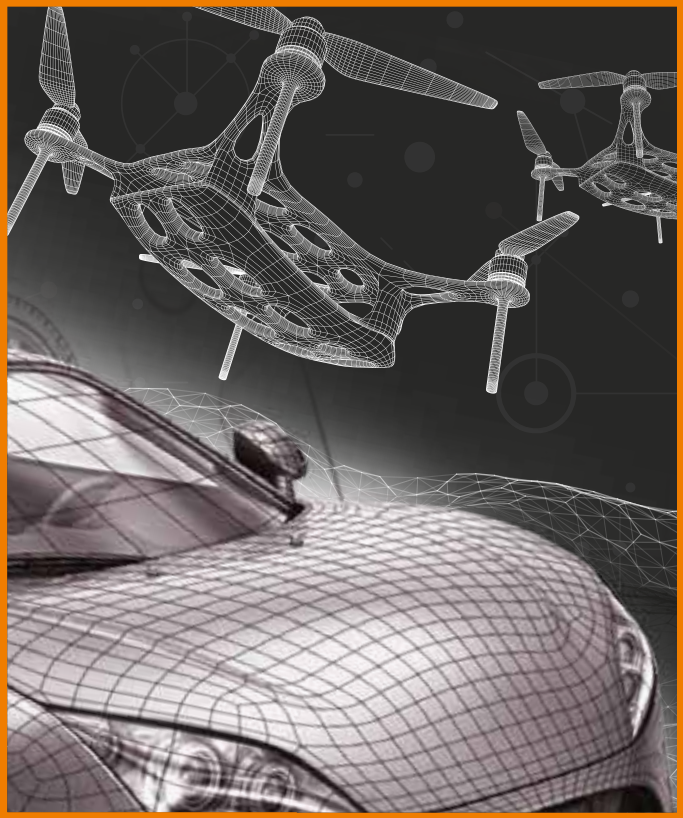
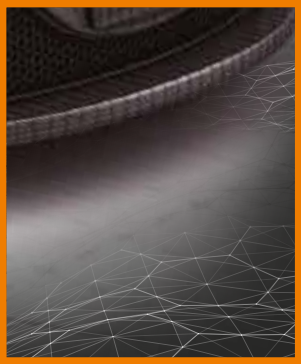
SINGAPORE UNIVERSITY OF TECHNOLOGY AND DESIGN

EPD



ENGINEERING PRODUCT DEVELOPMENT



SUTD.EDU.SG/EPD

TRAILBLAZING A BETTER WORLD BY DESIGN.

BEYOND FORM AND FUNCTION

There's no doubt that Design, AI and Technology create innovations to make our lives better. Whether it's the next lifestyle-changing gadget or the network behind the next big online platform, the world will never lose its appetite for product innovation.

ALL ORGANISATIONS NEED DESIGN ENGINEERS. OUR EPD GRADUATES ARE HIGHLY SOUGHT AFTER FOR THEIR DIVERSE SET OF SKILLS AND EXPERTISE IN DESIGN INNOVATION, COMPUTATIONAL AND DATA-DRIVEN ENGINEERING, AS WELL AS SYSTEMS AND CONTROL. ALL THESE, COMBINED WITH AI TECHNOLOGIES AND KNOW-HOW TO TRANSFORM CONCEPTS INTO EFFECTIVE PRODUCTS, SERVICES AND SYSTEMS TO SOLVE ANY COMPLEX PROBLEM, MAKES THEM AN INVALUABLE PART OF ANY ORGANISATION. AND THIS IS SOMETHING EMPLOYERS KNOW WELL!

Graduate with a Bachelor of Engineering in Engineering Product Development

A DESIGN AND PROJECT-BASED CURRICULUM

Over the course of the first three common Freshmore terms, you will have built a solid foundation in Science, Mathematics and Technology (SMT), Humanities, Arts and Social Sciences (HASS) and Design, which will prepare you for your EPD major.

In the EPD programme, you are given ample opportunities to engage in active hands-on learning and leverage AI to solve challenges faced by industry partners, through projects set by faculty and also come up with your own products to address gaps in the market. In addition to your EPD subjects, you will continue to take courses in HASS that will prepare you to be a new type of design engineer who embraces the cultural and social context of technology in the modern world.

Every undergraduate will have worked on at least 20 design projects throughout their years of study at SUTD. These experiences culminate in a two-term Capstone project in your graduating year. This enables you to work in teams with students from other majors and apply the skills you have mastered in EPD on either a client-sponsored industry-based project or your own entrepreneurial project to solve a real-world challenge. Upon graduation, you'll possess an extensive portfolio of industry-inspired projects, well-prepared for your career journey.

TRAILBLAZING A BETTER WORLD BY DESIGN.

EPD CORE SUBJECTS

- Circuits & Electronics
- Computational & Data-Driven Engineering
- Engineering Design Innovation
- Fluid Mechanics/ Electromagnetics & App
- Structures & Materials
- Systems & Control

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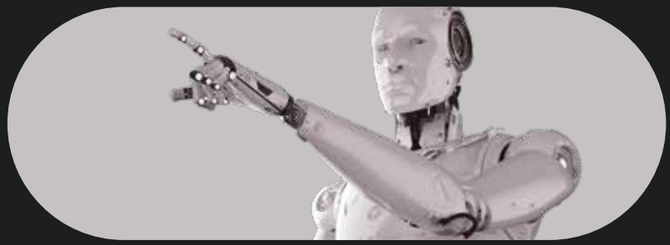
Tong Hui Xiang
Graduate Design Engineer, Dyson
Class of 2022, EPD Alumnus

EPD has equipped me with essential technical and soft skills, enabling me to solve complex real-world problems in a controlled and safe environment. The many **hands-on projects provided me with the experience of interacting with different stakeholders, understanding their interests, and finally, coming up with the best solution.** Additionally, EPD also allows for the mix and match of modules to cater to my interests in different engineering domains and yet cater to industry demands.

LEARNING OUTCOMES OF EPD CORE



INTERDISCIPLINARY EXPERTISE

Master a combination of technology and design skills. Be well-geared in the full value chain of engineering product development that cuts across traditional disciplinary boundaries.

ADVANCING TECH OUT OF THE LAB

Extensive exposure to the translational process needed to advance technology out of the lab to create new product-solutions that live in the real world.

PROJECT MANAGEMENT

Gain exposure to different industries and disciplines, learn and practise project management including leading a team, budget management and presentation of your ideas.

EPD CURRICULUM

JAN-APR	MAY-AUG	SEP-DEC
○ Freshmore Subject ○ Core Subject ○ Humanities, Arts and Social Sciences (HASS) Subject ○ Elective ○ Capstone	Y1 Y2 Y3 Y4	**TERM 1** Modelling & Analysis Physical World Computational Thinking for Design Social Science: Understanding Behaviour, Culture & Society (HASS)
TERM 2 Modelling Space & Systems Technological World Science for a Sustainable World Design Thinking & Innovation	**TERM 3** Modelling Uncertainty Global Humanities: Literature, Philosophy, and Ethics (HASS) Any Two Electives*	**VACATION**
TERM 4 Computational & Data-Driven Engineering Circuits & Electronics Structures & Materials HASS	**TERM 5** Systems & Control Fluid Mechanics / Electromagnetics & App Engineering Design Innovation HASS	**VACATION/ INTERNSHIP/ EXCHANGE**
TERM 6 Elective Elective Elective HASS	**VACATION/ INTERNSHIP/ SUMMER PROGRAMME**	**TERM 7** Capstone Elective Elective HASS
TERM 8 Capstone Elective Elective HASS		

***Term 3 Electives:**
Science and Technology for Healthcare
Data Driven World
Designing Energy Systems
Spatial Design World

- In addition to all subjects in Term 1 being grade-free (Pass/No Record), students can choose up to four more subjects from Terms 2 and 3 to be grade-free.
- Students will declare their choice of major in Term 3.

Information is subject to change. Visit sutd.edu.sg/epd for latest updates.

MINOR PROGRAMMES

Our range of minors offers you more choices and flexibility in pursuing your broader interests.

- **Minor in Analytics***
- **Minor in Analytics and AI^**
- **Minor in Artificial Intelligence (AI)**
- **Minor in Computer Science (CS)**
- **Minor in Design Innovation, Ventures and Entrepreneurship (DIVE)**
- **Minor in Design, Technology and Society (DTS)**
- **Minor in Digital Humanities (DH)**
- **Minor in Healthcare Informatics (HI)**
- **Minor in Sustainability by Design (SD)**

Students will indicate their choice of minor at the start of Term 8.
Information is subject to change. Visit sutd.edu.sg/minors for latest updates.

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Leong Hei Kern
Engineer, EMA Singapore
Class of 2019, Valedictorian, EPD Alumnus

I chose SUTD mainly because of its interdisciplinary and project-based approach. Theoretical teaching is often accompanied by projects that require you to apply your learning from class to something that must work in real life. I enjoyed this because it provided direct and unbiased feedback on whether I understood a concept. The curriculum has also taught me how to **scope a problem, deconstruct it into smaller manageable parts, and chart a path towards a possible solution.** I learnt how to look at the practical points of implementation, how and when to pivot projects since things always turn out different from first conceptualisation.

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Carol Goh
Deputy Chair,
Meiban Corporation Pte Ltd

Meiban is a full turnkey contract manufacturer for global brand owners. We need engineers who have innovative thinking, passion for excellence and giving value-added engineering. SUTD's engineering students have the **adaptive engineering mindset that makes them versatile in various problem-solving skillsets**. In addition, they are also **strong in communication and presentation skills**. We believe they will fit well into our engineering precision industry and smart digital factory.

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Mr Peter Ho
Executive Chairman,
HOPE Technik Pte Ltd

SUTD students are self-starters and well-rounded engineers. **They have a good mix between theory and hands-on experiences, and are enthusiastic about engineering.**

FUTURE POSSIBILITIES

CAREERS

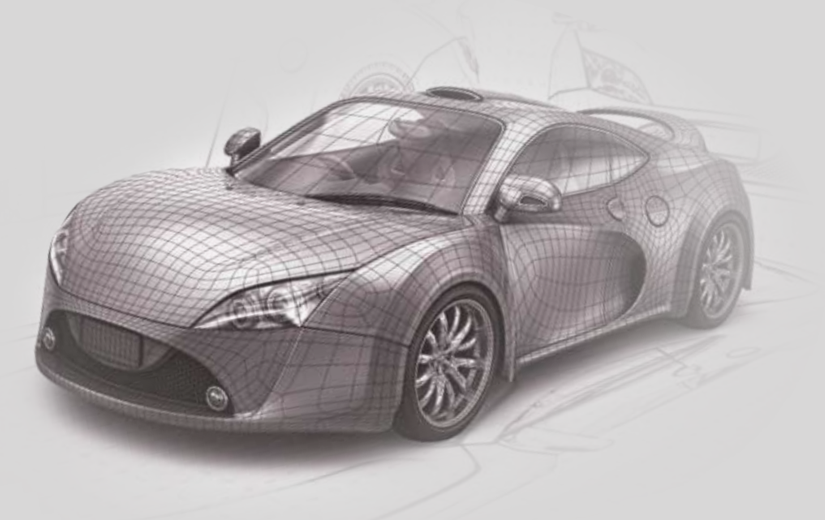
EPD graduates are prepared for a wide range of engineering, design and management careers. Your skills and capabilities for leading the development of new products, systems, processes or methodologies prepare you for both the private and public sectors, including healthcare, consumer electronics, robotics, future transportation, semiconductors, information communication technology, IoT, aerospace, defence, and energy and power.

POSITIONS HELD BY EPD GRADUATES:

- Design engineer
- Management consultant
- Product engineer
- Project engineer
- Project manager
- Research engineer
- Technical consultant

WHERE EPD GRADUATES ARE MAKING AN IMPACT:

- 3M
- AMD
- GlobalFoundries
- DSO National Laboratories
- Dyson
- GE Aerospace
- IBM
- LionsBot International
- National Instruments
- NVIDIA
- Rolls-Royce
- Vivo Surgical



TRAILBLAZING A BETTER WORLD BY DESIGN.

ENTREPRENEURSHIP

Adept at working on cross-discipline projects and bringing tech out of the lab into the real world, an EPD graduate is well-prepared to initiate start-up ventures.

START-UPS BY EPD GRADUATES:

- **(these)abilities designs inclusive products to 'Disable Disabilities' such as Keyguard 2.0 which makes any keyboard accessible. (these)abilities has worked with Grab to simplify the ride-hailing process for hearing and visually impaired users and also helped Japan's Nippon Closures explore inclusive bottle packaging designs for the 2020 Tokyo Paralympics.**

- **Lord of the Chords is a card game that sprung from the difficulties of learning music theory. Initially launched on Kickstarter, Lord of the Chords reached their goal of $15,000 in just 75 minutes. At the end of the campaign, they raised a total of $313,494, with over 4,000 backers from around the world.**

GRADUATE SCHOOL

The rigorous technical training from EPD will also prepare you for various post-graduate programmes. Our EPD graduates are enrolled at top universities including:

- Cornell University
- ETH Zürich
- Imperial College London
- Massachusetts Institute of Technology
- University of California, Berkeley

PREPARE TO TAKE ON THE WORLD

MECHANICAL ENGINEERING

Be equipped with mechanical concepts, thermal fluid systems, materials science, principles of design and control, and apply them to creative solutions for modern mechanical systems.

ELECTRICAL ENGINEERING

The study, application and product design of electrical, digital, and electromagnetism in the field of analogue and digital electronics, power engineering, communication systems, control systems, signal processing, and wireless technology.

COMPUTER ENGINEERING

Apply mathematical and scientific principles to the analysis, design, configuration and operation of computer-related systems.

7 SPECIALISATIONS

HAVE THE FLEXIBILITY TO CUSTOMISE YOUR CURRICULUM WITH ONE OR MORE SPECIALISATIONS*. YOUR SPECIALISATION WILL BE REFLECTED ON YOUR TRANSCRIPT SO THAT EMPLOYERS RECOGNISE YOUR ADDITIONAL EXPERTISE.

*Specialisations offered in a given year are subject to change. Choosing a specialisation is optional.

SCAN TO FIND OUT MORE

HEALTHCARE ENGINEERING DESIGN

Apply the design concepts and principles of engineering to healthcare products and applications.

SELF-DIRECTED SPECIALISATION

Option to design a personalised study plan that will arm you with the necessary knowledge (e.g., Alternative Energy Systems, Materials Science) and skills to pursue unique or non-traditional careers centred around your personal interests.

BEYOND INDUSTRY 4.0

Combines traditional manufacturing processes and technology to improve automation, communication and use of real-time data. It merges transformational innovations of the manufacturing sectors — from advanced robotics to Industrial Internet of Things — to enable a new, powerful way of organising global operations.

ROBOTICS

Gain knowledge of robotics fundamentals, skills in the modelling, design and development of robotic platforms, insights into their theoretical essentials and the expertise to apply these methods to real-world problems.

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