Design goes beyond aesthetics – it transforms the way we live. The power of design is deeply rooted in understanding the human experience and needs, and then creating innovative products, services and systems to meet and improve them. That’s why forward-thinking companies and nations are investing heavily in design to drive innovation and growth.

There’s no doubt that design and technology make our lives better. At Engineering Product Development (EPD), we believe that 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.

EPD students are design engineers that believe any challenge can be overcome with an invention or innovation. They use their skills and knowledge to conceptualise, design, implement and operate products, services and systems to solve any problem.

**CONCEPTION**

Conception marks the beginning and it is when you ensure that a project starts off on the right path. It requires critical thinking to verify and refine the problem statement. A design engineer needs to be equipped with multi-disciplinary knowledge, strong technical foundation, analytical skills to identify gaps from data and social skills to draw voices from target groups.

**DESIGN**

Design is the creation of solutions. At EPD, you do this through product design — understanding human needs and experiences to create for effective solutions. Design transforms industries, economies and the way we live.

**IMPLEMENTATION**

Implementation requires meticulous process planning and improvisation. This is possible only when a design is well integrated into the bigger system. You will be trained to develop an eye for detail and the ability to think on your feet.

**OPERATION**

Operation is when a product’s success is put to a real test. A good engineer is one who is nimble enough to make constant improvements on the original design.
A Design and Project-based Curriculum

Learning is active at EPD. You are given ample opportunities 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.

On top of your EPD subjects, you will take courses in Humanities, Arts and the Social Sciences (HASS). This will prepare you to be a new type of engineer, one who embraces the cultural and social context of technology in the modern world.

EPD Core Subjects

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

Learning Outcomes of EPD Core

Multi-disciplinary 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 practice project management such as leading a team, budget management and presentation of your ideas.

EPD Curriculum

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<td><strong>TERM 2</strong></td>
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<td>Modelling &amp; Analysis</td>
<td>Modelling Space &amp; Systems</td>
<td>Modelling Uncertainty</td>
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<td>Physical World</td>
<td>Technological World</td>
<td>Social Science: Understanding Behaviour, Culture &amp; Society (HASS)</td>
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<td>Computational Thinking for Design</td>
<td>Science for a Sustainable World</td>
<td>Any Two Electives*</td>
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<td>Global Humanities: Literature, Philosophy &amp; Ethics (HASS)</td>
<td>Design Thinking &amp; Innovation</td>
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<td>Systems &amp; Control</td>
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<td>Circuits &amp; Electronics</td>
<td>Fluid Mechanics/Electromagnetics &amp; App</td>
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<td>Structures &amp; Materials</td>
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*Term 3 Electives: Science and Technology for Healthcare Data Driven World Designing Energy Systems Spatial Design World

Minor Programmes

Minors offer you more choices and flexibility in pursuing your broader interests, equipping you with additional knowledge.

- Minor in Artificial Intelligence (AI)
- Minor in Design Innovation, Ventures and Entrepreneurship (DIVE)
- Minor in Healthcare Informatics (HI)
- Minor in Engineering Systems (ES)
- Minor in Computer Science (CS)
- Minor in Digital Humanities (DH)
- Minor in Design, Technology and Society (DTS)

Information is subject to change. Visit epd.sutd.edu.sg for latest updates.
WHY EPD?

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 goods, robotics, finance, defence, and energy and power.

Examples of EPD graduates’ job titles:
- Design engineer
- Management consultant
- Research engineer
- Project manager
- Product engineer
- Technical consultant

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

(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 is also helping Japan’s Nippon Closures explore inclusive bottle packaging designs for the upcoming 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 4000 backers from around the world.

GRADUATE SCHOOLS
The rigorous technical training from EPD will also prepare you for various post-graduate programmes. Our EPD graduates are enrolled at top universities such as:
- Cornell University
- ETH Zürich
- Imperial College London
- Massachusetts Institute of Technology
- University of California, Berkeley

FUTURE-READY CAREER SKILLS

Be highly sought after with the skills of a traditional engineer combined with expertise in design thinking, design innovation and a multi-disciplinary design approach to problems.

HOLISTIC UNDERSTANDING OF THE WORLD
Take on a holistic view of any problem with a comprehensive understanding of the social, cultural, political and economic dimensions of the world you’re creating for, so as to apply design techniques that lead to more complete and optimal solutions.

HANDS-ON APPROACH
Working in teams, theoretical concepts are brought to life. With a deeper appreciation of underlying design considerations, you’ll innovate solutions for modern engineering challenges.
EPD combines the best of both dimensions of healthcare and engineering, two contrasting and yet complementary fields. Students in the Healthcare Engineering Design specialisation will have the strengths of system and product design thinking and engineering principles from SUTD with a good understanding of the healthcare ecosystem.

These students with innovative mindsets and skills are able to cause disruptive and positive changes within healthcare systems or become successful entrepreneurs. With CGH’s recent major expansion and close proximity to SUTD, our strategic partnership will form a comprehensive collaboration framework in various areas and provide many opportunities for students to have exposure in healthcare.

Adj. Prof Hsu Pon Poh
Chief & Senior Consultant Surgeon,
Department of Otolaryngology,
Head & Neck Surgery,
Changi General Hospital

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.

Mr Peter Ho
Chief Executive Officer,
HOPE Technik Pte Ltd

ALUMNI TESTIMONIALS

Through many hands-on projects and the guidance of our dedicated professors have encouraged me to explore new interest areas and develop skills in more than one domain. The curriculum was structured in a way that made learning fun while applying design thinking and engineering concepts to solve challenging problems. With a strong engineering foundation, I feel empowered and motivated to never limit myself to the level of success I can achieve.

Michelle Cheah Yee Kei
UX Designer,
Central Provident Fund Board (CPFB)
Class of 2018, EPD Alumnus

My time in EPD has benefited me much in my computer vision engineering work at DSO. Apart from the technical grounding that I received from the coursework, the curriculum projects have taught me how to tackle complex real-world problems effectively, identify and pick up the best tools to deal with them, all while navigating the relationships between various stakeholders.

Joshua Loo
Member of Technical Staff,
DSO National Laboratories
Class of 2019, EPD Alumnus

EPD was instrumental in helping shape the diverse approach towards design that I now take with me in designing inclusive solutions that encompass shared experiences between people with and without disabilities. The breadth and flexibility offered in traversing multiple topical applications as well as the culture of gumption to dive deep in each unfamiliar territory is what has allowed me to be comfortable in being uncomfortable in my work at (these)abilities - making every facet of living and thriving with a disability more accessible. Also, the intimacy to be had with the University and its professors is something I did not expect, but has allowed for a deep and lasting friendship that has maintained years after graduating.

Ken Chua
Founder & Director, (these)abilities
Forbes 30 Under 30 Asia Social Entrepreneurs 2019
Class of 2016, EPD Alumnus

EMPLOYER TESTIMONIALS

“..."
The EPD curriculum offers you the flexibility to customise it to suit your interests and aspirations. Your specialisation will be shown on your transcript so that future employers can recognise this expertise. Choosing a specialisation is optional and you are expected to discuss your elective choices with faculty members.

Find out more at [epd.sutd.edu.sg/specialisations](http://epd.sutd.edu.sg/specialisations)

*Specialisations offered in a year are subject to changes.*

### 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.

### 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.
Healthcare Engineering Design

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

Computer Engineering

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

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.

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.