
# seeNTU 2025
# Module Synopses

Updated: 24 Feb 2025

NANYANG TECHNOLOGICAL UNIVERSITY SINGAPORE

# *see*NTU 2025 Module Schedule

| Date | Module Code | Module Title | Lecturer | Time |
|---|---|---|---|---|
| 2 June 2025 (Mon) | ASE/1 | Nature's Palette: The Science of Colour in the Natural World | Dr Le Chencheng | 9.30am – 5.30pm |
| | ADM/1 | Figure Drawing for Animation and Illustration | Asst Prof Jesse John Thompson | 9.30 am – 5.30pm |
| | EEE/1 | Introduction to Aerial Robotics | Dr Yuan Shenghai<br>Dr Thien-Minh Nguyen | 9.30am – 1.00pm |
| | CCEB/1 | Introduction to Chemical Process Simulation in Aspen HYSYS | Dr Mukta Bansal | 2.00pm – 5.30pm |
| 3 June 2025 (Tue) | CCEB/2 | Be a Molecular Detective for a Day – Theory and hands-on experience on a benchtop NMR Spectrometer | Dr Sumod Pullarkat | 9.30am – 5.30pm |
| | SSS/1 | Crash Course to Singapore Politics | Assoc Prof Walid Jumblatt Abdullah | 9.30am – 1.00pm |
| | NBS/1 | The Future of Finance: The Path to a Thriving Career in FinTech | Dr Ernie Teo | 2.00pm – 5.30pm |
| 4 June 2025 (Wed) | ADM/2 | Fundamentals of Character Design | Assoc Prof Davide Benvenuti | 9.30am – 1.00pm |
| | MSE/1 | AI and Materials Masterclass | Asst Prof Leonard Ng Wei Tat | 9.30am – 1.00pm |
| | CCDS/1 | Python Project for Beginners | Dr Josephine Chong<br>Dr Vidya Sudarshan | 2.00pm – 5.30pm |
| | CEE/1 | Analysis of Urban Tree Failures in Singapore | Assoc Prof Zhu Feng | 2.00pm – 5.30pm |
| 5 June 2025 (Thu) | MAE/1 | The Art and Science of Project Management | Dr Felix Lena Stephanie | 9.30am – 5.30pm |
| | MSE/2 | Light Switches in Molecules: The Magic of Photochromism | Dr Rui Goncalves | 2.00pm – 5.30pm |
| 6 June 2025 (Fri) | MAE/2 | How Would You Design and Engineer Future Intelligent Systems? | Assoc Prof Hortense Le Ferrand | 9.30am – 1.00pm |
| | SSS/2 | Foundational Thanatology: Understanding Death, Dying, Grief, and a Live Fully Embraced | Asst Prof Paul Victor Patinadan<br>Prof Andy Ho Hau Yan | 2.00pm – 5.30pm |

| Asian School of the Environment | 2 June 2025 (Mon) 9.30am – 5.30pm |
|---|---|
| **Module Code** | ASE/1 |
| **Module Title** | Nature's Palette: The Science of Colour in the Natural World |
| **Description** | Nature's Palette is an introductory interdisciplinary seminar-style module that explores the rich spectrum of colours in nature from the perspectives of mineralogy, zoology, botany, and medicine, all through the lens of physics and chemistry.<br><br>The morning session will give students a comprehensive understanding of how colour manifests in different natural materials and organisms, delving into the scientific principles behind these phenomena. Students will gain insight into the chemical and physical processes that produce the vibrant colours in minerals, plants, animals, and even within the human body.<br><br>In the afternoon, through interactive group work and class discussions, students will better appreciate the role of colour in ecological interactions, human health, and artistic inspiration. |
| **Lecturer** | Dr Le Chencheng |
| **Mode of Delivery** | Seminar |

| School of Art, Design and Media | 2 June 2025 (Mon) 9.30am – 5.30pm |
|---|---|
| **Module Code** | ADM/1 |
| **Module Title** | Figure Drawing for Animation and Illustration |
| **Description** | Drawing from life is an important skill and habit to develop when seeking a career in animation and/or illustration. Drawing people is essential to both areas, and in this module students will learn what to look for and how to interpret what they see in a live model.<br><br>In the morning session, as the model poses, students will observe the key characteristics of balance in a pose, and it is indicated by foot position and the three major masses, the ribcage, pelvis and head. In order to so, basic principles of anatomy, fabric, form and light will be introduced and discussed. While these topics are complicated, key indicators in the body will be discussed, helping students to easily identify the essentials in a pose and map that pose onto a drawing.<br><br>During the afternoon session, hands on drawing will happen as each student will work directly from the model, focusing on establishing key indicators of a pose first. Having done so, students will learn a viable approach to figure drawing that is applicable to any artistic endeavor, in any style, that requires it. |
| **Lecturer** | Asst Prof Jesse John Thompson |
| **Mode of Delivery** | Tutorial |

| School of Electrical and Electronics Engineering | 2 June 2025 (Mon) 9.30am – 1.00pm |
|---|---|
| **Module Code** | EEE/1 |
| **Module Title** | Introduction to Aerial Robotics |
| **Description** | This module provides a comprehensive introduction to the field of aerial robotics, covering theoretical foundations, key principles, and hands-on applications. Students will explore the fundamentals of drone dynamics, control systems, and navigation, alongside presentations on the current state-of-the-art technologies in aerial robotics.<br><br>The module includes engaging lectures, practical exercises, and flying sessions, offering students the opportunity to apply their knowledge to real-world scenarios and develop skills essential for designing and operating aerial robotic systems. |
| **Lecturer** | Dr Yuan Shenghai<br>Dr Thien-Minh Nguyen |
| **Mode of Delivery** | Lecture |

| School of Chemistry, Chemical Engineering and Biotechnology | 2 June 2025 (Mon) 2.00pm – 5.30pm |
|---|---|
| **Module Code** | CCEB/1 |
| **Module Title** | Introduction to Chemical Process Simulation in Aspen HYSYS |
| **Description** | We all learn about the chemistry of reactions (rate equations, rate constant, order of reaction, equilibrium, etc.) in A-level Chemistry. Have you ever wondered where do chemical reactions fall in the scheme of things in a chemical plant? Do you know that the life of a Chemical Engineer can also be exciting? Chemical engineering is not just about experiments, but also about playing with simulation software.<br><br>In this module, we shall look into various parts of a chemical plant. We shall employ the Aspen HYSYS modelling platform - a user-friendly and exciting tool - to simulate and understand the operation of different parts of chemical plants.<br><br>This module shall incorporate a combination of lectures and hands-on simulation sessions. The broad aim of this module is to give students a light appreciation of some core chemical engineering fundamentals with the aid of typically used simulation tools. |
| **Lecturer** | Dr Mukta Bansal |
| **Mode of Delivery** | Lecture / Tutorial / Laboratory |

| School of Chemistry, Chemical Engineering and Biotechnology | 3 June 2025 (Tue) 9.30am – 5.30pm |
|---|---|
| **Module Code** | CCEB/2 |
| **Module Title** | Be a Molecular Detective for a Day – Theory and hands-on experience on a benchtop NMR Spectrometer |
| **Description** | Nuclear Magnetic Resonance (NMR) Spectroscopy (a cousin of the Magnetic Resonance aka MRI Imaging technique used in hospitals) is a very powerful and advanced method which allows scientists to understand the structure and purity of compounds. It is used extensively in scientific research in the fields of chemistry, materials science and biology as well as in medicine, and various industries.<br><br>In this module, during the morning session, you will be introduced to the basic theory behind NMR spectroscopy (only basic knowledge of the atomic structure and a very preliminary understanding of types of simple molecules such as alcohols, amines, ethers and esters is required).<br><br>During the afternoon hands-on session, you will get to identify unknown compounds using the theory you have learned. You will get to use a new type of portable NMR spectrometer called a benchtop NMR and learn to acquire and interpret the data. |
| **Lecturer** | Dr Sumod Pullarkat |
| **Mode of Delivery** | Lecture / Laboratory |

| School of Social Sciences | 3 June 2025 (Tue) 9.30am – 1.00pm |
|---|---|
| **Module Code** | SSS/1 |
| **Module Title** | Crash Course to Singapore Politics |
| **Description** | The module will be an extremely brief introduction to Singapore politics, covering the basic facets of Singapore's political system. This includes the parliamentary system, electoral system, the reasons for PAP's longevity, and Singapore's core values and principles.<br><br>The module will be interactive seminar-styled, as student participation will be vital. |
| **Lecturer** | Assoc Prof Walid Jumblatt Abdullah |
| **Mode of Delivery** | Seminar |

| Nanyang Business School | 3 June 2025 (Tue) 2.00pm – 5.30pm |
|---|---|
| **Module Code** | NBS/1 |
| **Module Title** | The Future of Finance: The Path to a Thriving Career in FinTech |
| **Description** | The financial industry has undergone significant transformation due to advancements in technology. In this module, we will give a quick review of different types of technologies and their disruptive or empowering effects on financial services.<br>1. The basics of blockchain technology and decentralized finance.<br>2. The basics of artificial intelligence and its application in finance.<br>3. The Bachelor of Applied Computing in Finance program. |
| **Lecturer** | Dr Ernie Teo |
| **Mode of Delivery** | Seminar |

| School of Art, Design and Media | 4 June 2025 (Wed) 9.30am – 1.00pm |
|---|---|
| **Module Code** | ADM/2 |
| **Module Title** | Fundamentals of Character Design |
| **Description** | Techniques will evolve and change with technological advancements, but the underlying principles of character design will remain unchanged in the foreseeable future.<br><br>The core idea of this introductory course is to address the challenges that beginners face when tackling the difficult task of designing a character.<br><br>The workshop will provide students with examples of character design from start to finish, examining potential applications in various areas, such as characters for animation, branding, and corporate identity.<br><br>The course will be open to all students interested in design and will not focus on a specific technique; students will be invited to create simple artwork based on concepts learned during the session, which will be critiqued at the end of the day's activities. |
| **Lecturer** | Assoc Prof Davide Benvenuti |
| **Mode of Delivery** | Lecture / Tutorial / Laboratory |

| School of Materials Science and Engineering | 4 June 2025 (Wed) 9.30am – 1.00pm |
|---|---|
| **Module Code** | MSE/1 |
| **Module Title** | AI and Materials Masterclass |
| **Description** | This masterclass offers students a comprehensive exploration of how AI technologies are transforming materials research and development.<br><br>Through hands-on programming exercises using scientific Python libraries, students will learn to manipulate and visualize materials datasets.<br><br>This module emphasizes practical skills in prompt engineering for materials-specific AI applications, covering topics such as materials informatics, data-driven materials discovery, and predictive modeling of material properties.<br><br>Students will engage with real-world materials science problems, using AI tools and machine learning algorithms while considering ethical implications in AI-driven materials development. |
| **Lecturer** | Asst Prof Leonard Ng Wei Tat |
| **Mode of Delivery** | Laboratory |

| School of Computer Science and Engineering | 4 June 2025 (Wed) 2.00pm – 5.30pm |
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| **Module Code** | CCDS/1 |
| **Module Title** | Python Project for Beginners |
| **Description** | In the guided project, students are first introduced to simple Python concepts.<br><br>Students will learn concepts such as variables, conditional statements, loops, and functions while building their Python project. |
| **Lecturer** | Dr Josephine Chong<br>Dr Vidya Sudarshan |
| **Mode of Delivery** | Laboratory |

| School of Civil and Environmental Engineering | 4 June 2025 (Wed) 2.00pm – 5.30pm |
|---|---|
| **Module Code** | CEE/1 |
| **Module Title** | Analysis of Urban Tree Failures in Singapore |
| **Description** | Climate change has been shown to increase both wind velocity and rainfall amounts. Particularly, the wind loading on trees is expected to rise, while soil moisture around tree roots will also increase. Therefore, accurately assessing wind and rainfall characteristics attributed to climate change is crucial for evaluating urban tree stability.<br><br>In this module, students will begin with a brief lecture covering the fundamental concepts of climate change, wind modelling, soil stability, and 3D scanning techniques.<br><br>Following the lecture, they will visit the laboratory to explore the experimental setup and equipment.<br><br>Finally, the group will proceed to the site of a designated tree on campus to examine the installation of sensors for data collection related to tree stability analysis. |
| **Lecturer** | Assoc Prof Zhu Feng |
| **Mode of Delivery** | Lecture / Lab tour |

| School of Mechanical and Aerospace Engineering | 5 June 2025 (Thu) 9.30am – 5.30pm |
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|---|---|
| **Module Code** | MAE/1 |
| **Module Title** | The Art and Science of Project Management |
| **Description** | Ever planned a group project, organized a school event, or tried to balance multiple deadlines? That's Project Management in action! Whether it's planning a party, launching a YouTube channel, or building an app, knowing how to manage time, cost, and teamwork is a game-changer.<br><br>In this fun and interactive module, you'll learn the secrets behind managing projects like a pro!<br><br>What You'll Do:<br>• Tackle real-world challenges—plan a big event, create a business idea, or design your dream project.<br>• Master the basics—initiate, plan, execute, monitor, and control projects like a true leader.<br>• Work in teams and solve problems creatively—just like professionals do in tech, business, and entertainment!<br><br>By the end of this module, you'll be equipped with skills to handle school projects, personal goals, and even future career ambitions with confidence. Who knows? You might just be the next great project leader! |
| **Lecturer** | Dr Felix Lena Stephanie |
| **Mode of Delivery** | Lecture / Tutorial |

| School of Materials Science and Engineering | 5 June 2025 (Thu) 2.00pm – 5.30pm |
|---|---|
| **Module Code** | MSE/2 |
| **Module Title** | Light Switches in Molecules: The Magic of Photochromism |
| **Description** | This module explores the science and applications of photochromic molecules embedded in polymeric matrices, focusing on their ability to undergo reversible color changes when exposed to specific light wavelengths.<br><br>Students will explore the principles of photochromism, learn to create designs on polymer samples using UV light, and understand the practical uses of these materials in everyday life.<br><br>Topics Covered:<br>- Fundamentals of photochromism and molecular transformations.<br>- Interaction of photochromic molecules with polymeric matrices.<br>- Real-world applications, including lenses and responsive designs.<br>- Prototyping and designing functional objects with photochromic properties.<br><br>Activities:<br>- Hands-on experiments to fabricate samples with light-induced color changes.<br><br>By the end of this laboratory session, students will gain practical experience and an understanding of the potential of photochromic materials in engineering and design. |
| **Lecturer** | Dr Rui Goncalves |
| **Mode of Delivery** | Laboratory |

| School of Mechanical and Aerospace Engineering | 6 June 2025 (Fri) 9.30am – 1.00pm |
|---|---|
| **Module Code** | MAE/2 |
| **Module Title** | How Would You Design and Engineer Future Intelligent Systems? |
| **Description** | In this module, you will be a mechanical and aerospace engineer for half a day, and learn about the new techniques and developments in the fields of design and fabrication for making intelligent, smart systems. More specifically, you will learn:<br>1) How can we design and create strong, tough & functional materials?<br>2) How can we design and create multifunctional robots?<br>3) How can AI and machine learning support the design and fabrication processes?<br>4) How can 3D printing realize the designs and provide more functionalities?<br>This 3.5 hr workshop will comprise an introductory lecture (about 1 hr), lab tours with researchers (about 1 hr), group presentations and discussion (about 1.5 hrs).<br>Participants are requested to bring their laptops. The participants will be divided into 4 groups and follow one researcher in the lab to learn more about one of these 4 questions.<br>After the lab tour, each group will prepare a presentation to share their learning with the other groups and discuss about what they learnt. |
| **Lecturer** | Assoc Prof Hortense Le Ferrand |
| **Mode of Delivery** | Lecture / Lab Tour |

| School of Social Sciences | 6 June 2025 (Fri) 2.00pm – 5.30pm |
|---|---|
| **Module Code** | SSS/2 |
| **Module Title** | Foundational Thanatology: Understanding Death, Dying, Grief, and a Live Fully Embraced |
| **Description** | This workshop will consider foundational content from the field of Thanatology, the multidisciplinary study of death, dying, grief, and bereavement, and will be tempered with core ideas from Positive Psychology and the art of living well.<br>We will consider key theories and discuss issues such as societal attitudes towards death and the end of life, cultural and institutional systems in place to facilitate this human condition, local initiatives on living and leaving well, as well as the psychosociospiritual impacts of grief and loss.<br>The workshop will entail mini-lectures, facilitated discussions, personal reflection and introspection, and opportunities for learners to consider the practical value of what was taught. |
| **Lecturer** | Asst Prof Paul Victor Patinadan<br>Prof Andy Ho Hau Yan |
| **Mode of Delivery** | Lecture / Tutorial |