Computer Engineering

"We are deeply impressed by your student interns, who converted an error-prone manual process into an automatically guided fool-proof one, leveraging on their hardware, software and system integration knowledge and skills. Their simple, low-cost innovative solution has solved a 30-year old problem and enhanced productivity for us. This is a testimony to the success of your course in equipping students with the critical competencies to meet the industry needs as we move towards Industry 4.0."
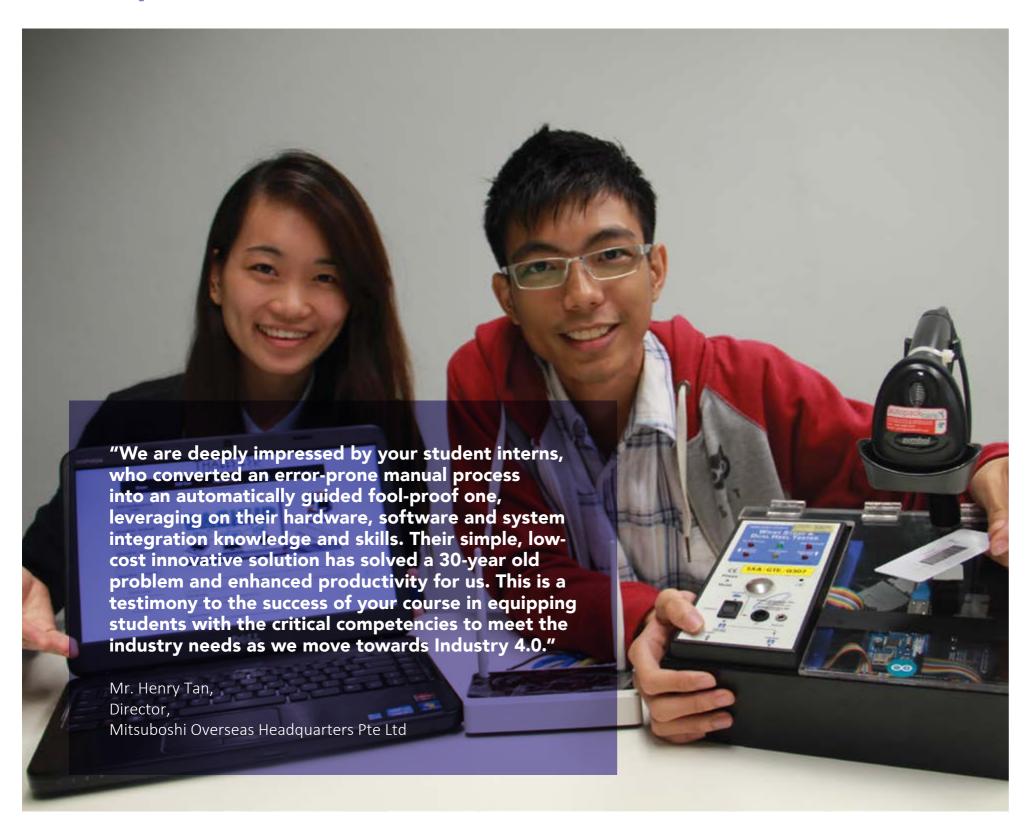
Mr. Henry Tan,
Director,
Mitsuboshi Overseas Headquarters Pte Ltd

As Singapore forges ahead as a Smart Nation, there is an urgent need for strong computer engineering talent across almost every sector, such as high-tech manufacturing, aerospace, aviation, transportation, telecommunication, healthcare, finance, business and the civil service.

The Internet of Things (IoT), data analytics, artificial intelligence, cyber security and smart manufacturing are the enablers of a Smart Nation that are set to impact Singapore both socially and economically. This course will train you to become a part of the strong talent pool in these enabling technologies. It will equip you with IoT and system integration knowledge and skills – encompassing embedded systems to make things smart, computer networking for wired and wireless connectivity, as well as internet technology – all of which will empower you to create web and mobile applications, integrate systems and put together solutions using the latest technologies.

Such a multi-disciplinary, winning combination of electronics and computer science prepares you to be amongst the few who are fully proficient in hardware, software and integration of hardware and software systems. You will become total solution providers who are much sought after across various industry sectors.

The course prepares you for internationally recognised industry certification examinations from National Instruments, CompTIA, Oracle, Microsoft and Cisco. You will also be equipped with skills to learn "how to learn", which would ensure that you stay relevant and are able to quickly adapt to change in the face of "disruptive technologies".

Career Opportunities

As Singapore progresses towards becoming a Smart Nation, IoT is poised to bring tremendous value and demand for computer engineers in a wide range of industries such as transportation, aerospace, aviation, manufacturing, telecommunication, healthcare, retail, logistics & supply chain, smart grid and even the government sector. You can therefore look forward to excellent career prospects as this course equips you with the various skill-sets that IoT requires. You can establish a career as a hardware engineer, system engineer, network engineer, software engineer, or embedded/firmware engineer.

If you are interested to further your studies, many local and foreign universities offer our diploma holders advanced standing for their degree courses. In particular, NTU grants our graduates direct entry into the second year of degree programmes in Computer Engineering, Computer Science and Electrical & Electronic Engineering, while NUS grants exemptions for selected modules amounting to almost a year.

Graduation Requirements

Cumulative Grade Point Average : min 1.0
TP Fundamentals Subjects : 36 credit units
Diploma Core Subjects : 81 credit units
Diploma Cluster Elective Subjects : min 8 credit units
Total Credit Units Completed : min 125 credit units

Application

Apply during the Joint Admissions Exercise following the release of the GCE O Level results. For other categories of local applicants, please refer to the section on "Admission and Requirements". For international students, please refer to the section on "Information for International Students".

Entry Requirements for Singapore-Cambridge GCE O Level Qualification Holders

To be eligible for consideration for admission, applicants must obtain 26 points or better for the net ELR2B2 aggregate score (i.e. English Language, 2 relevant subjects and best 2 other subjects, including CCA Bonus Points) and meet the minimum entry requirements of this course. CCA cannot be used to meet the minimum entry requirements.

For details on GCE O Level Minimum Entry Requirements, refer to page 125.

Note: Applicants should not be suffering from severe colour vision deficiency, uncontrolled epilepsy, profound hearing loss or severe vision impairment.

Course Structure

TP FUNDAMENTALS (TPFun) SUBJECTS			
SUBJECT CODE	SUBJECT	LEVEL	CREDIT UNITS
ECS1005	Communication & Information Literacy	1	2
ECS1006	Workplace Communication	1	2
ECS1007	Persuasive Communication	1	2
EGS1002	Global Studies	1	3
EGS1003	Managing Diversity at Work*	1	3
EGS1004	Global Citizenship & Community Development*	1	3
EGS1005	Expressions of Culture*	1	3
EIN1001	Innovation & Entrepreneurship	1	2
GCC1001	Current Issues & Critical Thinking	1	2
LEA1011	Leadership: Essential Attributes & Practice 1	1	1
LEA1012	Leadership: Essential Attributes & Practice 2	1	1
LEA1013	Leadership: Essential Attributes & Practice 3	1	1
LSW1002	Sports & Wellness	1	2
MCR1001	Career Readiness 1	1	1
MCR1002	Career Readiness 2	1	1
MCR1003	Career Readiness 3	1	1
TGL1001	Guided Learning	1	3
ESI3001	Student Internship Programme	3	12

Students must choose one of these three subjects or TGL1001 Guided Learning.

DIPLOMA SUBJECTS – CORE SUBJECTS

SUBJECT CODE	SUBJECT	LEVEL	CREDIT UNITS
EED1001	Electronic Prototyping	1	3
EEE1001	Circuit Analysis	1	6
EEE1002	Electronic Devices & Circuits	1	6
EEE1003	Digital Fundamentals 1	1	5
EEE1004	Digital Fundamentals 2	1	5
EMA1002	Engineering Mathematics 2	1	4
EMA1003	Engineering Mathematics 1	1	4
ESC1004	Engineering Physics	1	3
ESE1006	Computer Programming for Problem Solving	1	4
ESE1007	Engineering Analytics	1	3
EMA2003	Engineering Mathematics 3	2	4
EMC2001	Microcontroller Technology	2	5
EMC2006	Internet of Things Project	2	4
ESE2004	Object-oriented Programming	2	5
EMC3002	Embedded Control & Applications	3	4
EMC3005	System & Network Integration	3	4
EMP3002	Major Project	3	8
ESE3010	Database Management System & Design	3	4

DIPLOMA SUBJECTS – CLUSTER ELECTIVES
You can opt to take Cluster Electives when offered. These optional subjects will stretch your potential and help you to meet your aspirations.

SUBJECT CODE	SUBJECT	LEVEL	CREDIT UNITS
Advanced Engineering Skills			
EED3014	Advanced Skills Practices	3	8
Computer Applications			
ECC2013	Mobile Device Applications Development	2	4
ESE3006	ASP.NET Web Programming	3	4
Virtual Reality			
EDM2010	3D Modelling for Virtual Reality	2	4
EDM3004	Interactive Programming for Virtual Reality	3	4

DIPLOMA SUBJECTS – SPECIAL ELECTIVES

You can opt to take Special Electives when offered. These optional subjects, taken in addition to the diploma cluster electives, will stretch your potential and help you to meet your aspirations.

SUBJECT CODE	SUBJECT	LEVEL	CREDIT UNITS
EED3009	Special Project 1	3	2
EED3010	Special Project 2	3	2
EED3011	Higher Engineering Skills 1	3	2
EED3012	Higher Engineering Skills 2	3	2
EMA3001	Higher Engineering Mathematics	3	4