MULTIDISCIPLINE ENGINEERING

School of Engineering

- Business Process & Quality Engineering (N52)
- Engineering Informatics (N62)
- International Supply Chain Management (N80)
- Logistics Management (N58)
Multidiscipline Engineering Division

- Providing the best of both worlds in engineering and business – leading to career options beyond traditional engineering domains
- Excellent industry collaborations and student attachments with major players like Sony Electronics, Sembawang Kimtrans Ltd and Lufthansa Cargo AG
- Broad-based and practice-oriented training in Informatics, Logistics and Quality
Multiple Man, a Marvel Comics superhero associated with the X-Men, has the ability to create duplicates of himself so as to undertake multiple tasks at the same time. Ever dreamt of this possibility?

You just might be close to achieving it. In our world of multi-tasking, the solution is to be multi-disciplined.

Technology and the Internet have increased the pace of life. Instant access to information through the Internet has led to higher work expectations. The global economy needs professionals with more than one skill set – in particular, it needs complementary skill sets.

So, join us at the Multidiscipline Engineering Division (MDE). We train you to become that multi-talented and multi-disciplined professional. With our diplomas, you have the best of both worlds in engineering and business, leading to career options beyond traditional engineering fields.

Learn to drive commerce and industry through logistics and global supply chain management. Connect the world of technological information through engineering informatics. Improve products and services through quality management. You will have a broad-based practice-oriented training in niche multi-disciplinary areas of Informatics, Supply Chain, Logistics and Quality.

Strong industry collaborations will allow you to go on attachments at major industry players like Aztech, Sembawang Kimtrans, Maersk, Lufthansa Cargo AG, BSI Management Systems, Diner’s World Travel, Nixdorf and Sony Electronics. With your capability to deal with a variety of areas, you will be highly sought after – especially at a time where multidisciplinary skills and engineering are increasingly important in services and technology.
The MDE Division lives up to its name in ensuring that our students are truly multi-disciplined and multi-talented. Various activities are organised for you to foster team building, self discovery, confidence building and a spirit of adventure. All these are achieved through exciting activities such as adventure camps, where you will be able to participate in paintball strategy games, four-wheel drive adventures, white water rafting, outdoor rock climbing, speed reading and enhancement workshops.

You will also be groomed to take on managerial positions through involvement in decision-making committees such as the MDE Society, the Freshmen Orientation Committee, the Graduation Committee, and the Overseas Immersion Programme Committee. This will also give you the freedom to help decide what is best for you and your friends as you work together with your lecturers.

All in all, you are assured with an enriched student life at MDE and the experience gained will be an invaluable component for you to take on the challenges of the global market.

The MDE Division comes under the School of Engineering, which also includes Electrical Engineering, Electronic & Computer Engineering, Building & Environment, and Mechanical Engineering.

For more information, log on to http://soe.np.edu.sg/soe/mde

“The student we had was familiar with quality tools, quality system and quality control, and was able to apply theory to actual working life... NP’s Multidiscipline Engineering students add value during their attachment with Motorola, and in return, acquire industry experience and are well-prepared for life after graduation.”

- Eric Tan
  Equipment Engineering Manager, Motorola
When you graduate and as you move up the career ladder, you will assume roles that require more than what you have learnt as an engineer. You will change jobs a few times, and like many engineers, 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 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.

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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 
**Business Process & Quality Engineering**

- The only course offered by a local polytechnic in the field of quality studies – designed for both service and manufacturing industries

- Focuses on quality management while grounded in engineering – thereby producing highly sought after graduates skilled in quality techniques and business processes

- Wide variety of modules, thus allowing focus on interest areas like service management or business process engineering
About the Diploma

Just think back to the last time you bought a mobile phone. You asked friends for the best buy, in terms of quality and price. Bombarded by a huge range of similar products from different brands, you now have the luxury of choice. Often you want to know whether the quality is worth the price tag.

Enter our Diploma in Business Process & Quality Engineering (BPQE). The course equips you with the skill and knowledge to help companies improve systems and processes to produce quality goods and services. It is the only full-fledged diploma in Singapore focusing on the field of quality studies and is specially designed to meet the needs of companies in the manufacturing and service industries.

In keeping with global trends and developments, the course integrates business processes and quality management with engineering, so you will have a sound grasp of modern quality techniques and business processes.

Take a wide variety of modules in diverse areas such as service management, project quality management, principles of marketing and business process engineering. This allows you to focus on an aspect of quality management and engineering that interests you.

In your final-year, gain hands-on experience with a local or overseas industrial attachment programme, or participate in an in-house project. You will benefit from the close relationship that MDE has with Motorola, Yeakin Plastic, Dell Computer, Baxter Healthcare, and industry bodies like the Singapore Quality Institute, which is affiliated with the American Society for Quality.
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 21.
What can you achieve in your career?

Our new curriculum equips you with business and engineering skills, so you can take on a variety of jobs in the service and manufacturing environment. Good career prospects await you as a Service Quality Officer, Business Process Improvement Executive, Management Systems Executive, Bank Customer Relationships Executive, Process Engineer and Quality Assurance Executives.

Further Studies

Upon graduation, pursue further studies in areas such as Mechanical Engineering, Materials Engineering, Electrical Engineering, Industrial & Systems Engineering, Service Operations Management and Engineering Management in both local and foreign universities in UK and Australia.

In particular, BPQE graduates may gain direct admission to the second-year of the Materials Engineering, the Mechanical Engineering and the Electrical Engineering courses at the Nanyang Technological University (NTU).

Direct admission with advanced standing is possible when you take up courses in Industrial and Systems Engineering and the Mechanical Engineering at the National University of Singapore (NUS).

NUS, NTU and the Singapore Management University also allows you to enter business-related and relevant courses.

Entry Requirements

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

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

- Broad-based and hands-on training in IT and engineering systems applications
- Opportunity to work on innovations and developments at our Technology Centres, and on industry-linked projects
- Integrate engineering and business with IT – to be truly multidisciplinary, able to value-add to engineering and manufacturing companies
- Six-month local or overseas attachments with top industry players like Hewlett-Packard and ST Microelectronics
About the Diploma

Send an SMS to buy a can of Coke from a vending machine and have it charged to your phone bill. Use your ez-link smartcard to take public transport, pay your library fines and buy yourself a value meal at McDonalds. Wave your credit card in front of a reader and have your purchases charged to the card.

This is what information systems can do.

With our Diploma in Engineering Informatics (EI), you will be able to design, develop, maintain and integrate IT-based applications and information systems. Improve business effectiveness, profits and the way we live.

You learn to integrate engineering and business with IT. Apply IT solutions to any industry with your skills and knowledge in relevant engineering systems and applications. Add value to engineering and manufacturing companies with your multi-disciplinary skills.

Your training will be broad-based with hands-on sessions in IT, engineering systems and applications. Learn e-enterprise, manufacturing processes and tap into the power of information and Internet technologies. Your education includes software skills such as computer programming, design, web services, web design and multimedia, and business processes.

In your final year, choose to go on an industrial attachment locally or overseas with top industry players like Hewlett-Packard and ST Microelectronics. Alternatively, develop and innovate an in-house project at our Technology Centres or work on industry-linked projects.

“The Diploma in Engineering Informatics provided me with the knowledge and skills needed to integrate manufacturing data and develop IT solutions for processes and equipment in the plant.”

- Huang Xinyi (EI graduate),
  Associate Engineer, Systems on Silicon Manufacturing Co Pte Ltd
### Year 1
- Engineering Mechanics
- Programming Fundamentals
- Engineering Mathematics 1 & 2
- Manufacturing Technology & Materials
- Operating Systems & Networking
- Object-Oriented Programming
- Web Publishing
- Creativity & Applied Thinking Skills
- Sports & Wellness
- Individual & the Community
- Communication Toolkit

### Year 2
- Database Systems
- Software Engineering
- Circuit Analysis
- Engineering Mathematics 3
- Product Modelling & Realisations
- Automation Technology
- Project Management
- Web Applications Development
- Business Information Systems
- Digital Electronics & Computer
- Innovation & Enterprise in Action
- Any 2 IS general modules

### Year 3
- Process Control Systems
- Embedded Mobile Systems
- E-Applications & Security
- Wireless Networking & Applications
- Industrial Attachment Programme (IAP)/Final-Year Project **OR**
- In-House Project (IHP)/Final-Year Project
- World Issues: A Singapore Perspective
- Any 1 IS general module

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**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 21.
What can you achieve in your career?

With the growth of engineering and manufacturing sectors in Singapore, more executives with varied skills will be needed to increase profits through IT-based applications. Excellent employment prospects also await EI graduates in the following sectors - chemical, pharmaceutical, healthcare and service industries.

You will be competent in sourcing for and customising software, web applications development, infrastructure support, and IT project management. You could also run your own company to provide business solutions to others.

Further Studies

Gain advanced standing from the National University of Singapore (NUS) and Nanyang Technological University (NTU). Our graduates are offered advance placement credits from NUS’ Bachelor of Computing. They are also accepted in several other related courses from the Computer Science and Computer Engineering programmes.

You will also get advanced standing from a large number of overseas universities in Australia and UK.

Entry Requirements

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

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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.
Diploma in International Supply Chain Management

- First-ever diploma course of its kind, offered in response to emerging manpower needs of the supply chain management industry
- Covers trade, legal and transportation issues from the global perspective
- Learn the whole spectrum of supply chain management which includes logistics in pharmaceutical, food, transport, and project & events
- Six-month attachments with top supply chain companies
You have finally bought the latest PlayStation Portable (PSP). You unwrap it. It is sleek, new and gleaming. Games, music, movies ... The PSP seems to be the ultimate in handheld entertainment. And you start to wonder - how did it get here?

The answer? International supply chain management; or the efficient movement of a product or service from the first point, the supplier, to the final point, across the globe to you, the customer.

Our Diploma in International Supply Chain Management (ISCM) trains you as a supply chain specialist in an international business context. The first-ever diploma course of its kind, ISCM is offered by Ngee Ann in response to the emerging manpower needs of the supply chain management industry - especially in freight transportation of goods and services.

Knowing how to deliver the right product to the right place at the right time is crucial. A split second delay in the delivery of products and services globally can result in a loss of millions of dollars. With the knowledge and skills in supply chain management from our ISCM diploma, you will become a highly valued employee.

Improve business margins and market share when you learn about the practical applications of moving products and services from point to point. The three-year course covers the coordination of transport issues across borders, trade agreements, legal and regulatory requirements, taxes, duties, insurance, security, and offshore procurement process from a global perspective. Your area of study includes topics relating to integrated resorts and cold chain.

A six-month attachment programme with top supply chain companies will enable you to launch exciting careers upon graduation.
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 21.

What will you learn in the course?

**Year 1**
- Applied Statistics
- Business Computing Applications
- Introduction to SCM and Logistics
- Introduction to Freight Forwarding
- Electronic Commerce
- Service Operations Management
- Dangerous Goods and Cargo Handling
- Mathematics
- Distribution Management
- Supply Chain Management
- Creativity & Applied Thinking Skills
- Sports & Wellness
- Individual & the Community
- Communication Toolkit

**Year 2**
- Global Purchasing and Supply
- Project and Event Logistics
- Multimodal Transportation
- Maritime Management
- Risk Management
- Cold Chain
- Project Management
- Aviation Management
- Innovation & Enterprise in Action
- Any 2 IS general modules

**Year 3**
- Ports and Terminals Management
- Legal Issues in Freight and Trade
- Optimisation and Simulation
- Customs Brokerage Management
- Industrial Attachment Programme or In-House Project
- World Issues: A Singapore Perspective
- Any 1 IS general module

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

With Singapore’s plans to be a premier integrated transport and logistics hub, the supply chain industry is primed for considerable growth. You will enjoy excellent career opportunities as a supply chain specialist.

Pursue careers in areas such as purchasing management, freight & shipping business, airline & airport services, import and export business, transportation management, risk & crisis management, maritime industry and logistics operation.

Further Studies

Our ISCM diploma is accredited by leading universities in engineering and non-engineering fields. You can gain advanced standing when you pursue further studies.

Gain direct admission to relevant degree programmes offered by local and overseas universities. Take up degree courses like Business Administration, Business Administration with Accounting, and Business Administration & Law in the National University of Singapore. Or Accountancy, Business or Maritime Studies degree courses in Nanyang Technological University.

Alternatively, pursue an overseas degree in Business in Maritime and Logistics Management from the University of Tasmania (Australian Maritime College), or International Supply Chain Management from the Curtin University of Technology (Australia).

Entry Requirements

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

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The aggregate computation for selection is based on grades obtained for English, Mathematics, Science (Grade 1-9) or Design & Technology (Grade 1-9) and two other subjects.
Diploma in Logistics Management

- Recognised by the logistics industry for its broad-based foundation in business, IT applications for business, and logistics
- Six-month local or overseas logistics exposure at top companies like Maersk and Sembawang Kimtrans, or in-house projects
- Nurtures professionals capable of planning, implementing and managing the challenges posed by today’s demanding logistics businesses

“Though my core training was in logistics, the broad curriculum of the Logistics Management course had benefited me greatly in my job by equipping me with a general knowledge of accounting and IT, among others. Such background knowledge made it possible for me to take on additional roles of IT and finance support within the Logistics Department.”

- Bernard Lew Teck Hin (LMGT graduate)
  Customer Operations Officer, Maersk Logistics
About the Diploma

Time is of the essence and time is money.

Logistics is about delivering goods on time and at the right time. An extra week that goods are stored in the warehouse can result in the loss of thousands of dollars in profits. Logistics and supply chain management play important roles in the overall marketing and business strategy. It can make or break deals. It is all about managing and controlling every detail of the operation for the effective flow of goods, services and information from the point of origin to the marketplace.

And with the Singapore logistics industry establishing itself as the leading Asian integrated logistics hub by 2010, time is of the essence. Take the initiative now, and be a part of this industry, with our Diploma in Logistics Management (LMGT).

With a focus on meeting the manpower needs of Singapore’s dynamic logistics industry, the LMGT diploma develops you into a professional capable of planning, implementing and managing the challenges posed by today’s demanding logistics businesses. With efficient logistics management, you will play an important role in ensuring business competitiveness.

The LMGT diploma enjoys industry recognition for providing a solid foundation in business, IT applications for business, and logistics. The broad-based multidisciplinary approach to training is combined with hands-on learning experience with the latest logistics software application programmes. This maximises your potential for further studies and gears you up for a rewarding career in logistics management.

A six-month local or overseas attachment in top logistics companies like Maersk and Sembawang Kimtrans, or in-house project will enhance your problem-solving skills through practical experience. You will gain an in-depth understanding of logistics operations, issues and challenges beyond the classroom!
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 21.
What can you achieve in your career?

Get ready for a challenging career in any industry or sector with logistics functions! You can be a supply chain analyst, logistics specialist, logistics analyst, distribution manager, distribution planner, transportation manager or logistics hub manager. Or work in manufacturing companies as a buyer or planner.

Further Studies

You will be eligible for module exemptions when you further your studies. Enter degree programmes in local institutions such as Nanyang Technological University and the National University of Singapore. Or embark on a new student experience when you study overseas in Australian Maritime College, Curtin University of Technology, Royal Melbourne Institute of Technology, Southern Cross University, University of Southern Queensland and Victoria University in Australia, or Huddersfield University and Northumbria University in UK.

Entry Requirements

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The aggregate computation for selection is based on grades obtained for English, Mathematics, Science (Grade 1-9) or Design & Technology (Grade 1-9) and two other subjects.
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*
- Applied Physics Cluster*
- Biomedical Engineering Cluster
- Decision Management for Quality Cluster
- Industrial Control Cluster
- Industrial Electronics Cluster
- Information Technology Cluster
- International Freight Forwarding & e-Logistics Cluster
- Mechanical Technology Cluster
- Telecommunication Distribution Technology 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.

| School of Business & Accountancy | • Accountancy  
• Banking & Financial Services  
• Business Information Technology  
• Business Studies  
• Tourism & Resort Management |
|----------------------------------|--------------------------------------------------|
| School of Engineering            | • Aerospace Electronics  
• Aerospace Technology  
• Audio-visual Technology  
• Biomedical Engineering  
• Business Process & Quality Engineering  
• Civil & Environmental Engineering  
• Electrical Engineering  
• Electronic & Computer Engineering  
• Engineering Informatics  
• Environmental & Water Technology  
• Facilities Management for Business  
• International Supply Chain Management  
• Logistics Management  
• Marine & Offshore Technology  
• Mechanical Engineering  
• Mechatronic Engineering  
• Network Systems & Security  
• Product Design & Innovation  
• Real Estate Business |
| School of Film & Media Studies   | • Digital Visual Effects  
• Film, Sound & Video  
• Mass Communication |
| School of Health Sciences        | • Health Sciences (Nursing) |
| School of Humanities             | • Business & Social Enterprise  
• Chinese Studies  
• Early Childhood Education  
• Psychology & Community Services |
| School of InfoComm Technology    | • Enterprise IT Systems  
• Information Technology  
• Mobile Business Solutions  
• Multimedia & Animation |
| School of Life Sciences & Chemical Technology | • Biomedical Laboratory Technology  
• Biomedical Science  
• Chemical & Biomolecular Engineering  
• Horticulture & Landscape Management  
• Molecular Biotechnology  
• Pharmacy Science |
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
$2,100 per academic year (for local students)