

SCCT 251 Chemical Innovation I – Course Syllabus

Semester: 2/2568

Schedule: Mondays, 8:30–10:20 AM

Location: SC1-154

Instructor: Assoc. Prof. Dr. Taweechai Amornsakchai
Asst. Prof. Dr. Khetpakorn Chakarawet
Invited guest lecturers

Credits: 2-0-4 (2 hours lecture/week, 4 hours self-practice/week)

Google Classroom code: vzkfpdir

Course Description

Chemical innovations changing the world; novelty in chemistry; recently emerging technologies in chemistry; nanotechnology; advanced process industry

Learning Outcomes

By the end of this course, students will be able to:

- Define and evaluate chemical innovations
- Assess novelty in chemical research and technologies
- Analyze emerging technologies and their readiness for industrial adoption
- Articulate the relevance of nanotechnology, advanced and energy materials, chemical biotechnology, and artificial intelligence in the context of chemical innovation
- Apply innovation frameworks to propose solutions to real-world chemical challenges

Assessment

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| • Participation & Discussions | 10% |
| • Assignments | 20% |
| • Midterm Exam | 25% |
| • Final Project & Presentation | 25% |
| • Final Exam | 20% |

Required Readings

Selected reading articles and case studies (provided via course platform)

Policies

- **Attendance:** Regular attendance and class participation are expected
- **Academic Integrity:** Plagiarism or misconduct will result in disciplinary action
- **Late Submissions:** Penalties apply unless prior arrangements are made

Weekly Schedule

Week	Date	Topic	Instructor
1	5 Jan 2026	Introduction: What is Chemical Innovation?	TA
2	12 Jan 2026	Novelty in Chemistry	TA
3	19 Jan 2026	Emerging Technologies in Chemistry	TA
4	26 Jan 2026	Nanotechnology I: Fundamentals	TA
5	2 Feb 2026	Nanotechnology II: Applications	TA
6	9 Feb 2026	Advanced Materials Innovation	TA
7	16 Feb 2026	Chemical Processes of the Future	TA
8	23 Feb 2026	Green & Sustainable Chemistry	KC
	2 – 6 Mar 2026	Midterm Exam	
9	9 Mar 2026	Energy Innovations	KC
10	16 Mar 2026	Chemical Biotechnology	KC
11	23 Mar 2026	Artificial Intelligence and Chemistry	KC
12	30 Mar 2026	Innovation Workshop	KC
13	6 Apr 2026	Public holiday (no class)	
14	13 Apr 2026	Public holiday (no class)	
15	20 Apr 2026	Class presentations	KC
	27 Apr – 8 May 2026	Final Exam	