

**City University of Hong Kong  
Course Syllabus**

**offered by Department of Chemistry  
with effect from Semester A 2024/25**

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**Part I Course Overview**

<b>Course Title:</b>	<u>Cosmetic Product Development and Formulation</u>
<b>Course Code:</b>	<u>CHEM6130</u>
<b>Course Duration:</b>	<u>1 semester (2 semesters for students taking the part-time mode of study)</u>
<b>Credit Units:</b>	<u>3</u>
<b>Level:</b>	<u>P6</u>
<b>Medium of Instruction:</b>	<u>English</u>
<b>Medium of Assessment:</b>	<u>English</u>
<b>Prerequisites:</b> <i>(Course Code and Title)</i>	<u>Nil</u>
<b>Precursors:</b> <i>(Course Code and Title)</i>	<u>Nil</u>
<b>Equivalent Courses:</b> <i>(Course Code and Title)</i>	<u>Nil</u>
<b>Exclusive Courses:</b> <i>(Course Code and Title)</i>	<u>Nil</u>

## Part II Course Details

### 1. Abstract

This course is a project-based course designed to train students who are interested in pursuing a career as cosmetic formulation chemists. The main objective is for students to develop their own new, improved, or modified cosmetic formulations, working individually under the guidance of the course coordinator or experts assigned by the Hong Kong Society of Cosmetics (HKSCC). By the end of this course, students will have achieved the following learning outcomes:

- (1) Gain a comprehensive understanding of cosmetic ingredients and regulations applicable worldwide;
- (2) Demonstrate proficiency in laboratory-scale and pilot-run cosmetic production techniques;
- (3) Evaluate the performance and effectiveness of various cosmetic formulations;
- (4) Effectively communicate the rationale behind their cosmetic design choices in a precise and coherent manner.

### 2. Course Intended Learning Outcomes (CILOs)

(CILOs state what the student is expected to be able to do at the end of the course according to a given standard of performance.)

No.	CILOs	Weighting (If applicable)	Discovery-enriched curriculum related learning outcomes (Please tick where appropriate)		
			A1	A2	A3
1.	Research, develop, and critically evaluate a new, improved, or modified cosmetic formulation.		✓	✓	✓
2.	Analyze and interpret data accurately.			✓	✓
3.	Make a formal oral presentation of the designed cosmetic formulation, effectively summarize the project's background, problem analysis, methods used, results achieved, and conclusions.			✓	✓
4.	Write a comprehensive report to present and articulate the problem being addressed and solved.			✓	✓
		100%			

A1: *Attitude*

*Develop an attitude of discovery/innovation/creativity, as demonstrated by students possessing a strong sense of curiosity, asking questions actively, challenging assumptions or engaging in inquiry together with teachers.*

A2: *Ability*

*Develop the ability/skill needed to discover/innovate/create, as demonstrated by students possessing critical thinking skills to assess ideas, acquiring research skills, synthesizing knowledge across disciplines or applying academic knowledge to real-life problems.*

A3: *Accomplishments*

*Demonstrate accomplishment of discovery/innovation/creativity through producing /constructing creative works/new artefacts, effective solutions to real-life problems or new processes.*

### 3. Learning and Teaching Activities (LTAs)

(LTAs designed to facilitate students' achievement of the CILOs.)

LTA	Brief Description	CILO No.				Hours/week (If applicable)
		1	2	3	4	
Discussion with representative assigned by the Hong Kong Society of Cosmetics	Students will have discussions with experts in the field of cosmetics, leading to developing and refining a testable cosmetic formulation project.	✓				
Literature search	Students will conduct library and web-based searches to gather information on raw materials and develop a rationale for a specific cosmetic formulation.	✓	✓			
Experiments	Students will conduct appropriate experiments at CityU and/or with industrial partners of CityU/HKSCC, and diligently maintain a logbook documenting relevant data throughout the experimental process.		✓			At least 8 hours per week for 10 weeks (at least 4 hours per week for 20 weeks for students taking the part-time mode of study).
Data analysis	Students will perform data analysis using appropriate evaluation and characterization techniques.		✓			
Oral presentation	Students will deliver a 20-minute oral presentation at the conclusion of the project, including a 10-minute question and answer session.			✓		
Written reports	Students will write concise and comprehensive reports to effectively present and articulate the problem that is being addressed and solved.				✓	

#### 4. Assessment Tasks/Activities (ATs)

(ATs are designed to assess how well the students achieve the CILOs.)

Assessment Tasks/Activities	CILO No.				Weighting	Remarks
	1	2	3	4		
Continuous Assessment: <u>100%</u>						
Oral presentation	✓	✓	✓		30%	Deliver 20-minute oral presentation at the conclusion of the project (Week 13 for full time students), including a 10-minute question and answer session.
Written reports	✓	✓		✓	70%	-Submit weekly written reports from Week 3 to Week 10, consisting of 8 reports (8 bi-weekly reports for students taking the part-time mode of study). Each report should span less than 5 A4 pages and effectively present and articulate the addressed problem and its solution. These reports account for 40% of the final marks -Prepare a concise and comprehensive final report, spanning less than 10 A4 pages, to provide a thorough overview of the project, its findings, and the implemented solution. The final report accounts for 30% of the final marks.
Examination: <u>0%</u>					100%	

Starting from Semester A, 2015-16, students must satisfy the following minimum passing requirement for CHEM courses:

**“A minimum of 40% in both coursework and examination components.”**

## 5. Assessment Rubrics

(Grading of student achievements is based on student performance in assessment tasks/activities with the following rubrics.)

Applicable to students admitted in Semester A 2024/25 & thereafter

Assessment Task	Criterion	Excellent (A+, A, A-)	Good (B+, B, B-)	Fair (C+, C, C-)	Marginal (D)	Failure (F)
1. Oral presentation	Ability to demonstrate or explain the rationales, methodologies, problems, and limitations of the designed cosmetic formulation with clarity and proficiency.	Demonstrates an exceptional ability to clearly and proficiently explain the rationales, methodologies, problems, and limitations of the cosmetic formulation. Justifications are thorough, logical, and supported by in-depth knowledge and evidence. Shows a deep understanding of the subject, with precise and confident communication.	Provides a solid explanation of the rationales, methodologies, problems, and limitations of the cosmetic formulation with clarity and proficiency. Justifications are mostly logical and well-supported, though minor gaps in depth or detail may exist. Communication is clear and demonstrates strong understanding.	Offers a basic explanation of the rationales, methodologies, problems, and limitations of the cosmetic formulation. Some justifications are provided, but they may lack depth or coherence. Shows an adequate understanding, though communication might lack fluency or clarity in places.	Demonstrates a limited ability to explain the rationales, methodologies, problems, and limitations of the cosmetic formulation. Explanations are incomplete, vague, or inconsistent. Justifications are weak or poorly reasoned. Communication is unclear and suggests only a superficial understanding.	Fails to demonstrate the ability to explain the rationales, methodologies, problems, and limitations of the cosmetic formulation. Lacks coherence, logic, or understanding in explanations. Communication is either absent or highly unclear, showing no meaningful engagement with the topic.
2. Written report	-Demonstrate critical thinking and problem-solving abilities in the design of cosmetic formulations. -Highlight the novelty and uniqueness of the cosmetic formulation.	Consistently demonstrates exceptional critical thinking and problem-solving skills in the design of cosmetic	Shows strong critical thinking and problem-solving abilities in the design process. Identifies challenges and	Demonstrates basic critical thinking and problem-solving abilities. Identifies some challenges but solutions may	Displays limited critical thinking and problem-solving skills. Struggles to identify challenges or provide viable	Fails to demonstrate critical thinking or problem-solving abilities. Does not identify challenges effectively or

	<p>-Provide detailed, critical analysis of the data, accompanied by clear explanations and fair justifications.</p> <p>-Demonstrate the ability to integrate information from various sources to effectively communicate the impact of the findings through clear written communication.</p>	<p>formulations. Identifies challenges accurately, evaluates alternative solutions effectively, and proposes innovative, well-reasoned approaches. Shows a deep understanding of the design process.</p>	<p>provides logical, workable solutions. Approaches may lack some innovation or thorough evaluation of alternatives, but overall understanding is solid.</p>	<p>be incomplete, generic, or require further development. Analysis of alternatives is limited, and understanding of the design process is adequate but not deep.</p>	<p>solutions. Analysis of the design process is superficial, and solutions lack coherence or justification.</p>	<p>provide meaningful solutions. Shows little to no understanding of the design process.</p>
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Applicable to students admitted from Semester A 2022/23 to Summer Term 2024

Assessment Task	Criterion	Excellent (A+, A, A-)	Good (B+, B)	Marginal (B-, C+, C)	Failure (F)
1. Oral presentation	Ability to demonstrate or explain the rationales, methodologies, problems, and limitations of the designed cosmetic formulation with clarity and proficiency.	Demonstrates an exceptional ability to clearly and proficiently explain the rationales, methodologies, problems, and limitations of the cosmetic formulation. Justifications are thorough, logical, and supported by in-depth knowledge and evidence. Shows a deep	Provides a solid explanation of the rationales, methodologies, problems, and limitations of the cosmetic formulation with clarity and proficiency. Justifications are mostly logical and well-supported, though minor gaps in depth or detail	Offers a basic explanation of the rationales, methodologies, problems, and limitations of the cosmetic formulation. Some justifications are provided, but they may lack depth or coherence. Shows an adequate understanding, though communication might	Fails to demonstrate the ability to explain the rationales, methodologies, problems, and limitations of the cosmetic formulation. Lacks coherence, logic, or understanding in explanations. Communication is either absent or highly unclear, showing no meaningful

		understanding of the subject, with precise and confident communication.	may exist. Communication is clear and demonstrates strong understanding.	lack fluency or clarity in places.	engagement with the topic.
2. Written report	<p>-Demonstrate critical thinking and problem-solving abilities in the design of cosmetic formulations.</p> <p>-Highlight the novelty and uniqueness of the cosmetic formulation.</p> <p>-Provide detailed, critical analysis of the data, accompanied by clear explanations and fair justifications.</p> <p>-Demonstrate the ability to integrate information from various sources to effectively communicate the impact of the findings through clear written communication.</p>	Consistently demonstrates exceptional critical thinking and problem-solving skills in the design of cosmetic formulations. Identifies challenges accurately, evaluates alternative solutions effectively, and proposes innovative, well-reasoned approaches. Shows a deep understanding of the design process.	Shows strong critical thinking and problem-solving abilities in the design process. Identifies challenges and provides logical, workable solutions. Approaches may lack some innovation or thorough evaluation of alternatives, but overall understanding is solid.	Demonstrates basic critical thinking and problem-solving abilities. Identifies some challenges but solutions may be incomplete, generic, or require further development. Analysis of alternatives is limited, and understanding of the design process is adequate but not deep.	Fails to demonstrate critical thinking or problem-solving abilities. Does not identify challenges effectively or provide meaningful solutions. Shows little to no understanding of the design process.

**Part III Other Information** (more details can be provided separately in the teaching plan)

**1. Keyword Syllabus**

*(An indication of the key topics of the course.)*

Nil

**2. Reading List**

**2.1 Compulsory Readings**

*(Compulsory readings can include books, book chapters, or journal/magazine articles. There are also collections of e-books, e-journals available from the CityU Library.)*

Nil

**2.2 Additional Readings**

*(Additional references for students to learn to expand their knowledge about the subject.)*

Nil