MECHANICAL ENGINEERING

- Aerospace Technology (N65)
- Marine & Offshore Technology (N42)
- Mechanical Engineering (N41)
- Mechatronic Engineering (N50)
- Product Design & Innovation (N68)
Work attachments and student projects with leading companies like Keppel & Offshore Marine, Rolls-Royce, Motorola and SIA Engineering

Strong design elements in curriculum, giving students extra skills to innovate systems and products

Cutting-edge Technology Centres like the Design & Rapid Prototyping and the Automation & Integrated Systems Centres

Alternative pathways – focus on either technology development or industrial attachments
The automobile, 20th century’s mechanical engineering marvel, would not be possible without the greatest invention in history – the wheel. Will you be the one to create the greatest mechanical invention of the 21st century?

At our Mechanical Engineering Division (ME), the well-rounded curriculum with a strong design focus and emphasis on technology development gives you the foundation and skills to innovate products and excel in your career. Our courses plug into new areas of growth in the aerospace, mechanical, mechatronics, product design, and marine and offshore sectors.

Enjoy the flexibility to focus on either technology development or industrial attachments, according to your interest. Our Technology Centres provide you the opportunity to engage in applied research and development work in the areas of Automation and Integrated Systems, Energy and Environment, MEMS & Photonics, and Design & Rapid Prototyping. Our courses will transform you into an adaptable professional, highly valued by employers.

The Division has achieved significant growth over the past 35 years and now offers five popular diplomas:
• Aerospace Technology
• Marine & Offshore Technology
• Mechanical Engineering
• Mechatronic Engineering
• Product Design & Innovation
Benefit from our strong industry links with organisations like Keppel and Offshore Marine, SIA Engineering Company, AEM Evertech, Rolls Royce, Motorola, and Hamilton Sundstrand. Regular dialogue and collaborative projects with these industry leaders ensure that our student attachment programmes, staff and student projects, and courses are constantly kept up-to-date.

**Outstanding projects**

Technology Centres at the Division will expose you to applied learning and innovative engineering projects.

Our student project “Adaptive Wheelchair” won the Gold Award in the fifth Institution of Engineers Singapore Design Competition for “Devices for the Elderly and the Physically Challenged”. It has unique features that help reduce discomfort when traveling on uneven ground, improve blood circulation when sitting for long periods; and even a transfer board which facilitates movement in and out of a vehicle.

Other exceptional / outstanding projects include:
- Speech training toys for autistic children
- An ergonomic chair to relieve back pain and correct posture
- A motion-detection device to determine when infants are awake

The ME Division comes under the School of Engineering, which includes Electrical Engineering, Electronic & Computer Engineering, Building & Environment, and Multidiscipline Engineering.

For more information, log on to http://soe.np.edu.sg/soe/me
When you graduate and as you move up the career ladder, you will most likely assume roles that require more than what you have learnt as an engineer. Like many engineers, you may take on management roles and switch to jobs in entirely new fields.

To help you become More Than An Engineer, the School of Engineering (SoE) is excited to offer you a radically different curriculum structure that spells: More Choices, Greater Flexibility, and Broader Career Opportunities!

This revolutionary broad-based curriculum offers flexibility – breaking away from the limitations that come with the traditionally structured approaches of many engineering courses offered elsewhere.

So, join us and be plugged into the new exciting world of engineering where:

• You can customise your final-year options/electives from a wide range of modules to meet your career aspirations
• You can choose non-engineering options such as Business Management and Marketing & Entrepreneurship, to give you a leg up into the fast growing service and business sectors
• You graduate with more than just a Diploma. You can also choose to take up Diploma Plus and/or Enhancement Certificates depending on your abilities and interests

The Engineering Common Programme (ECP) (N71) is the way to go if you are keen on engineering but need more time to decide which course is suitable for you.

Delay your decision for one semester to gain a better appreciation of the careers that the various engineering diplomas can offer. At the end of the semester, after you have discovered your specific area of interest, you can join one of the following nine engineering diploma courses:

• Aerospace Electronics (AE)
• Aerospace Technology (AT)
• Audio-visual Technology (AVT)
• Biomedical Engineering (BME)
• Electrical Engineering (EE)
• Electronic & Computer Engineering (ECE)
• Mechanical Engineering (ME)
• Marine & Offshore Technology (MOT)
• Mechatronic Engineering (MTE)
Diploma in Aerospace Technology

- A focus on design and manufacturing of aircraft components, in addition to maintenance, repair and overhaul of aircraft systems
- Six-month attachments with aerospace companies like Rolls-Royce (UK), Hamilton Sundstrand and Eurocopter
- Graduates can become Licensed Aircraft Engineers, and get module exemptions of up to 11 papers in the CAAS Aircraft Maintenance Engineer basic examinations
About the Diploma

Airbus A380 Super Jumbo, Joint Strike Fighter F-35 Lightning II, Raptor F-22, Euro-Fighter 2000 Typhoon, F-15 Eagle and SU-37 Terminator... if you are fascinated by these state-of-the-art aircraft, and can’t wait to be part of all this excitement... welcome aboard. Fasten your seat belt. And prepare for take-off with our Diploma in Aerospace Technology (AT)!

The course hones your competencies in aircraft maintenance, repair and overhaul (MRO). It also focuses on the design and manufacturing of aircraft systems and components. You will learn tools of the trade such as computational fluid dynamics and CADCAM to enhance your capabilities in aerospace design and production.

Work on practical projects at our high-tech Aerospace Hub, which has an RSAF Super Skyhawk jet fighter, a Cessna 152 general aviation aircraft, an experimental WIG (wing-in-ground effect) craft, a subsonic wind tunnel and other aircraft training systems. The facilities will enhance your learning to meet the Singapore Airworthiness Requirements (SAR). This professional accreditation by the Civil Aviation Authority of Singapore (CAAS) will allow you to enjoy module exemptions in up to 11 papers in the SAR Aircraft Maintenance Engineer basic examinations, to become a Licensed Aircraft Engineer!

An enriching six-month local or overseas industrial attachment with leading aerospace companies will provide you with valuable hands-on training. Learn on the job, with aerospace companies like Rolls-Royce Research Centre in Derby (UK), CAAS, SIA Engineering Company (SIAEC), Eurocopter, Hamilton Sundstrand and many more.

New experiences with our overseas study trips and other programmes will also provide you with greater industry exposure. Past students have enjoyed flying lessons on the Subang Study Trip. Our collaboration with the Singapore Youth Flying Club puts you at an advantage when you apply for the Private Pilot’s Licence course.

With our diploma, only the sky is the limit!

As a leading global aviation and Maintenance, Repair and Overhaul (MRO) hub in Asia, Singapore offers one-stop integrated solution for aviation companies. Over the past 16 years, the Singapore aerospace industry has grown by an average of more than 13% a year. In 2006 alone, the aerospace industry grew by 19.7%, with an output of S$6.3 billion.
### Year 1
- Engineering Mathematics 1 & 2
- Engineering Mechanics
- Electrical Technology & Electronics
- Fundamentals of Aerospace Technology
- Aerospace Manufacturing & Maintenance Practices
- Thermofluid 1
- Computer Programming
- Aerospace Materials & Processes 1
- Engineering Drawing & CAD
- Creativity & Applied Thinking Skills
- Sports & Wellness
- Individual & the Community
- Communication Toolkit

### Year 2
- Applied Mechanics
- Engineering Design
- Strength of Materials
- Aircraft Structures & Systems 1
- Engineering Mathematics 3
- Thermofluid 2
- Mechanics of Flight
- Aerospace Materials & Processes 2
- Airworthiness Legislation
- Avionics Systems
- Innovation & Enterprise in Action
- Any 2 IS general modules

### Year 3
- System Dynamics & Control
- Aircraft Structures & Systems 2
- Aircraft Propulsion Systems
- Human Factors
- Industrial Attachment Programme
- Quality System & Manufacturing Management
- World Issues: A Singapore Perspective
- Any 1 IS general module

### School of Engineering Electives
Choose your electives and customise your selection from a wide range of modules from engineering and non-engineering categories. See page 25.
What can you achieve in your career?

Seletar Aerospace Park is currently being developed to provide infrastructure to support regional business and luxury travel needs. By 2018, 10,000 jobs requiring a range of aviation skills would be created – one of which could be yours.

Bright prospects at major aerospace companies await you as a Licensed Maintenance Engineer, or Aerospace Technologist providing specialised technical support for manufacturing design, process development, aircraft maintenance and aerospace services.

Further Studies

The AT course is well recognised by local or overseas universities, which grant advanced standing. You will gain direct entry to the second year of aerospace and aeronautical engineering courses in UK such as University of Sheffield and University of Manchester.

Good credit exemption is also available from the University of New South Wales and University of Queensland for their aerospace engineering courses in Australia.

With our diploma, you will enjoy recognition from established organisations. Apply for an SIA Engineering Company (SIAEC) Apprentice Aircraft Maintenance Programme and be placed on an accelerated programme. Or receive a SIAEC scholarship in recognition of your MRO skills.

Entry Requirements

To be eligible for consideration, candidates must have the following GCE ‘O’ Level examinations (or equivalent) results:

<table>
<thead>
<tr>
<th>Subject</th>
<th>‘O’ Level Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>English</td>
<td>1-7**</td>
</tr>
<tr>
<td>Mathematics (Elementary/Additional)</td>
<td>1-6</td>
</tr>
<tr>
<td>Science (with Physics or Chemistry or Biology component) or Design &amp; Technology</td>
<td>1-6</td>
</tr>
</tbody>
</table>

The aggregate computation for selection is based on grades obtained for English, Mathematics, Science or Design & Technology and two other subjects.

** Candidates with English as a second language (EL2) must have attained a minimum grade of 6.

Candidates with hearing deficiency or severe vision deficiency including colour appreciation deficiency should not apply for the course.

“We have identified areas which have significant growth potential:

First, the design and manufacturing of aircraft systems and components, to meet the growing trend of aerospace companies looking for locations that offer total cost-competitiveness, quality, reliability and engineering expertise.

Second, the creation of a regional aerospace training campus to cater to our growing manpower needs and to export our training services to the region. The growing global shortage of aerospace manpower has been identified as one of the industry’s greatest constraints on future growth.”

– Mr Lim Hng Kiang
Minister for Trade and Industry
Diploma in Marine & Offshore Technology

- The only naval architecture course in Singapore for design and construction of oil rigs and ships
- Strong links with industry players like the Association of Singapore Marine Industries (ASMI) & Keppel FELS for work attachments and industry-relevant curriculum
- Enjoy high-tech facilities – build and test ship models in Singapore’s only towing tank
- Many scholarships available including those offered by ASMI at S$10,000 annually over three years
About the Diploma

Remember carefree childhood days of building toy ships with Lego bricks? Dream of building a ship hull, streamlined like a shark’s body to reduce water resistance?

Now, you can realise your dreams and pursue a career in the maritime industry, with our Diploma in Marine & Offshore Technology (MOT)!

With the MOT diploma, you will possess the only and the highest level of qualification in naval architecture and offshore technology in Singapore.

The curriculum focuses on the three main sectors of the industry – ship design and production, ship conversion, and offshore technology. In your final year, you can specialise in ship design or offshore oil and gas technology. The ship design option provides you with the skill to assist in the design and construction of marine vessels, oil rigs and semi-submersibles. With the oil and gas option, you will learn to deal with equipment and processes required to transport oil and gas underwater to the shuttle tanker.

High-tech facilities located within the campus allow you to build your very own ship model, and test it in Singapore’s only towing tank. You can also work on the TRIBON CADCAM system to design ships and oil rigs.

You will benefit from our close relationship with the industry, especially with ASMI. Frequent study trips and industrial attachments ensure that you have industry exposure right from the start. Work with leading organisations like Keppel FELS, ST Marine and Sembcorp Marine when you go on attachments.

Unique to MOT is the availability of many scholarships. They include the MOT-ASMI Scholarship at S$10,000 annually over three years. You can also vie for other scholarships like KC Lee, ASMI and those from shipyards like Keppel Offshore & Marine.

Singapore is a leading maritime nation and ship conversion centre. It produces 70% of the world market share of Floating Production Storage Offloading (FPSO) and also 70% jack-up rigs, besides being home to 3,400 marine companies.

The booming oil and gas industry coupled with the surge in shipbuilding activities is creating a huge demand in manpower for the maritime industry for oil drilling rigs and offshore production platforms.
What will you learn in the course?

**Year 1**
- Engineering Drawing & Computer Aided Design
- Electrical Technology
- Engineering Materials
- Engineering Mathematics 1 & 2
- Manufacturing Technology
- Computer Programming
- Engineering Mechanics
- Naval Architecture 1
- Creativity & Applied Thinking Skills
- Sports & Wellness
- Individual & the Community
- Communication Toolkit

**Year 2**
- Marine Practices
- Engineering Mathematics 3
- Marine Engineering 1
- Marine Industry Safety
- Thermodynamics
- Industrial Attachment
- Computer Aided Design & Manufacturing 1
- Naval Architecture 2
- Project Management
- Ship Drawing
- Strength of Materials
- Innovation & Enterprise in Action
- Any 2 IS general modules

**Year 3**
- Computer Aided Design and Manufacturing 2
- Marine Engineering 2
- Ship Production Technology
- Final-Year Project
- World Issues: A Singapore Perspective
- Any 1 IS general module

**Design Option**
- Offshore Engineering
- Theory and Practice of Ship Design
- Naval Architecture 3
- Floating Production Technology

**Oil & Gas Option**
- Offshore Oil & Gas Process Technology
- Offshore Systems
- Drilling Technology
- Floating Production Technology

---

**School of Engineering Electives**
Choose your electives and customise your selection from a wide range of modules from engineering and non-engineering categories. See page 25.
What can you achieve in your career?

The shipyards in Singapore command a niche market in the design and construction of customised ships for the world. Singapore is the world leader in ship conversion, and rig construction for offshore exploration.

In 2006, there were more than 102,500 maritime workers. On average, each one of them enjoyed a seven-month bonus. Past students were offered two to three jobs even before graduation.

With our MOT diploma, you will land a job quickly and enjoy an attractive pay package. You can find employment in the marketing, purchasing, designing, constructing and testing of marine vessels, oil rigs and semi-submersibles. MOT graduates need not sail on board ships as seafarers.

Further Studies

Enjoy up to two years of exemption when you pursue a relevant local or overseas degree course. You will get direct entry to the second year of the Bachelor of Engineering degree course in Marine Engineering, Marine Technology, Naval Architecture, Offshore Engineering or Small Craft Technology at the University of Newcastle. Enjoy advanced standing for admission to local universities in the Mechanical and Civil Engineering Departments.

Obtain your degree on NP’s campus grounds through a tie-up with a Foreign Specialised Institution. You will earn a Bachelors Degree in the areas of naval architecture and marine engineering from a reputable overseas university.

Entry Requirements

To be eligible for consideration, candidates must have the following GCE ‘O’ Level examinations (or equivalent) results:

<table>
<thead>
<tr>
<th>Subject</th>
<th>‘O’ Level Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>English</td>
<td>1-7**</td>
</tr>
<tr>
<td>Mathematics (Elementary/Additional)</td>
<td>1-6</td>
</tr>
<tr>
<td>Science (with Physics or Chemistry or Biology component) or Design &amp; Technology</td>
<td>1-6</td>
</tr>
</tbody>
</table>

The aggregate computation for selection is based on grades obtained for English, Mathematics, Science or Design & Technology and two other subjects.

** Candidates with English as a second language (EL2) must have attained a minimum grade of 6.

Candidates with hearing deficiency should not apply for the course.

“Ngee Ann graduates are much sought after by us. They have the relevant technical and generic skills. These young graduates bring with them fresh ideas and new perspectives to the marine industry. They have a bright future with us.”

– Mr Lee Tai Kwee  
  Senior General Manager, Commercial / Business, Keppel Singmarine
Diploma in Mechanical Engineering

- Strong emphasis on design so that you will be able to provide value-added engineering services
About the Diploma

Mechanical engineers are constantly sought after as there will always be a need for improving, re-designing and inventing equipment in any field of technology.

It can be something as simple as designing a composite fishing rod to something as intricate as developing complex surgical robotic systems. It can span almost every industry from energy generation to biomedical and even consumer goods.

With so many career choices, you know that our Diploma in Mechanical Engineering (ME) will take you places!

You will receive a strong foundation to become a competent mechanical engineer. While it is a practical and hands-on course, the tools of the trade have expanded to reflect advances in technology. You will learn the latest computational skills and stay at the forefront of the industry.

The course has a strong emphasis on design so that you will be able to provide value-added engineering services like the generation and use of energy, creation of new materials, process design, and the manufacture of products ranging from home appliances to biomedical devices.

The final year allows you to pursue either discipline-specific options in Biomedical Applications, Design Innovation, Photonics & Laser Technology, and Cleanroom & Energy Systems, or business-related options in Business Management and Marketing & Entrepreneurship. With our extensive and strong industry links, you can also opt for a six-month industrial attachment, either locally or overseas.
School of Engineering Electives

Choose your electives and customise your selection from a wide range of modules from engineering and non-engineering categories. See page 25.

**Year 1**
- Engineering Mathematics 1 & 2
- Electrical Technology
- Computer Programming
- Engineering Mechanics
- Engineering: A Creative Profession
- Engineering Drawing & Computer-Aided Design
- Engineering Materials
- Manufacturing Technology & Practice
- Creativity & Applied Thinking Skills
- Sports & Wellness
- Individual & the Community
- Communication Toolkit

**Year 2**
- Computer Aided Design
- Computer Aided Manufacturing
- Fluid Mechanics
- Strength of Materials
- Engineering Design
- Engineering Mathematics 3
- Industrial Automation
- Thermodynamics
- Applied Mechanics
- Innovation & Enterprise in Action
- Any 2 IS general modules

**Year 3**
- Engineering System Design
- Instrumentation and Control
- Mechanics of Machines Materials
- Applied Thermodynamics
- World Issues: A Singapore Perspective
- Any 1 IS general module
- 6-month Industrial Attachment Programme OR a 1-year project and modules of the following options:

**Discipline-Specific Options:**
- Biomedical Applications
- Design Innovation
- Photonics & Laser Technology
- Cleanroom & Energy Systems

**Business-Related Options:**
- Business Management
- Marketing & Entrepreneurship

▲ Interdisciplinary Studies (IS) modules
What can you achieve in your career?

Further Studies

You will begin your career as a technologist with good employment prospects. Join marine, aerospace, pharmaceuticals, chemicals, precision engineering, electronics, power generation, logistics management, condominium or resort facilities maintenance management industries and many more.

The diploma is recognised by many tertiary institutions, making it easy for you to pursue further studies. You can enjoy direct entry to the second year in mechanical engineering and other engineering courses, such as aerospace, bioengineering and materials engineering, in local and overseas universities.

Get up to two years’ exemption from overseas universities such as the University of Manchester and University of New South Wales. In UK and Australia, our graduates with an average grade of B+ are typically granted a two-year exemption for a mechanical engineering degree programme.

NP graduates make up a significant number of the polytechnic graduates who have gained entry to relevant degree courses in local universities. Our students have also pursued degree programmes in business or computer engineering.

Entry Requirements

To be eligible for consideration, candidates must have the following GCE ‘O’ Level examinations (or equivalent) results:

<table>
<thead>
<tr>
<th>Subject</th>
<th>‘O’ Level Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>English</td>
<td>1-7**</td>
</tr>
<tr>
<td>Mathematics (Elementary/Additional)</td>
<td>1-6</td>
</tr>
<tr>
<td>Science (with Physics or Chemistry or Biology component) or Design &amp; Technology</td>
<td>1-6</td>
</tr>
</tbody>
</table>

The aggregate computation for selection is based on grades obtained for English, Mathematics, Science or Design & Technology and two other subjects.

** Candidates with English as a second language (EL2) must have attained a minimum grade of 6.

Candidates with hearing deficiency or severe vision deficiency should not apply for the course.

The Singapore Economic Development Board (EDB) is set to double Singapore’s manufacturing output to $300 billion by 2018, which in turn will create some 15,000 jobs.
Diploma in Mechatronic Engineering

- Exciting discipline-specific options like Aerospace Applications and Sports Engineering; or business-related options like Business Management

- With the ability to integrate electronics, mechanics and software design, you can fit into a variety of fields from medicine and surgery to aerospace and sports
About the Diploma

What do a bionic arm and a Playstation Portable (PSP) have in common?

They are both products of mechatronic engineering. In fact, all machines are driven by mechatronics – your mobile phone, mp3 player and your household appliances.

You too can create the next smart gadget with the Diploma in Mechatronic Engineering (MTE) at Ngee Ann, the first Polytechnic to offer this course.

Integrate electronics, mechanics and software design and learn how to create a new generation of computer-controlled “intelligent” devices. Enjoy a broad-based education in your first semester, when you share a common curriculum with Mechanical Engineering, Electronic & Computer Engineering and Electrical Engineering students.

Then, proceed along your chosen path, when you pick either a discipline-specific or a business related final-year option:

- Aerospace Applications
- Sports Engineering
- Automation & Robotics
- Micro Electromechanical Systems
- Business Management
- Marketing & Entrepreneurship

As the first Polytechnic to offer MTE diploma, Ngee Ann has established strong industry links and you can expect overseas industrial attachment opportunities in Australia, China, Germany and Finland.
School of Engineering Electives
Choose your electives and customise your selection from a wide range of modules from engineering and non-engineering categories. See page 25.
What can you achieve in your career?

Apply your skills in every possible industry from medicine and surgery, agriculture and automobile, to sports, toys and entertainment.

With your ability to integrate electronics, mechanics and software design, you can adapt to a variety of fields. More and more microelectronics companies like Intel are investing money in advanced automated machines. There is thus a high demand for your mechatronics skills in an industry that is expanding aggressively worldwide.

Job opportunities abound in the area of process development, process automation, engineering and product design, R&D and product development, engineering tests, maintenance and operation of high-tech equipment and facilities.

Further Studies

You will be able to further your studies in local and overseas universities offering Mechanical, Mechatronic, Electrical/Electronic or Bioengineering degree programmes. You will enjoy one year’s exemption in taking up Bachelor of Engineering (BEng) courses in Mechanical/Electrical Engineering at the National University of Singapore or Nanyang Technological University. Alternatively you may want to pursue BEng courses in Mechatronic Engineering at the University of New South Wales in Australia or the University of Manchester in UK, and be granted advanced standing of up to two years.

Entry Requirements

To be eligible for consideration, candidates must have the following GCE ‘O’ Level examinations (or equivalent) results:

<table>
<thead>
<tr>
<th>Subject</th>
<th>‘O’ Level Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>English</td>
<td>1-7 **</td>
</tr>
<tr>
<td>Mathematics (Elementary/Additional)</td>
<td>1-6</td>
</tr>
<tr>
<td>Science (with Physics or Chemistry or Biology component) or Design &amp; Technology</td>
<td>1-6</td>
</tr>
</tbody>
</table>

The aggregate computation for selection is based on grades obtained for English, Mathematics, Science or Design & Technology and two other subjects.

** Candidates with English as a second language (EL2) must have attained a minimum grade of 6.

Candidates with hearing deficiency or severe vision deficiency should not apply for the course. Those with colour appreciation deficiency may be considered, subject to an in-house test.

“As a graduate of NP, I benefited much from the different interesting modules. Modules like Mechanical Drawing & Computer-Aided Design, Mechanical Aspects of Mechatronic Systems, Industrial Automation and Robotics & Machine Vision have given me a strong foundation. I am flexible in my work as I have knowledge of both mechanical and electrical/electronics disciplines to look at the different aspects of advanced automated equipment. I have no doubt that the course and its wide range of modules are relevant to the industry. I am glad I chose Ngee Ann.”

- Yeo Wei Cheong
  Assistant Engineer (MTE graduate)
Diploma in Product Design & Innovation

- A unique Integral Design approach that addresses the life-cycle of a product; integrating major aspects of product design - art, engineering and business
- Graduate with your own design portfolio, complete with a working prototype model and business plan
- Attachment with organisations like Motorola Electronics, PSB Technologies and Aztech Systems
- Work with state-of-the-art facilities like rapid prototyping machines, and design and project studios
About the Diploma

“Design is not just what it looks like and feels like. Design is how it works.”
- Steve Jobs, CEO, Apple Inc.

Apple Inc. is behind the global phenomenon - the iPod. The miniature mp3 player, iconic for its sleek casing and innovative touch screen function, continues to be a best seller today.

Our Diploma in Product Design & Innovation (PDI) is about designing functional and innovative products such as the iPod. The curriculum focuses on creating products that look good, work well and sell well. Thus, good design principles, a quality product, and a sound marketing and business strategy are what you will learn from the course.

The curriculum, with its emphasis on the Integral Design approach, addresses the entire life cycle of a product - how the product is designed, manufactured, marketed and sold, serviced and repaired, and eventually retired. It integrates three major aspects of product design, art, engineering and business, through modules on engineering design, industrial design, business and marketing. The balanced curriculum is a key advantage PDI has over conventional product design or industrial design courses.

In the final year, our practice-oriented and project-driven curriculum provides you with the opportunity to do an internship of up to three months in companies like Motorola Electronics, Singapore Mint, Aztech Systems and PSB Technologies. You also get to work on two major design projects. Upon graduation, you will have an innovative product design portfolio, complete with a working prototype or model and a business plan.

You can expect to enjoy a rich learning experience through participation in design competitions, seminars by product designers and visits to design companies and exhibitions.
School of Engineering Electives
Choose your electives and customise your selection from a wide range of modules from engineering and non-engineering categories. See page 25.

Year 1
- Visual Thinking & Design Sketching
- History & Principles of Design
- Engineering Mathematics 1 & 2
- Manufacturing Processes
- Materials & Design Applications 1
- Design Specification & Conceptual Design
- Design Presentation & Methods
- Engineering Mechanics
- Computer Aided Design & Drawing 1
- Creativity & Applied Thinking Skills
- Sports & Wellness
- Individual & the Community
- Communication Toolkit

Year 2
- Product Form and Aesthetics
- Materials and Design Applications 2
- Computer Aided Design and Drawing 2
- Electrical Technology and Electronics
- Ergonomics & User-centred Design
- Business and Project Management
- Thermofluid and Design Applications
- Component Design & Development
- Innovation & Enterprise in Action
- Any 2 IS general modules

Year 3
- Product Development & Innovation
- Design for Manufacturability
- Entrepreneurship & Business Plan
- Automation & Smart Product Design
- Internship and Project Programme
- World Issues: A Singapore Perspective
- Any 1 IS general module

Interdisciplinary Studies (IS) modules
The importance of the Creative Industries goes far beyond their direct economic contributions... The Creative Industries can contribute to innovative and desirable products and services in manufacturing, healthcare and tourism sectors.

The Creative Industries also improves our quality of life and make Singapore more vibrant by stimulating awareness and demand for the arts, design and media products.”

- Dr Lee Boon Yang
  Minister for Information, Communications and the Arts
You will take two elective modules to complete your diploma. Choose your elective modules from a wide range of clusters available under both engineering and non-engineering categories.

You want more? Just top up with two additional elective modules. If any three of the four elective modules completed are from the same cluster, you will qualify for a Diploma Plus!

The Diploma Plus will better prepare you if you wish to pursue a university degree or increase your employability in discipline-specific areas.

**Engineering Category**
- Advanced Engineering Mathematics Cluster*
- Aerospace Design Cluster
- Applied Physics Cluster *
- Applied Technology Cluster
- Biomedical Engineering Cluster
- Industrial Control Cluster
- Industrial Electronics Cluster
- Information Technology Cluster
- Mechanical Technology Cluster
- Telecommunication Distribution Technology Cluster
- Workplace Safety & Health Cluster

**Non-Engineering Category**
- Economics & Financial Applications Cluster
- Green Development Cluster
- Leisure & Retail Management Cluster

**Other Available Diploma Plus Certificates**
- Business
- Innovation Management
- Languages (Japanese)

*Designed in collaboration with the Department of Electrical and Computer Engineering, National University of Singapore (NUS). The syllabus is based on the first-year engineering mathematics and science curricula of NUS.
With over 40 full-time diploma courses at Ngee Ann Polytechnic, you will definitely find something to suit your interests and passion.

<table>
<thead>
<tr>
<th>SCHOOL OF BUSINESS &amp; ACCOUNTANCY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accountancy</td>
</tr>
<tr>
<td>Banking &amp; Financial Services</td>
</tr>
<tr>
<td>Business Information Technology</td>
</tr>
<tr>
<td>Business Studies</td>
</tr>
<tr>
<td>Tourism &amp; Resort Management</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SCHOOL OF ENGINEERING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aerospace Electronics</td>
</tr>
<tr>
<td>Aerospace Technology</td>
</tr>
<tr>
<td>Audio-visual Technology</td>
</tr>
<tr>
<td>Biomedical Engineering</td>
</tr>
<tr>
<td>Business Process &amp; Quality Engineering</td>
</tr>
<tr>
<td>Civil &amp; Environmental Engineering</td>
</tr>
<tr>
<td>Electrical Engineering</td>
</tr>
<tr>
<td>Electronic &amp; Computer Engineering</td>
</tr>
<tr>
<td>Engineering Informatics</td>
</tr>
<tr>
<td>Environmental &amp; Water Technology</td>
</tr>
<tr>
<td>Facilities Management for Business</td>
</tr>
<tr>
<td>International Supply Chain Management</td>
</tr>
<tr>
<td>Logistics Management</td>
</tr>
<tr>
<td>Marine &amp; Offshore Technology</td>
</tr>
<tr>
<td>Mechanical Engineering</td>
</tr>
<tr>
<td>Mechatronic Engineering</td>
</tr>
<tr>
<td>Network Systems &amp; Security</td>
</tr>
<tr>
<td>Product Design &amp; Innovation</td>
</tr>
<tr>
<td>Real Estate Business</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SCHOOL OF FILM &amp; MEDIA STUDIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Digital Visual Effects</td>
</tr>
<tr>
<td>Film, Sound &amp; Video</td>
</tr>
<tr>
<td>Mass Communication</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SCHOOL OF HEALTH SCIENCES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health Sciences (Nursing)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SCHOOL OF HUMANITIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business &amp; Social Enterprise</td>
</tr>
<tr>
<td>Chinese Studies</td>
</tr>
<tr>
<td>Early Childhood Education</td>
</tr>
<tr>
<td>Psychology &amp; Community Services</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SCHOOL OF INFOCOMM TECHNOLOGY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enterprise IT Systems</td>
</tr>
<tr>
<td>Information Technology</td>
</tr>
<tr>
<td>Mobile Business Solutions</td>
</tr>
<tr>
<td>Multimedia &amp; Animation</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SCHOOL OF LIFE SCIENCES &amp; CHEMICAL TECHNOLOGY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biomedical Laboratory Technology</td>
</tr>
<tr>
<td>Biomedical Science</td>
</tr>
<tr>
<td>Chemical &amp; Biomolecular Engineering</td>
</tr>
<tr>
<td>Horticulture &amp; Landscape Management</td>
</tr>
<tr>
<td>Molecular Biotechnology</td>
</tr>
<tr>
<td>Pharmacy Science</td>
</tr>
</tbody>
</table>
Join Us
If you took the 2007 GCE ‘O’ Level examinations as a school candidate, you may apply on-line through the Joint Admissions Exercise (JAE). Details will be available in the JAE information booklet which you will receive when collecting your results.

Applicants who are not eligible to apply under the JAE and holders of other qualifications may refer to our website at 
http://www.np.edu.sg/aa/info.html
for application details.

Fees
S$2,100 per academic year (for local students)

All information correct at time of printing (Oct 2007)