Annexe A: New/Revised Course Content in OBTL+ Format

Course Overview

The sections shown on this interface are based on the templates UG OBTL+ or PG OBTL+
If you are revising/duplicating an existing course and do not see the pre-filled contents you expect in the subsequent sections e.g. Course Aims, Intended Learning Outcomes etc. please refer to Data Transformation Status for more information.

Expected Implementation in Academic Year	AY2025
Semester/Trimester/Others (specify approx. Start/End date)	Semester 1 Special Term
Course Author * Faculty proposing/revising the course	So Cheuk Wai
Course Author Email	CWSo@ntu.edu.sg
Course Title	Overseas Final Year Project
Course Code	CM4111
Academic Units	12
Contact Hours	1280
Research Experience Components	Research Defined Course (at least 50% of deliverables involve practical research activities: problem identification, hypothesis forming, data collection/analysis/interpretation, result communication)

Course Requisites (if applicable)

Pre-requisites	
Co-requisites	
Pre-requisite to	
Mutually exclusive to	
Replacement course to	
Remarks (if any)	

Course Aims

Completing an 8-month research attachment in a reputable overseas university allows you to gain insights into the breadth and diversity of research work in an international environment, and build a global network. You will work with distinguished researchers in world-class laboratories, and develop an understanding of the processes involved in the design, development and implementation of a research project. You will learn to critically review scientific literature, systematically collect data, and logically analyze results in a specialized area of study. You will also develop and polish your oral and written communication skills. After going through the rigorous research process, you will be well-prepared for higher degree studies (Ph.D.).

Course's Intended Learning Outcomes (ILOs)

Upon the successful completion of this course, you (student) would be able to:

ILO 1	Apply knowledge and skills relevantly and appropriately in the research laboratory. [Apply fundamental chemistry knowledge, logical reasoning, chemical laboratory and/or computational skills to analyse and solve problems in a research project]
ILO 2	Identify your own competency gaps at the research laboratory.
ILO 3	Evaluate and develop personal learning and development pathways towards bridging competency gaps identified in point (2) above. [Identify technical skills needed to solve problems in a research project]
ILO 4	Develop and apply strategies to solve problems effectively (involves critical thinking and creativity, generating questions, resourcing, application and reiteration). [To formulate research question, methodically develop approaches to tackle problems using scientific approach, collect, analyse data to make rigorous and objective deductions.]
ILO 5	Evaluate resources and develop insights to make informed judgements and recommendations. [Exhibit awareness of relevant knowledge through literature review and critically evaluate sources of scientific/non-scientific information.]
ILO 6	Discuss and Appraise significance, impact results and future plan of the research project
ILO 7	Reflect on the culture at the research laboratory.
ILO 8	Reflect on personal and professional development needs within the research laboratory and set strategic goals for advancing along an intended career path
ILO 9	Apply time and task management strategies effectively. [Spend adequate time on the project to ensure rigour and quality]
ILO 10	Apply effective written and oral communication skills in professional settings when communicating and connecting with research supervisor and colleagues. [Communicate (in writing and speaking) scientific and non-scientific ideas effectively to professional scientists and to the general public]
ILO 11	Assimilate into the work environment (people, team, hierarchy) and function effectively. [Communicate effectively with team members when working in a group and contribute as a valued team member when working in a group]
ILO 12	Tolerate ambiguity and handle anxiety
ILO 13	Contribute proactively to the research laboratory.
ILO 14	Demonstrate responsibility, integrity and professionalism in the fulfilment of all research requirements. [Readily pick up new skills, particularly technology related ones, to tackle new problems.]

ILO 15	Demonstrate the persistence to learn, overcome and improve.
ILO 16	Use tools that enable and facilitate effective project/work/assignment undertaken at the research laboratory.
ILO 17	Graduates should be well-versed in the foundational and advanced concepts of chemical science, be able to evaluate chemistry-related information critically and independently, and be able to use complex reasoning to solve emergent chemical problems.
ILO 18	Graduates should be able to synthesize and integrate multiple ideas across the curriculum, and propose innovative solutions to emergent chemistry-related problems based on their training in chemistry.
ILO 19	Graduates should be able to demonstrate clarity of thought, independent thinking, and sound scientific analysis and reasoning through written and oral reports to audiences with varying technical backgrounds. They should also be able to effectively engage other professional chemists in collaborative endeavours.
ILO 20	Graduates should be able to act in responsible ways and uphold the high ethical standards that the society expects of professional chemists.
ILO 21	Graduates should be aware of the impact of chemistry on society, and how chemistry can be applied to benefit mankind. They should also be aware of and uphold the best chemical safety practices

Course Content

You will experience independent supervised research work in a selected field of study. You will be supervised by the faculty from the Overseas University. The specific content is dependent on the selected field of study.

Reading and References (if applicable)

Reading materials are dependent on the selected field of study and specific to each project. Supervising faculty will recommend reading materials, and you will conduct a comprehensive literature review as well.

Planned Schedule

Week or Session	Topics or Themes	ILO	Readings	Delivery Mode	Activities
1	The weekly schedule will be discussed and agreed on between students and their supervising faculty.			In-person	

Learning and Teaching Approach

Approach	How does this approach support you in achieving the learning outcomes?
independent supervised research work	You learn to be responsible, independent, self-disciplined and self-motivated. You become better at managing your time, resources and emotions in this independent supervised research work. You acquire critical and logical thinking skills, and creative problem solving skills. You gain confidence in your work and yourself, and develop fine oral and written communication skills. These skills would prepare you well for higher degree studies (Ph.D.).

Assessment Structure

Assessment Components (includes both continuous and summative assessment)

No.	Component	ILO	Related PLO or Accreditation	Weightage	Team/Individual	Rubrics	Level of Understanding
1	Continuous Assessment (CA): Others(Performance (Assessed by Supervisor))	1, 4, 5,6, 9, 10,11, 12,13, 14,15, 16	Competency, Creativity, Communication, Character, Civic-mindedness	28	Individual	Analytic	Multistructural
2	Continuous Assessment (CA): Others(Written Report (Assessed by Examiners))	1, 2, 3,4, 5, 10,11, 16	Competency, Creativity, Communication, Character	36	Individual	Analytic	Multistructural
3	Continuous Assessment (CA): Others(Oral presentation (Assessed by Examiners))	1, 2, 3,4, 5, 10,11, 16	Competency, Creativity, Communication, Character	36	Individual	Analytic	Not Applicable

Description of Assessment Components (if applicable)

Formative Feedback

You will receive written or verbal feedback from your supervisor(s) from the Overseas University and assigned NTU faculty.

NTU Graduate Attributes/Competency Mapping

This course intends to develop the following graduate attributes and competencies (maximum 5 most relevant)

Attributes/Competency	Level
Learning Agility	Advanced
Critical Thinking	Advanced

Course Policy

Policy (Academic Integrity)

Good academic work depends on honesty and ethical behaviour. The quality of your work as a student relies on adhering to the principles of academic integrity and to the NTU Honour Code, a set of values shared by the whole university community. Truth, Trust and Justice are at the core of NTU's shared values. As a student, it is important that you recognize your responsibilities in understanding and applying the principles of academic integrity in all the work you do at NTU. Not knowing what is involved in maintaining academic integrity does not excuse academic dishonesty. You need to actively equip yourself with strategies to avoid all forms of academic dishonesty, including plagiarism, academic fraud, collusion and cheating. If you are uncertain of the definitions of any of these terms, you should go to the academic integrity website for more information. On the use of technological tools (such as Generative AI tools), different courses / assignments have different intended learning outcomes. Students should refer to the specific assignment instructions on their use and requirements and/or consult your instructors on how you can use these tools to help your learning. Consult your instructor(s) if you need any clarification about the requirements of academic integrity in the course.

Policy (General)

(1) General
You are expected to complete all assigned readings and activities, attend all lab sessions/research meetings punctually and take all scheduled assignments and tests by due dates. You are expected to take responsibility to follow up with course notes, assignments and course related announcements for research sessions they have missed. You are expected to participate in all research discussions and activities.

Policy (Absenteeism)

(2) Absenteeism

Absence from lab sessions/research meetings without a valid reason will affect your overall course grade. Valid reasons include falling sick supported by a medical certificate.
3) Compulsory Assignments
You are required to submit compulsory assignments on due dates. The scores will be included in the course assessment.

Policy (Others, if applicable)

Diversity and Inclusion Policy

Integrating a diverse set of experiences is important for a more comprehensive understanding of science and engineering. It is our goal to create an inclusive and collaborative learning environment that supports a diversity of perspectives and learning experiences. That honours your identities, including ethnicity, gender, socioeconomic status, sexual orientation, religion, or ability.

To help accomplish this:

- If you are neuroatypical or neurodiverse, have dyslexia or ADHD (for example), or have a social anxiety disorder or social phobia:
- If you feel your performance in the course is being impacted by your experiences outside of class:hi Ai

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- If something was said in the course (by anyone, including instructor/supervisor) that made you uncomfortable.

Please e-mail our Associate Chair (Students & Continuing Education) at ac-cceb-stud@ntu.edu.sg about how we can help facilitate your learning experience.

As a participant in course discussions, you should also strive to honour the diversity of your classmates.
You can do this by using preferred pronouns and names, being respectful of others' opinions, actively making sure all voices are being heard, and refraining from the use of derogatory or demeaning speech or actions.

All members of the course are expected to strictly adhere to the student code of conduct (https://www.ntu.edu.sg/life-at-ntu/student-life/student-conduct). If you witness something that goes against this or has any other concerns, please speak to your instructors or a faculty member.

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