MARINE & OFFSHORE TECHNOLOGY COURSE MODULES
You’re one step closer to fulfilling your dreams of building your own ship when you join our Diploma in Marine & Offshore Technology [MOT]. We will train you in naval architecture and offshore technology, which are among the most sought-after specialist skills in Singapore’s maritime industry.

With MOT, you will learn to design and build your own ship models, and test them in Singapore’s only towing tank located in our campus. Our strong emphasis on Design Thinking and Practice will give you an edge in creating innovative solutions for using clean energy, developing new materials and processes, as well as designing and building marine vessels and offshore structures.

Thanks to MOT’s strong ties with key industry players, such as the Association of Singapore Marine Industries [ASMI], Keppel Offshore & Marine and SembCorp Marine, you get to go on frequent study trips to gain industry exposure and receive in-depth training that will stand you in good stead in your career!

In the first two years, you will be grounded with strong fundamentals of engineering, together with naval architecture, marine engineering and offshore design technology. Enhanced internships have also been rolled out for MOT students. In your final year, you will intern at a host company in the marine and offshore industry for six months and apply the skills learnt at the workplace.

LEVELS 3.1 & 3.2

Six-month Internship (Local/Overseas)
The Internship aims to provide practice-oriented training to equip students with the appropriate knowledge, management and communication skills imbued with the right values to work as technologists in marine production. Students will get the chance to understand the organization structure, company product and go through the work/production flow/project with company employees. Assessment of students’ performance and grades will be done by both industry supervisors and NP supervisors.

Integrated Real-world Project 5
The module will equip students with project design, planning and implementation knowledge through projects assigned through the modules. Students will apply their knowledge to solve a real problem related to the marine industry. The module takes students through the entire project cycle. Students carry out project work in groups. Performance of the students is assessed on a continuous basis.

This module will also imbue in students a sense of civic consciousness in the context of engineering and sustainability. It will develop students’ competencies in sustainable development, raise their awareness of sustainability in the context of society and the environment, and appreciate the impact engineering solutions may have on the environment.

Marine & Offshore Design
This module aims to provide students with the theoretical and analytical knowledge in marine and offshore design. International conventions such as tonnage, load line assignment and roles of statutory bodies and classification societies will be introduced and discussed. The students will have an opportunity to apply naval architecture learnt in diploma level to work through the iterative marine & offshore design process. With hands-on real design tasks, students are required to complete one round of design spiral to realise the design process and have a real feeling of marine & offshore design work.

Marine Design Applications
This module aims to equip students with knowledge and skills of computer software applications in evaluating the marine design. Advanced marine design and simulation analysis software would also be used in the students’ design.
Students will be required to ascertain their design feasibility and compliance with rules and regulations from International Maritime Organization and the classification societies.

**Marine Propulsion Systems**
This module aims to provide students with fundamental knowledge and understanding of marine propulsion systems, matching of engine and propeller, compressed air system for starting, steering gear systems, reliability concepts applied to machinery design, and marine pollution control. Dual fuel engine applications will be introduced on top of traditional diesel engine applications.

**Offshore Engineering**
The module aims to provide students with a broad overview of the offshore, oil and gas industry in the world. It covers engineering principles and operations, exploration and exploitation, processes and piping design relating to oil and gas recovery. Students will be exposed to the latest engineering concepts and practices in offshore design, construction and installation. Learning is enhanced through practical sessions on industrial standard software.

**Project ID - Connecting the Dots (IS Module)**
This module aims to prepare students for an increasingly globalized and interconnected world where problems are multi-faceted and require interdisciplinary research and collaboration to solve. Using a project-based learning approach, students will have the opportunity to work in a multi-disciplinary team to investigate and propose comprehensive recommendations for a pressing real-world problem affecting Singapore. They will be guided to step out of their disciplinary silos and effectively communicate and collaborate with peers from different backgrounds. Ultimately, the module seeks to develop independent learning skills and the ability to synthesize diverse strands of knowledge to solve a complex problem, while impressing on students the importance of being a responsible global citizen.

**DIPLOMA PLUS PROGRAMME**
The Diploma Plus Programme (DPP) is designed to provide students with proficiency in a selected domain area, either to broaden or deepen their knowledge/ skills in their main discipline of study, or to equip them with additional professional knowledge that would better prepare them for further study or increase their employability. Students can select elective modules from a wide range of clusters to obtain their Diploma Plus Certificate. DPP is optional and it will not affect the graduating requirement for the award of a diploma.

Students can choose the DPP clusters from the list below. The offer of a DPP cluster is subject to the condition that the minimum class size is met and based on available vacancies.

**Engineering Clusters**
- Applied Physics#
- Computer-Aided Design Skills (World Skills Singapore)
- Workplace Safety & Health

**Other available Diploma Plus Certificates**
- Advanced Engineering Mathematics*
- Business**
- Innovation Management
- Foreign Languages
# The Applied Physics syllabus is aligned with the NTU's FE1012: Physics A module. NP students who obtain good grades in the Applied Physics modules will be granted exemption from the FE1012: Physics A module.

* The CAEM syllabus is aligned with the ‘A’ Level H2 Pure Mathematics syllabus. NP graduates who have successfully completed the revised CAEM will be granted exemption from the NUS’ MA1301 Proficiency Test.

** Students pursuing the Minor in Business Management cannot take the DPP Certificate in Business (CIB).

## COURSE CURRICULUM

<table>
<thead>
<tr>
<th>Module Name</th>
<th>Credit Units</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>YEAR 3</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Level 3.1 (20 hours per week)</strong></td>
<td>40</td>
</tr>
<tr>
<td>Offshore Engineering</td>
<td>3</td>
</tr>
<tr>
<td>Marine &amp; Offshore Design</td>
<td>3</td>
</tr>
<tr>
<td>Marine Design Applications</td>
<td>3</td>
</tr>
<tr>
<td>Marine Propulsion Systems</td>
<td>4</td>
</tr>
<tr>
<td>Integrated Real-world Project 5</td>
<td>3</td>
</tr>
<tr>
<td>Project ID: Connecting the Dots ^</td>
<td>4</td>
</tr>
<tr>
<td><strong>Level 3.2 (20 hours per week)</strong></td>
<td>20</td>
</tr>
<tr>
<td>Six-month Internship</td>
<td></td>
</tr>
</tbody>
</table>

Notes:

^ For more details on Interdisciplinary Studies (IS) electives, please log on to www.np.edu.sg/is/

## IS Modules

The School of Interdisciplinary Studies (IS) delivers a broad-based curriculum, which nurtures a new generation of professionals with multidisciplinary skills and an innovative and entrepreneurial spirit to meet the challenges of a knowledge economy. IS offers both prescribed modules and electives to challenge boundaries. Prescribed modules develop students’ competencies in core areas such as Communication, Innovation and Enterprise, Culture and Communication, and Personal Mastery and Development, while elective modules provide insights into Arts and Humanities, Business, Design, and Science and Technology.