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

Course Overview

Expected Implementation in Academic Year	AY2025-2026
Semester/Trimester/Others (specify approx. Start/End date)	Semester 1
Course Author * Faculty proposing/revising the course	Sumod Pullarkat
Course Author Email	sumod@ntu.edu.sg
Course Title	Scent Creation: The Art & Science of Perfumery
Course Code	CM5013
Academic Units	3
Contact Hours	56
Research Experience Components	Not Applicable

Course Requisites (if applicable)

Pre-requisites	CM2011 and Year 3 standing; or, CB1103 and Year 3 standing
Co-requisites	
Pre-requisite to	
Mutually exclusive to	
Replacement course to	
Remarks (if any)	For BIE, BEEC, CHEM, CBE, CBEC and PESC programmes

Course Aims

This course is aimed at BIE, BEEC, CHEM, CBE, CBEC and PESC students in Year 3 and above who are keen to explore future career opportunities in the Perfumery/Fragrance industry. By taking this course taught by industry professionals and featuring hands-on training, you will equip yourself with the preliminary knowledge, skills, and practical experience required in the growing and evolving fragrance industry. Upon completing this course you will have an overview of the scientific, artistic, and business aspects of the fragrance industry.

Course's Intended Learning Outcomes (ILOs)

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

ILO 1	Define, identify and classify Olfactive Families, evaluate different analytical techniques and describe the role and scope of a Fragrance Development Manager (FDM)
ILO 2	Explain the basics of Sensory science, Evaluate the basic calculations and statistics involved. Describe various encapsulation technologies and illustrate key aspects of perfume technical development.
ILO 3	List the key aspects of regulatory, marketing and consumer insight framework in the Perfumery Industry.
ILO 4	Apply the concepts and techniques learned in laboratory sessions.

Course Content

- Olfactive Families + Analytical Techniques
- Perfume Creation & Formulation
- Fragrance Development
- Scope of Fragrance Development Manager (FDM)
- Basics of Sensory Science
- Calculations and Statistical Methods
- Introduction to Encapsulation Technologies
- Perfume Technical Development
- Regulatory and Safety aspects
- Marketing and Consumer Insights

Reading and References (if applicable)

Fragrantica.com Notes

Candlescience - Fragrance wheel

Planned Schedule

Week or Session	Topics or Themes	ILO	Readings	Delivery Mode	Activities
1	Olfactory Families	1	Lecture notes and/or handouts	In-person	Lecture Presentations, Smelling
2	Olfactory Families	1	Lecture notes and/or handouts	In-person	Lecture Presentations, Smelling
3	Olffactory Families	1	Lecture notes and/or handouts, pre- and post lab online activities	In-person	Lecture Presentations, Smelling, Laboratory
4	Perfume Creation and Formulation	1	Lecture notes and/or handouts, pre- and post lab online activities	In-person	Lecture Presentations, Smelling,Laboratory
5	Analytical Techniques	1	Lecture notes and/or handouts, pre- and post lab online activities	In-person	Lecture presenations/, Laboratory
6	Fragrance Development	1	Lecture notes and/or handouts, pre- and post lab online activities	In-person	Lecture Presentations, Laboratory
7	Basics of Sensory Science	2	Lecture notes and/or handouts, pre- and post lab online activities	In-person	Lecture Presentations, Laboratory
8	Calculations & Statistics	2	Lecture notes and/or handouts, pre- and post lab online activities	In-person	Lecture Presentations, Laboratory
9	Encapsulation technologies	2	Lecture notes and/or handouts, pre- and post lab online activities	In-person	Lecture Presentations, Laboratory
10	Perfume Technical Development	2	Lecture notes and/or handouts, pre- and post lab online activities	In-person	Lecture Presentations, Laboratory

Week or Session	Topics or Themes	ILO	Readings	Delivery Mode	Activities
11	Regulatory and Safety matters	3	Lecture notes and/or handouts, pre- and post lab online activities	In-person	Lecture Presentations, Laboratory
12	Marketing	3	Lecture notes and/or handouts, pre- and post lab online activities	In-person	Lecture Presentations, Laboratory
13	Consumer Insights	3	Lecture notes and/or handouts	In-person	Lecture Presentations

Learning and Teaching Approach

Approach	How does this approach support you in achieving the learning outcomes?
Lectures	Presents the key ideas and important concepts used to solve different types of problems.
Group Presentations	Train the class on teamwork and cohesion, as well as to boost confidence for weaker students. Develop communications skills. Students will be able to learn the importance of teamwork.
Laboratory	Develop proficiency in problem solving skills and laboratory techniques. Connect concepts already covered to their application. Learn to work as a team to achieve the stated objectives.

Assessment Structure

Assessment Components (includes both continuous and summative assessment)

No.	Component	ILO	Related PLO or Accreditation	Weightage	Description of Assessment Component	Team/Individual	Rubrics	Level of Understanding
1	Continuous Assessment (CA): Class Participation()	1-3		10		Individual	Holistic	Multistructural
2	Continuous Assessment (CA): Test/Quiz()	1-3		30		Individual	Analytic	Relational
3	Continuous Assessment (CA): Presentation()	1-3		20		Team	Holistic	Multistructural
4	Continuous Assessment (CA): Others(Laboratory)	4		40		Individual	Analytic	Relational

Description of Assessment Components (if applicable)

1. Class participation : Proactively participate in smelling and sample evaluation. Smelling evaluation involves developing the ability to identify, analyze, and describe different scents and fragrance ingredients, crucial for understanding fragrance composition and creating perfumes.

2. Laboratory : Participation in experiments/evaluation and lab reports.

3. Presentations: Class presentation is an assignment where students share their learning and research on a prescribed topic with their peers,in a structured format, using visual aids and clear communication to convey information effectively.

Formative Feedback

You will receive formative feedback through verbal or written sharing on common mistakes made in tests, quizzes and assignments (lab reports, presentation), so that you can learn from them.

NTU Graduate Attributes/Competency Mapping

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

Attributes/Competency	Level
Collaboration	Intermediate
Communication	Intermediate
Creative Thinking	Intermediate
Curiosity	Intermediate
Problem Solving	Intermediate

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)

You are expected to complete all assigned readings, activities, assignments, attend all classes punctually and complete all scheduled assignments by due dates. You are expected to take responsibility to follow up with assignments and course related announcements. You are expected to participate in all project critiques, class discussions and activities.

Policy (Absenteeism)

In-class activities make up a significant portion of your course grade. Absence from class without a valid reason will affect your participation grade. Valid reasons include falling sick supported by a medical certificate and participation in NTU's approved activities supported by an excuse letter from the relevant bodies. There will be no make-up opportunities for in-class activities.

Policy (Others, if applicable)

Diversity and Inclusion policy

Integrating a diverse set of experiences is important for a more comprehensive understanding o 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:
- If something was said in the course (by anyone, including instructor/supervisor) that made you uncomfortable.

Please e-mail to your 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 and 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 have any other concerns, please speak to your instructors or a faculty member.

Last Updated Date: 19-11-2025 14:52:36

Last Updated By: Koh Hong Giap