

SYLLABUS

KIM 1457

CHEMICAL INNOVATIONS IN AGRICULTURE, MARINE, AND TROPICAL BIOSCIENCES

3(1-2)

Pengesahan		Persetujuan		Penyusunan	
Tanggal	DD/MM/YYYY	Tanggal	DD/MM/YYYY	Tanggal	DD/MM/YYYY
Ketua Departemen	(.....)	Kepala Divisi	(.....)	Koordinator Mata Kuliah	(.....)

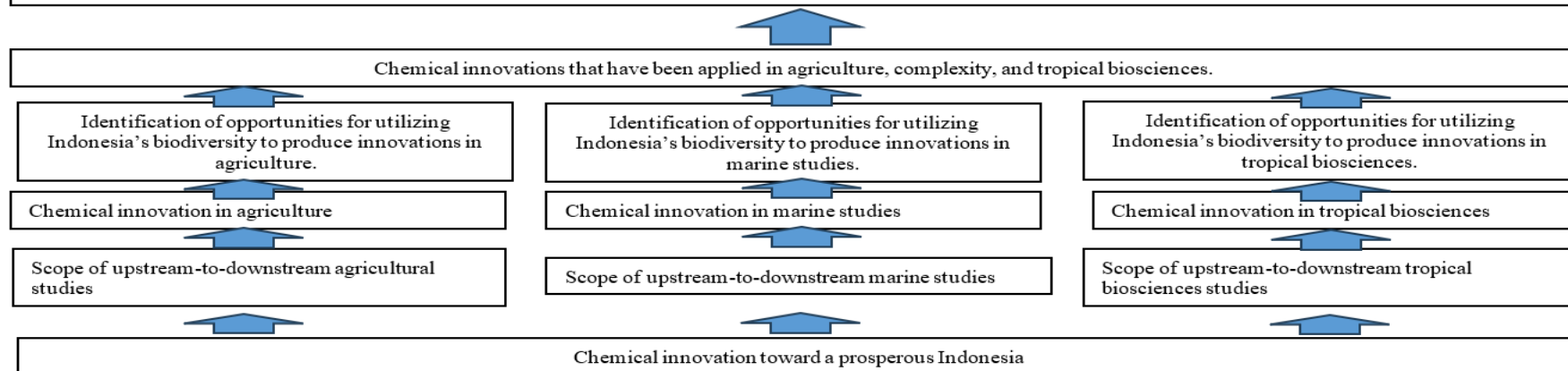
Instructional Analysis

Oral communication	Scientific report writing	Data Presentation	Data Processing	Numbering & Mathematical Skill	Problem Solving Skill	Ethical responsibility	Sourcing information	Team working	Time Management & Organizational Skills
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A1 able to relate the structure and the universe systematically through observation and experiments that utilize science and technology as basic science applications including mathematics, physics, chemistry, and biology.

B4 able to solve science and technology problems in chemistry including identification, analysis, isolation, transformation, and synthesis of simple materials through the application of knowledge of structure, properties, molecular changes, kinetics, and thermodynamics.

C1 able to communicate orally and in scientific writing; interpret, process, and present data; demonstrate skills in numeracy and mathematical thinking; demonstrate skills in problem-solving; demonstrate an attitude of ethical responsibility; perform information sourcing, team working, and time management properly; demonstrate soft skills such as organizational skills, creativity, and leadership.



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Course name	: Chemical Innovations In Agriculture, Marine And Tropical Biosciences
Code/credit	: KIM1457 / 3(1-2)
Semester	: 7 (seven)
Description	: This capstone course is a series of activities starting from lectures and practitioners in the fields of agriculture, marine, and tropical biosciences to develop chemical innovations in these fields to an action in solving cases or problems in agriculture, marine, and tropical biosciences which are carried out in groups with direct application in the area. The result of this capstone is a small concept of solving problems in agriculture, marine and tropical biosciences using chemical innovation.
Prerequisite course	: -
Learning outcomes	: A1 able to relate the structure and the universe systematically through observation and experiments that utilize science and technology as basic science applications including mathematics, physics, chemistry, and biology. B4 able to solve science and technology problems in chemistry including identification, analysis, isolation, transformation, and synthesis of simple materials through the application of knowledge of structure, properties, molecular changes, kinetics, and thermodynamics. C1 able to communicate orally and in scientific writing; interpret, process, and present data; demonstrate skills in numeracy and mathematical thinking; demonstrate skills in problem-solving; demonstrate an attitude of ethical responsibility; perform information sourcing, team working, and time management properly; demonstrate soft skills such as organizational skills, creativity, and leadership.
Scope and curriculum map of royal society of chemistry (rsc)	: Give reasons, based on evidence from fair and comparative tests, for particular uses of everyday material and natural resources (agriculture, ocean, and bioscience tropical).
Division/field	: Department
Lecturer	: Prof Dr Irmanida Batubara Dr dr Irma Herawati Suparto Prof Dr Purwantiningsih Dr Sri Mulijani Dr Trivadila

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	Dr Wulan Tri Wahyuni Dr Zaenal Abidin, MAgri Dr Novriyandi H
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Table 1. Plan for Study

Week	Learning outcome	Topic	Method	Duration	Study experience	Assessment			Reference
						Criteria	Indicator	%	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1-2	a. Able to explain the purpose and description of the capstone design course b. Able to explain the need for chemical innovation in realizing a prosperous indonesia	a. Introduction b. Chemical innovation toward a prosperous indonesia	Synchronous-face to face lectures outside the network/online include: a. Lecture b. Interactive class discussion c. Review of discussion results	2 x 50 minutes	A. Gain insight and explanation about capstone design and the objectives of this course, gain insight into the need for chemical innovation in realizing a prosperous indonesia. B. Interact between students and: (i) lecturer (ii) other students (iii) between groups (iv) teaching materials.	Hard skills: Completeness and truth about: Innovation from indonesian biodiversity Soft skills: A. Liveliness B. Cooperation C. Responsibility D. Discipline E. Accuracy and thoroughness in making questions and statements during interactive discussions	A. >90% of students answered correctly the question of understanding the capstone design B. >90% of students answered correctly about the need for chemical innovation in creating a prosperous indonesia		

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					c. Obtain conformity/understanding of understanding, opinion, agreement, and joint decision on a problem.				
3-5	<p>Able to explain the scope of upstream-to-downstream agricultural studies</p> <p>Able to explain chemical innovations needed in agriculture</p> <p>Able to identify opportunities and take advantage of indonesia's biodiversity to produce chemical innovations in agriculture</p>	<p>A. Scope of upstream-to-downstream agricultural studies</p> <p>B. Chemical innovation in agriculture</p> <p>C. Identification of opportunities for utilizing indonesia's biodiversity to produce innovations in agriculture</p>	<p>Synchronous-face to face lectures outside the network/offline include:</p> <ul style="list-style-type: none"> lectures class interactive discussions review of discussion results 	3 x 50 minutes	<p>A. Gain insight and explanation about the scope of upstream-to-downstream agricultural studies, chemical innovation in agriculture, identification of opportunities for utilizing indonesia's biodiversity to produce innovation in agriculture</p> <p>B. Interact between students and: Lecturer (i) other students (ii) between groups (iii) teaching materials</p> <p>C. Obtain conformity/understanding of understanding,</p>	<p>Hard skills: Completeness and truth about capstone design and objectives of this course, gain insight into the need for chemical innovation in realizing a prosperous indonesia</p> <p>Soft skills: A. Liveliness B. Cooperation C. Responsibility D. Discipline E. Accuracy and thoroughness in making questions and statements during interactive discussions</p>	<ul style="list-style-type: none"> >90% of students answered correctly regarding the material Scope of upstream to downstream agricultural studies >90% of students answered correctly regarding chemical innovation material in agriculture >90% of students answered correctly regarding the material identification of opportunities for utilizing 		

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					opinion, agreement, and joint decision on a problem		indonesia's biodiversity to produce innovations in agriculture		
6-8	<p>Able to explain the scope of upstream to downstream marine studies</p> <p>Able to explain chemical innovations needed in the marine field</p> <p>Able to identify opportunities to take advantage of indonesia's biodiversity to produce chemical innovations in the marine field</p>	<p>A. Scope of upstream-to-downstream marine studies</p> <p>B. Chemical innovation in the marine field</p> <p>C. Identification of opportunities for utilizing indonesia's biodiversity to produce innovations in the marine sector</p>	<p>Synchronous-face to face lectures outside the network/offline include:</p> <p>A. Lecture</p> <p>B. Interactive class discussion</p> <p>C. Review of discussion results</p>	3 x 50 minutes	<p>A. Gain insight into the scope of upstream to downstream studies, chemical innovation in the field of complexity</p> <p>Identification of opportunities for the utilization of indonesia's biodiversity to produce innovations in the marine sector</p> <p>B. Interact between students and:</p> <p>(i) lecturer</p> <p>(ii) other students</p> <p>(iii) between groups</p> <p>(iv) exposed materials</p> <p>C. Gain an understanding/understanding of understanding, opinion, agreement,</p>	<p>Hard skills:</p> <p>Completeness and truth about the scope of study of upstream to downstream issues</p> <p>Chemical innovation in the marine field</p> <p>Identification of opportunities for the utilization of indonesia's biodiversity to produce innovations in the marine sector</p> <p>Soft skills:</p> <p>A. Liveliness</p> <p>B. Cooperation</p> <p>C. Responsibility</p> <p>D. Discipline</p> <p>E. Accuracy and thoroughness in making questions and statements during interactive discussions</p>	<ul style="list-style-type: none"> • >90% of students answered correctly regarding the material scope of marine studies upstream to downstream • >90% of students answered correctly regarding the chemical innovation material in the maritime field • >90% of students answered correctly regarding the material identification of opportunities for utilizing indonesia's 		

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					and joint decision on an issue		biodiversity to produce innovations in the marine sector		
9-11	<p>Able to explain the scope of tropical bioscience studies</p> <p>Able to explain chemical innovations needed in the field of tropical biosciences</p> <p>Able to identify opportunities to take advantage of indonesia's biodiversity to produce chemical innovations in the field of tropical biosciences</p>	<p>A. Scope of study of tropical biosciences</p> <p>B. Chemical innovation in the field of tropical biosciences</p> <p>C. Identification of opportunities for utilizing indonesia's biodiversity to produce innovations in the field of tropical biosciences</p>	<p>Synchronous-face to face lectures outside the network/offline include:</p> <ul style="list-style-type: none"> lectures class interactive discussions review of discussion results 	3 x 50 minute	<p>A. Gain insight into the scope of tropical bioscience studies, chemical innovation in the field of tropical biosciences, and identification of opportunities for utilizing indonesia's biodiversity to produce innovations in tropical biosciences</p> <p>b. Conduct interactions between students and: Or lecturer Or other students Or between groups Or open materials</p> <p>c. Gain awareness/understanding of understanding, opinion, agreement, and joint decision on a problem</p>	<p>Hard skills: Completeness and truth about the scope of study of tropical biosciences Chemical innovation in the field of tropical biosciences Identification of opportunities for utilizing indonesia's biodiversity to produce innovations in the field of tropical biosciences</p> <p>Soft skills: A. Liveliness B. Cooperation C. Responsibility D. Discipline E. Accuracy and thoroughness in making questions and statements during interactive discussions</p>	<ul style="list-style-type: none"> >90% of students answered correctly regarding the material scope of study of tropical biosciences >90% of students answered correctly regarding the material of chemical innovation in the field of tropical biosciences >90% of students answered correctly regarding the material identification of opportunities for utilizing indonesia's biodiversity to 		

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							produce innovations in the field of tropical biosciences		
12-14	Able to explain the application of chemical innovation in the fields of agriculture, marine, and tropical biosciences	Chemical innovations that have been applied in agriculture, complexity, and tropical biosciences	Synchronous-face to face lectures outside the network/offline include: A. Lecture B. Interactive class discussion C. Review of discussion results	3 x 50 minutes	<ul style="list-style-type: none"> gain insight into chemical innovations that have been applied in agriculture, fallacies, and tropical biosciences conduct interactions between students and: Or lecturer Or other students Or between groups Or open materials gain awareness/understanding of understanding, opinion, agreement, and joint decision on a problem 	<p>Hard skills: Completeness and truth about Chemical innovations that have been applied in the fields of agriculture, marine and tropical biosciences</p> <p>Soft skills: A. Liveliness B. Cooperation C. Responsibility D. Discipline E. Accuracy and thoroughness in making questions and statements during interactive discussions</p>	>90% of students answered correctly regarding chemical innovation materials that have been applied in the pharmaceutical, confusion, and tropical biosciences fields		

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Table 2. Plan for Assignment

Week	Topic	Objective	Description	Assesment criteria
1	A. Practical explanation B. Practicum group section	Able to explain the purpose and practicum description of the capstone design course	The students divided into small group and design the project in agriculture, marine, and tropical biosciences. Each group get one big theme, either agricultural science, marine science, or tropical biosciences.	Hard skills: • completeness and truth • objectives and description of the capstone design practicum Soft skills: • liveliness • responsibility • discipline • accuracy and thoroughness in making questions and statements during interactive discussions • teamwork • time management • creativity • leadership
2	A. Idea determination B. Literature study in selecting themes in each group C. Chemical innovation D. Identification of opportunities for utilizing indonesia's biodiversity to produce innovations in the fields	Able to determine the idea of a capstone design in accordance with the specified theme. Able to communicate verbally, interpret, process, and present data in selecting ideas to design. Able to identify opportunities to take advantage of indonesia's biodiversity to produce chemical innovations in	In each group, the students do literature study and make discussion related to the idea and the goal for the project. During the discussion, the group select who will be the leader, etc and prepare their organizational skill. The students have to determine the chemical innovation and identify the opportunity to take advantage of indonesia's biodiversity to produce chemical innovations in agriculture, marine, and tropical biosciences.	Hard skills: • Completeness and truth about the capstone design and related ideas that will be agreed upon in realizing a prosperous indonesia Soft skills: • liveliness • oral communication: express opinions • responding to opinions • Team work

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	of agriculture, marine and tropical biosciences E. Idea goals	agriculture, marine, and tropical biosciences.	Each group will make discussion with the farmer, fishermen, or industry related to tropical biosciences.	<ul style="list-style-type: none"> Sourcing information make decisions cooperation creativity leadership discipline: time management accuracy and thoroughness in making questions and statements during interactive discussions Ethical responsibilities
3-5	<p>A. Scope of study of agriculture, marine, and tropical biosciences</p> <p>B. Chemical innovation in the field of agriculture, marine, and tropical biosciences</p> <p>C. Identification of opportunities for utilizing indonesia's biodiversity to produce innovations in the field of tropical biosciences</p>	<p>Able to put the background of the idea in the form of videos/presentation materials/ and others</p> <p>By systematically linking structure and the universe through observation</p> <p>Able to communicate verbally, interpret, process, and present data in selecting ideas to design</p> <p>Identify opportunities to take advantage of indonesia's biodiversity to produce chemical innovations in agriculture</p>	<p>Based on the idea selected in previous week, the group should select the reputable information to put the background of the idea in the form of videos/presentation materials/ and others</p> <p>By systematically linking structure and the universe through observation.</p> <p>Each group can make discussion with the farmer, fishermen, or industry related to tropical biosciences.</p>	<p>Hard skills:</p> <ul style="list-style-type: none"> completeness and truth about the scope of study from upstream to downstream chemical innovation in agriculture and tropical biosciences identification of opportunities for utilizing indonesia's biodiversity to produce innovations in the fields of agriculture, marine and tropical biosciences <p>Soft skills:</p> <ul style="list-style-type: none"> liveliness oral communication: express opinions responding to opinions Team work Sourcing information Data processing Data presentation make decisions

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				<ul style="list-style-type: none"> • cooperation • creativity • leadership • discipline: time management • accuracy and thoroughness in making questions and statements during interactive discussions • Ethical responsibilities
6	<p>A. Plan for preparing video/presentation material</p> <p>B. Making presentations/video materials</p> <p>C. Finalization of video/presentation material</p>	<p>Able to prepare oral communication materials related to the background of ideas</p> <p>Explain the chemical innovations needed in the field of tropical biosciences</p> <p>Able to identify opportunities to take advantage of indonesia's biodiversity to produce chemical innovations in agriculture</p>	<p>Each group have to prepare the materials in the presentation form, making video, and present the materials.</p> <p>Each group can make discusion or make video with the farmer, fishermen, or industry related to tropical biosciences.</p>	<p>Hard skills:</p> <p>A. Completeness and truth about the scope of upstream to downstream marine studies</p> <p>B. Chemical innovation in marine agriculture and tropical biosciences</p> <p>C. Identification of opportunities for utilizing indonesia's biodiversity to produce innovations in the fields of agriculture, marine and tropical biosciences</p> <p>Soft skills:</p> <ul style="list-style-type: none"> • iveliness • oral communication: express opinions • responding to opinions • Team work • Sourcing information • Data processing • Data presentation • make decisions • cooperation • creativity

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				<ul style="list-style-type: none"> • leadership • discipline: time management • accuracy and thoroughness in making questions and statements during interactive discussions • Ethical responsibilities
7	Idea background presentation and idea goals	Able to present ideas verbally	Each group present about the background and idea goal of each group. Other groups should give comment and/or suggestion to the presenter to make the idea more concrete.	<p>Hard skills: Completeness and truth about chemical innovations that have been applied in the fields of agriculture, marine and tropical biosciences</p> <p>Soft skills: <ul style="list-style-type: none"> • liveliness • presentation • cooperation • responsibility • disciplined accuracy in presentation • accuracy and thoroughness in making questions and statements during interactive discussions </p>
8-10	<ul style="list-style-type: none"> • identification of solutions that can be implemented in utilizing indonesia's biodiversity to produce innovations in the field of tropical biosciences 	<p>Able to formulate designs to achieve goals by systematically linking structure and the universe through observation</p> <p>Able to communicate verbally, interpret, process, and present data in selecting the proposed solution design ideas to achieve goals</p>	Each group formulate designs to achieve goals by systematically linking structure and the universe through observation by discussion in group and with the farmer, fishermen, or industry related to tropical biosciences.	<p>Hard skills: <ul style="list-style-type: none"> • completeness and accuracy of the scope of upstream to downstream marine studies • chemical innovation in marine agriculture and tropical biosciences • identification of opportunities for utilizing indonesia's biodiversity to produce </p>

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	<ul style="list-style-type: none"> design agreed-on solutions 	Identify opportunities to take advantage of indonesia's biodiversity to produce chemical innovations in agriculture		<p>innovations in the fields of agriculture, marine and tropical biosciences</p> <p>Soft skills:</p> <ul style="list-style-type: none"> liveliness cooperation responsibility discipline accuracy and thoroughness in making questions and statements during interactive discussions
11-12	Industrial visits	Understand chemical innovations in agriculture, marine, and tropical biosciences that have been applied in industry	Each group formulate designs to achieve goals by systematically linking structure and the universe through observation by discusion in group and with the farmer, fishermen, or industry related to tropical biosciences.	<p>Hard Skills:</p> <ol style="list-style-type: none"> Completeness and truth about chemical innovations that have been implemented in the industry Identify how the industry is implementing innovation <p>Soft Skills:</p> <ol style="list-style-type: none"> liveliness Cooperation responsibility discipline accuracy and thoroughness in making questions and statements during interactive discussions

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13	<p>a. Plan for preparing video/presentation material</p> <p>b. Making presentations/video materials</p> <p>c. Finalization of video/presentation material</p>	<p>Able to prepare oral communication materials related to the design of ideas and solutions to be conveyed</p> <p>Explain the chemical innovations needed in the field of tropical biosciences</p> <p>Able to identify opportunities to take advantage of Indonesia's biodiversity to produce chemical innovations in agriculture</p>	<p>Each group have to prepare the materials in the presentation form, making video, and present the materials.</p> <p>Each group can make discussion or make video with the farmer, fishermen, or industry related to tropical biosciences.</p>	<p>Hard Skills:</p> <ul style="list-style-type: none"> • Completeness and truth about the Scope of upstream to downstream marine studies • Chemical innovation in marine agriculture and tropical biosciences • Identification of opportunities for utilizing Indonesia's biodiversity to produce innovations in the fields of agriculture, marine and tropical biosciences <p>Soft Skills:</p> <ul style="list-style-type: none"> • Liveliness • Cooperation • Responsibility • discipline • accuracy and thoroughness in making questions and statements during interactive discussions
14	<p>Presentation of the background of the idea, the purpose of the idea and the design of the solution</p>	<p>Able to present design ideas related to solutions orally</p>	<p>Each group present about the background and idea goal of each group. Other groups should give comment and/or suggestion to the presenter to make the idea more concrete.</p>	<p>Hard Skills:</p> <p>Completeness and truth about chemical innovations that have been applied in the fields of agriculture, marine and tropical biosciences</p> <p>Soft Skills:</p> <ul style="list-style-type: none"> • Liveliness • Presentation • Cooperation

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				<ul style="list-style-type: none"> • responsibility • discipline • accuracy in presentation • accuracy and thoroughness in making questions and statements during interactive discussions
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Table 3. Plan for Assesement

Learning outcomes	Assignment	Exam			
		Report of guest lecture	Video and presentation (mid)	Video and presentation (final)	Final Report
Be able to explain the purpose and description of the capstone design course Identify topics that will be compiled to obtain an innovation from biodiversity	The group brainstormed to discuss the topic to be chosen		√		√
Able to explain the scope of upstream-to-downstream agricultural studies Able to explain chemical innovations needed in agriculture Able to identify opportunities and take advantage of indonesia's biodiversity to produce chemical innovations in agriculture	A. Idea determination B. Literature study in selecting themes in each group C. Chemical innovation in the field of agriculture D. Identification of opportunities for utilizing indonesia's biodiversity to produce innovations in the fields of agriculture E. Idea goals	√	√	√	√
Able to explain the scope of upstream to downstream marine studies Able to explain chemical innovations needed in the marine field Able to identify opportunities to take advantage of indonesia's biodiversity to produce chemical innovations in the marine field	Chemical innovation in the field of marine Identification of opportunities for utilizing indonesia's biodiversity to produce innovations in the field of marine Idea goals	√	√	√	√
Able to explain the scope of tropical bioscience studies Able to explain chemical innovations needed in the field of tropical biosciences	Chemical innovation in the field of tropical biosciences Identification of opportunities for utilizing indonesia's biodiversity to produce innovations in the field of tropical biosciences	√	√	√	√

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Able to identify opportunities to take advantage of indonesia's biodiversity to produce chemical innovations in the field of tropical biosciences	Idea goals				
Able to explain the application of chemical innovation in the fields of agriculture, marine, and tropical biosciences	a. Plan for preparing video/presentation material b. Making presentations/video materials c. Finalization of video/presentation material	√		√	√

Table 4. Distribution of Asesement

Assesment criteria	Range	%	Note
Guest lecturer report	70 -100	20	Individual score
Activeness rubric	50 -100	20	Individual score from the team in group
Final report	70 -100	10	Group score
Activeness in Presentation	50 - 100	10	Individual score from other group
Midterm video/presentation	10 – 100	15	Group score
Finalterm video/presentation	10 - 100	25	Group score
The Score Of Chemical Innovation In Agricultural, Marine And Tropical/Chemical Biosciences/KIM 1457/3(1-2)		100	

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Table 5. Assesment Criteria
Rubric for Guest Lecturer Report

Range	Assesment criteria
≥ 90	if students can: - compiling a resume of teaching materials with good systematics, - Compile an effective, efficient, precise resume, and in accordance with the teaching material - use good and correct sentences according to PUEBI, - write well in accordance with the writing of scientific papers and not popular writing, - submit resumes on time, - Have a good delivery attitude, neat, and polite.
$80 \leq x < 90$	if students can: - compiling a resume of teaching materials with good systematics, - Compile an effective, efficient, precise resume, and in accordance with the teaching material - use good and correct sentences according to PUEBI, - write well in accordance with the writing of scientific papers and not popular writing
$70 \leq x < 80$	if students can: - compiling a resume of teaching materials with good systematics, - compiling a resume appropriately and in accordance with the teaching material, - using good sentences, but there are some that are not in accordance with PUEBI

Activeness Rubric

	Assesment Criteria				Point
	Exceeded Expectations (EEX) (90-100%)	As Expected (MEX) (76-89%)	Close to Expectations (APP) (60-75%)	Need to Improve (NIM) (50-60%)	
Classroom Engagement Rate	Your peers proactively contribute to class by offering ideas and/or asking questions more	Your peers proactively contribute to class by offering ideas and/or asking questions more	Your colleagues rarely contribute to class by offering ideas and asking questions and/or	Your colleagues never contribute to class by offering ideas and asking questions	

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	than once per class and/or working consistently on group projects over time.	than once per class and/or working in group projects for most of the allotted time.	working on group projects for only part of the allotted time.	and/or have difficulty staying on task during group project time..	
Comment Quality	Comments are always insightful and constructive. Use the appropriate terminology. Comments are balanced between general impressions, opinions and specific, thoughtful criticisms or contributions.	The comments are mostly insightful and constructive. Most use the right terminology. Sometimes comments are too general or irrelevant to the discussion.	Comments are occasionally constructive with the occasional hint of insight. Your partner doesn't use the right terms. Comments are not always relevant to the discussion.	Uninformative comments, lacking in proper terminology. Strong reliance on personal opinion and taste. Example: "I like it", "I hate it", "It's bad", etc.	
Listening Ability	Your partner listens attentively as others present material, perspectives, as indicated by comments that build on others' comments, i.e. Your partner hears what the other person has to say and contributes to the dialogue.	Your colleagues mostly pay attention when others present ideas, materials, as shown by comments that reflect and build on the comments of others. Sometimes it takes encouragement or reminders from the moderator to focus on commenting.	Your colleagues are often negligent and need class focus reminders. Occasionally makes distracting comments while others are talking.	Your partner doesn't listen to other people. Regularly talking when others are talking or not paying attention when others are speaking. Change subject. Sleep, and others.	
Behavior	Your colleagues almost never exhibit disruptive behavior during class.	Your colleagues rarely display disruptive behavior during class.	Your colleague sometimes displays	Your partner consistently exhibits disruptive behavior during class.	

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			disruptive behavior during class.		
Preparation	Your companion is almost always ready for class with the necessary assignments and class materials.	Your companion is usually ready for class with the necessary assignments and class materials.	Your partner is rarely ready for class with the required class assignments and materials.	Your partner is rarely ready for class with the required class assignments and materials.	
Task Completion	Your partner turns in 80-100% of assigned tasks.	Your partner submits 60-79% of assigned tasks.	Your colleagues turn in 40-59% of assigned tasks.	Your colleagues turn in 10-39% of assigned tasks.	

Final Report Rubric

Criteria	Role Model (9-10)	Competent (7-8)	Satisfy (5-6)	Need to be Improved (3-4)	Weak (1-2)	Score
Introduction: Problem Formulation and Objectives	Topic issues are stated very clearly. Number of manageable goals that are clear and aligned with the stated problem.	The problems and objectives of the topic are stated but one or more are not stated clearly and concisely.	Topic issues are stated but there is a lack of coherence between research objectives, problems/opportunities and objectives.	The topic problem is too broad. Research objectives are not aligned with the stated problem.	Research problems are stated vaguely while research objectives are not stated.	15
Introduction	Demonstrate a thorough understanding of the conceptual basis, scope, and significance of the problem; always use	Demonstrate a broad understanding of the conceptual basis, scope, and significance of the problem; often use scientific	Demonstrate a broad understanding of the conceptual basis, scope, and significance Provide sufficiently relevant resources to justify the	Demonstrate a general knowledge base to understand the significance or scope of the problem; conceptual misunderstandings;	Demonstrate some general knowledge to understand the significance or scope of the problem; conceptual misunderstandings;	15

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	scientific terminology in analytical chemistry appropriately.	terminology in analytical chemistry appropriately.	topic question; occasionally uses scientific terminology in analytical chemistry to precisely fix the problem; often use scientific terminology in analytical chemistry appropriately..	rarely use scientific terminology in analytical chemistry properly.	does not use scientific terminology in analytical chemistry appropriately.	
Language	Use good and correct sentences according to PUEBI.	Using good sentences, but found a few that are not in accordance with PUEBI.	Using good sentences, but there are some that are not in accordance with PUEBI.	Using good sentences, but many are not in accordance with PUEBI.	Not using good sentences and not in accordance with PUEBI.	5
Paper Formats	Writing well is in accordance with writing scientific papers and not popular writing..	-	Writing well is in accordance with writing scientific papers but some parts are like popular writing.	-	Writing is not in accordance with the writing of scientific papers.	5
Literature Use and Quality	Convincing evidence from valid sources is professionally provided to support claims. Attributions are clear and fairly represented. References are	Professionally valid sources supporting claims generally exist and attributions are, for the most part, clear and fairly represented. Although most	Although attributions are sometimes given, many statements appear to be unfounded. Readers are confused about sources of information and ideas. Most references come from	References are rarely cited to support statements. There are hardly any sources that are professionally reliable. The reader has serious doubts about the value of the material. Reflect	References are barely cited to support the statement. There are hardly any reliable professional sources. Readers don't find it worth reading. Does not follow APA/MLA guideline..	10

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	primarily professional peer-reviewed journals or other approved sources (examples: government documents, agency manuals, etc.). The reader believes that the information and ideas can be trusted. Use APA/MLA guidelines accurately and consistently to cite sources.	references are professionally valid, some are questionable (example: trade books, internet resources, popular magazines, etc.). The reader is unsure of the reliability of some sources. Uses APA/MLA guidelines with a slight violation of citing sources.	sources that are not peer-reviewed and have uncertain reliability. Readers doubt the accuracy of most of the material presented. Reflects incomplete knowledge of APA/MLA guidelines.	knowledge of the APA guidelines.		
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Activeness in Presentation Rubric

	Assesment Criteria				Point
	Exceeded Expectations (EEX) (90-100%)	As Expected (MEX) (76-89%)	Close to Expectations (APP) (60-75%)	Need to Improve (NIM) (50-60%)	
Classroom Engagement Rate	The student proactively contribute to class by offering ideas and/or asking questions more than once per class and/or working consistently on group projects over time.	The student proactively contribute to class by offering ideas and/or asking questions more than once per class and/or working in group projects for most of the allotted time.	The student rarely contribute to class by offering ideas and asking questions and/or working on group projects for only part of the allotted time.	The student never contribute to class by offering ideas and asking questions and/or have difficulty staying on task during group project time..	

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Comment Quality	Comments are always insightful and constructive. Use the appropriate terminology. Comments are balanced between general impressions, opinions and specific, thoughtful criticisms or contributions.	The comments are mostly insightful and constructive. Most use the right terminology. Sometimes comments are too general or irrelevant to the discussion.	Comments are occasionally constructive with the occasional hint of insight. Your partner doesn't use the right terms. Comments are not always relevant to the discussion.	Uninformative comments, lacking in proper terminology. Strong reliance on personal opinion and taste. Example: "I like it", "I hate it", "It's bad", etc.	
Listening Ability	The student listens attentively as others present material, perspectives, as indicated by comments that build on others' comments, i.e. Your partner hears what the other person has to say and contributes to the dialogue.	The student mostly pay attention when others present ideas, materials, as shown by comments that reflect and build on the comments of others. Sometimes it takes encouragement or reminders from the moderator to focus on commenting.	The student are often negligent and need class focus reminders. Occasionally makes distracting comments while others are talking.	The student doesn't listen to other people. Regularly talking when others are talking or not paying attention when others are speaking. Change subject. Sleep, and others.	
Behavior	The student almost never exhibit disruptive behavior during class.	The student rarely display disruptive behavior during class.	The student sometimes displays disruptive behavior during class.	The student consistently exhibits disruptive behavior during class.	

Video Presentation Rubric

		Assesment Criteria		Percentage	Point
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	Exceeded Expectations (EEX) (80-100)	As Expected (MEX) (60-70)	Close to Expectations (APP) (40-50)	Need to Improve (NIM) (10-30)	(%)	
Concept	The concept describes a clear picture of what students are trying to achieve including an adequate description of what they are trying to do and generally how each team member's work will contribute to the project	The concept describes a relatively clear picture of what they are trying to achieve including what the team is trying to do overall but without specifics on how each team member's work will contribute to the project	The team has brainstormed their concept, but has no clear focus. Goals/final product are not clearly defined.	little effort has been spent on brainstorming and refining a concept. The team appears unclear on their goals and how the project objectives will be met.	20	
Script/storyboard	The storyboard illustrates the video presentation structure with thumbnail sketches of each scene. Notations of proposed transitions, special effects, sound and title tracks are included: text, color, placement, graphics, are detailed. Notes about proposed	The storyboard includes thumbnail sketches of each video scene and includes text for each segment of the presentation, descriptions of background audio for each scene, and notes about proposed shots and dialogue.	The thumbnail sketches on the storyboard are not in logical sequence and/or do not provide complete descriptions of the video scenes, audio background, or notes about the dialogue.	There is no evidence of a storyboard or script.	15	

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	dialogue/ narration text are included					
Content/organization	The content includes a clear statement of purpose or theme and is creative, compelling and clearly written. A rich variety of supporting information in the video contributes to the understanding of the project's main idea. Events and messages are presented in a logical order. Includes properly cited sources.	Information presented is a connected theme with accurate and current supporting information contributing to understanding of the project's main idea. Details are logical and persuasive information is used effectively. The content includes a clear point of view with a progression of ideas and supporting information. Includes properly cited sources	The project does not present a clearly stated theme, is vague, and/or some of the supporting information does not seem to fit the main idea. Citations and facts are minimal.	Content lacks a central theme, clear point of view and/or logical sequence of information. Much of the supporting information is irrelevant to the overall message. The viewer is unsure what the message is. Information is incorrect, out of date, or incomplete. No citations included	20	
Quality	The video project was completed and included most of the suggested elements. The video was well edited and moves smoothly from scene	Video was completed and contained many of the suggested elements. Editing was incomplete or poorly done. Some	Video was produced, but had very little editing. Many poor quality shots remain. Video was fragmented and choppy with little to	There was no video, or video was unedited without transitions or audio support.	15	

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	to scene with proper use of transitions. Audio was clear and understandable and other enhancements were well used	poor shots remain. Video is still somewhat choppy. Audio and other enhancements were utilized, but not for maximum effect	no audio reinforcement.			
Teamwork	Students met and had discussions regularly. All students on the team contributed to the discussion and were part of the final project. Team members showed respect to one another	Students met and had discussions regularly. Most of the students on the team contributed to the discussion and were part of the final project. Team members mostly showed respect toward each other	Minimal team meetings were held. Most of the students on the team contributed, but a majority of the work was done by one or two	Meetings were not held and/or not all of the team members contributed to the project. Teamwork was not evident.	15	
Timeline	All project deadlines were met	Most project deadlines were met. Those that were late did not have significant impact on the finished project.	Many project deadlines were not met, negatively impacting the finished project.	Deadlines were disregarded, having a significant impact on the final project	15	

Reference:

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1. Publication from a trusted journal with keywords according to the topic or scope chosen by the student group. The use of keywords is very important so that the selected publications are well selected. The year used is a maximum of 10 years from the year of implementation.

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