

CHEM6130: COSMETIC PRODUCT DEVELOPMENT AND FORMULATION

Effective Term

Semester A 2025/26

Part I Course Overview

Course Title

Cosmetic Product Development and Formulation

Subject Code

CHEM - Chemistry

Course Number

6130

Academic Unit

Chemistry (CHEM)

College/School

College of Science (SI)

Course Duration

One Semester

Credit Units

3

Level

P5, P6 - Postgraduate Degree

Medium of Instruction

English

Medium of Assessment

English

Prerequisites

Nil

Precursors

Nil

Equivalent Courses

Nil

Exclusive Courses

Nil

Part II Course Details

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.

Course Intended Learning Outcomes (CILOs)

CILOs		Weighting (if DEC-A1 DEC-A2 DEC-A3 app.)			
1	Research, develop, and critically evaluate a new, improved, or modified cosmetic formulation.		x	x	x
2	Analyze and interpret data accurately.			x	x
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.			x	x
4	Write a comprehensive report to present and articulate the problem being addressed and solved.			x	x

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.

Learning and Teaching Activities (LTAs)

LTAs		Brief Description	CILO No.	Hours/week (if applicable)
1	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.	1	

2	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.	1, 2	
3	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.	2	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).
4	Data analysis	Students will perform data analysis using appropriate evaluation and characterization techniques.	2	
5	Oral presentation	Students will deliver a 20-minute oral presentation at the conclusion of the project, including a 10-minute question and answer session.	3	
6	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	CILO No.	Weighting (%)	Remarks ("- " for nil entry)	Allow Use of GenAI?
1	Oral presentation	1, 2, 3	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.	Yes

2	Written reports	1, 2, 4	70	<p>-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</p> <p>-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.</p>	Yes
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Continuous Assessment (%)

100

Minimum Continuous Assessment Passing Requirement (%)

40

Assessment Rubrics (AR)**Assessment Task**

1. Oral presentation (for students admitted before Semester A 2022/23 and in Semester A 2024/25 & thereafter)

Criterion

Ability to demonstrate or explain the rationales, methodologies, problems, and limitations of the designed cosmetic formulation with clarity and proficiency.

Excellent

(A+, A, A-) 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.

Good

(B+, B, B-) 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.

Fair

(C+, C, C-) 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.

Marginal

(D) 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.

Failure

(F) 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.

Assessment Task

2. Written report (for students admitted before Semester A 2022/23 and in Semester A 2024/25 & thereafter)

Criterion

- Demonstrate critical thinking and problem-solving abilities in the design of cosmetic formulations.
- Highlight the novelty and uniqueness of the cosmetic formulation.
- Provide detailed, critical analysis of the data, accompanied by clear explanations and fair justifications.
- Demonstrate the ability to integrate information from various sources to effectively communicate the impact of the findings through clear written communication.

Excellent

(A+, A, A-) 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.

Good

(B+, B, B-) 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.

Fair

(C+, C, C-) 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.

Marginal

(D) Displays limited critical thinking and problem-solving skills. Struggles to identify challenges or provide viable solutions. Analysis of the design process is superficial, and solutions lack coherence or justification.

Failure

(F) 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

Keyword Syllabus

Nil

Reading List

Compulsory Readings

Title	
1	Nil

Additional Readings

Title	
1	Nil