectures include: a Lectures b Class Interactive Discussion. c Review of Discussion Results	2 x 170 minutes	a Gain insight and explanation of Integrated Practicum II through visual learning. b Interact with students and: (i) Lecturers (ii) Other students (iii) Teaching materials. c Obtain conformity/understanding of opinions, agreements, and joint decisions on a problem.	**Hard Skills:** Complete knowledge and skills about: a Safety of work in the laboratory. b Working in a good and correct laboratory. c Creative ideas suitable for themes in the integrated practicum. d Reference/literature search according to rules in writing scientific papers **Soft Skills:** a Activeness. b Cooperation. c Responsibility. d Discipline. e Accuracy and thoroughness in making questions and statements during interactive discussions.	a. >90% of students can apply work safety in the laboratory. b. >90% of students apply good and correct ways of working in the laboratory. c. >90% of students get creative ideas as the theme of Integrated Practicum II d. >90% of students can search libraries using Google Scholar	5	xx
2, 9	Can list the needs of equipment, chemicals, and other supports for	Preparation of a list of equipment needs, chemicals, and other supports.	Synchronous-Asynchronous on/offline includes: a Presentation of each	2 x 170 minutes	a Acquire skills in preparing miniproject proposals. b Interact with	**Hard Skills:** Complete knowledge and skills about: a How to realize	a. > 90% of students can express creative ideas into proposals that are	10	

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	miniproject purposes. Can conduct a simple chemical risk assessment in accordance with the theme of the miniproject. Can prepare mini-project proposals in accordance with predetermined themes and accommodate: (i) the principle of work safety in the laboratory (ii) how to work in a good and correct laboratory. (iii) green chemistry. (iv) sustainable chemistry	Preparation of chemical risk assessment documents according to the miniproject. Preparation of mini-project proposals.	group (@ 7-8 students) b Interactive discussions outside the classroom. c Review of discussion results		students and: - Lecturers - Other students - Proposal materials he prepared. c Obtain conformity/understanding of opinions, agreements, and joint decisions on a problem.	creative ideas into proposals that are systematically prepared, easily understood by readers who come from various scientific fields, especially chemistry, and supported by relevant and up-to-date references. b How to prepare *a* simple chemical risk assessment document c Mini-project proposal writing format according to scientific paper writing. **Soft Skills:** a. Activeness. b. Cooperation c. Responsibility d. Discipline a. Accuracy and thoroughness in making questions and statements during interactive discussions.	systematic, easy to understand, and supported by relevant and up-to-date literature. b. >90% of students can prepare proposals using writing formats that are appropriate to guidelines and apply scientific paper writing.		
3, 10	Can present mini-project proposals.	Mini-project Proposal Presentation.	Synchronous-Offline/Offline Face-to-Face Lectures include: a Lectures b Class Interactive Discussion c Review of Discussion Results	2 x 170 minutes	a Acquire skills in preparing miniproject proposals. b Interact with students and: - Lecturers - Other students - Proposal	**Hard Skills:** Complete knowledge and skills about: - Good way of scientific presentation - How interactive discussions are held.		20	

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					materials he compiled. c Obtain conformity/understanding of opinions, agreements, and joint decisions on a problem.	**Soft Skills:** a Activeness b Cooperation c Responsibility d Discipline e Accuracy and thoroughness in making questions and statements during interactive discussions.			
4–7 and 11–14	Can apply safety working in the laboratory in miniproject activities. Can apply how to work in a good and correct laboratory in miniproject activities. Can use chemical analysis equipment to complete miniprojects. Can solve complex problems found in the completion of miniprojects.	Application of Work Safety in the Laboratory Application of How to Work in a Good and Correct Laboratory Preparation of Tools, Chemicals, and Test Materials Synthesis, Characterization, and Application Stages	Synchronous-Asynchronous on/offline includes: a Independent work per group (@ 7-8 students) b Interactive discussions outside the classroom c Review of discussion results	3 x 170 minutes	a Acquire skills in completing mini projects in the laboratory independently. b Interact with students and: - Lecturers - Other students - Proposal materials he compiled. c Obtain conformity/understanding of opinions, agreements, and joint decisions on a problem.	**Hard Skills:** Complete knowledge and skills about: a Operating chemical analysis equipment in completing mini projects. b Work to complete mini projects independently in the laboratory c How to solve complex problems by applying critical thinking concepts **Soft Skills:** a Accuracy b Cooperation c Responsibility d Discipline e Accuracy and thoroughness in making questions and statements during interactive discussions.		50	

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II. ASSESSMENT DESIGN

No.	Learning outcomes	ASSIGNMENTS (Resume/Papers/Presentations/Miniprojects, others)[3)]	Implementation of assessment: Week of
1.	Exploring creative ideas to be a topic in *a* miniproject	Discussion	1 and 8
2.	Transferring creative ideas into mini-project proposals	Discussion and Group Work	2 and 9
3.	Arrange equipment and chemical needs to run a miniproject as written in the miniproject proposal	Proposal	3 and 10
4.	Conduct a simple chemical risk assessment according to the theme of the miniproject	Proposal	3 and 10
5.	Communicate the miniproject proposals in the form of scientific presentations.	Presentation	3 and 10
6.	Using laboratory equipment needed in miniprojects by paying attention to the concepts of green chemistry and sustainable chemistry	*Small Project*	4-7 and 11-14
7.	Compile practicum reports systematically and meet the rules of good and correct scientific writing	Paper	4-7 and 11-14
8.	Communicate the results of the miniproject in the form of scientific presentations	Presentation	4-7 and 11-14

[3)]Choose one

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III. GRADING WEIGHTS

Assessment Criteria	Score Range	Weight (%)	Remarks
I. Exploring creative ideas to be a miniproject topic	30–90	5	Individual
I. Transferring creative ideas into miniproject proposals	30–90	10	Group
II. Arrange equipment and chemical needs to run a miniproject in the miniproject proposal	30–90		Group
III. Conduct a simple chemical risk assessment according to the theme of the miniproject	30–90		Group
IV. Communicate miniproject proposals in the form of scientific presentations	50–100	15	Group
V. Using laboratory equipment needed in the miniprojects by considering the concepts of green chemistry and sustainable chemistry	0–100	50	Individual
VI. Compile practicum reports systematically and meet the rules of good and correct scientific writing	50–100	10	Group
VII. Communicate the results of the mini project in the form of scientific presentations	50–100	10	Group
Grading for KIM 1359B/ credits 3(2-1)		**100**	

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IV. ASSIGNMENT GRADING RUBRIC [4)]

Score range	Group Resume Appraisal Criteria
≥ 90	If students can: I Compile a resume of teaching materials with good systematics, II Compiling resumes effectively, efficiently, precisely, and in accordance with teaching materials III Use good and correct sentences according to the Indonesian Writing General Guideline IV Writing well corresponds to the writing of scientific papers and not popular writing V Submit resumes on time VI Have a good, neat, and polite delivery attitude.
80--<90	If students can: I Compile a resume of teaching materials with good systematics, II Compiling resumes effectively, efficiently, precisely, and in accordance with teaching materials III Use good and correct sentences according to PUEBI, IV Writing well corresponds to writing scientific papers and not popular writing
70--<80	If students can: I Compile a resume of teaching materials with good systematics, II Compiling a resume appropriately and in accordance with the teaching material, III Use good sentences, but there are some that do not correspond to PUEBI

[4)]The grading rubric can be adjusted to the assigned task