NUS | College of Design
National University | and Engineering
of Singapore

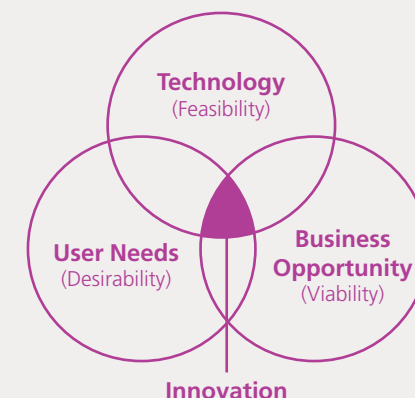# INNOVATION & DESIGN PROGRAMME

(*i*DP)

SECOND MAJOR/MINOR

Integrating Design, Technology and Entrepreneurship

*i*DP is designed to inculcate in you an entrepreneurial mindset, equipping you to comprehend innovation and apply your knowledge and skills effectively to solve problems and design new products, services and experiences. It is also a platform for you to collaborate with your peers from different disciplines on hands-on projects that address intricate, real-world challenges.

Structured as a second major or minor that is open to all primary majors in NUS, our curriculum brings you through an enriching journey in design and innovation. You will learn how to create innovative solutions to meet the needs of users and customers in a technologically feasible manner and matched with a viable business strategy. If you are keen on entrepreneurship, you can join the NUS Overseas Colleges (NOC) programmes and further develop your ideas for commercialisation through our Ideas to Start-up final year project.

Technology (Feasibility) / User Needs (Desirability) / Business Opportunity (Viability) / Innovation

	Primary Major Requirements	*i*DP Courses		
SEMESTER 1	**Year 1 Core Courses**	Settle into NUS		
SEMESTER 2	Common Curriculum Courses	**4 units** — **Product Design & Innovation** *(for both second major and minor)*		
SEMESTER 3	**Year 2 Core Courses**	**4 units** — **Value Creation in Innovation** *(for both second major and minor)*		
SEMESTER 4	Common Curriculum Courses	**12 units** — **Ideas to Proof-of-Concept** *(for both second major and minor)*		
SEMESTER 5	**Year 3 Core Courses and Electives**			
SEMESTER 6		Student exchange or internship		
SEMESTER 7	**Year 4 Electives**	**12 units** — **Innovation & Design Capstone or Ideas to Start-up** *(for second major only)*		**8 units** — **Innovation & Enterprise Electives** *(for second major only)*
SEMESTER 8				

Product Design & Innovation

Learn different approaches to identify user needs and desires, identify opportunities for innovation, and generate ideas for new products.

Value Creation in Innovation

Learn about industry value chain and competitive strategies, develop value propositions for product ideas, explore various business models, and craft effective go-to-market approaches.

Ideas to Proof-of-Concept

Work in teams with peers, faculty members, and industry partners from different disciplines and backgrounds to create a product idea to address a problem of interest, and build proof-of-concept prototypes for testing.

Innovation & Design Capstone

Apply and integrate knowledge and skills acquired from preceding courses to pursue an area of innovation in design or research which may be an extension of a preceding project or a fresh one that arises from a new design problem or research question.

Ideas to Start-up

Transform product ideas into viable ventures through customer and market discovery, business model and venture creation, and development of minimum viable products.

Our Student Projects

Innovation needs a team-based process to succeed. From day one, you will learn to work together on projects with peers from different disciplines while being mentored by faculty members with diverse backgrounds. Projects in *i*DP span different themes and also include many special competition teams.

Innovating for Better Healthcare

Design solutions for healthcare needs in hospitals and the community.

Nasogastric tube training device for caregivers
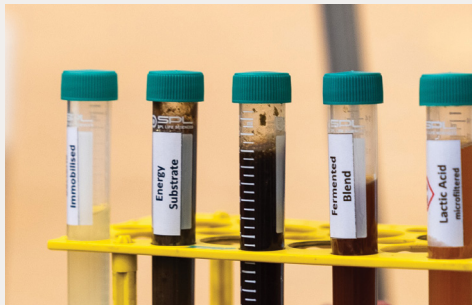
Innovating for Future Mobility

Design future mobility solutions and novel vehicles for people and goods.

Electric blended wing body aircraft

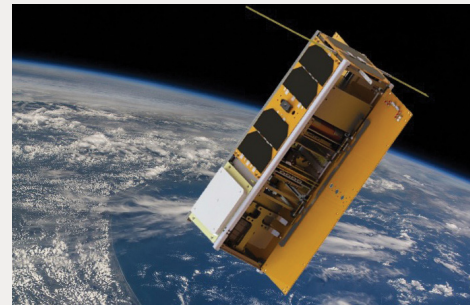### Innovating for Smarter Living

Design smart devices and solutions to enhance everyday life, work, and play.

Autonomous end-to-end wine glass washing and polishing system

Innovating for Sustainable Cities

Design solutions to tackle challenges of urbanisation and sustainability.

Valorising food waste to produce sustainable chemicals

Innovating with Immersive Reality

Develop novel applications using virtual reality, augmented reality, and generative AI.

Virtual reality childbirth delivery simulator

Innovations in Intelligent Systems

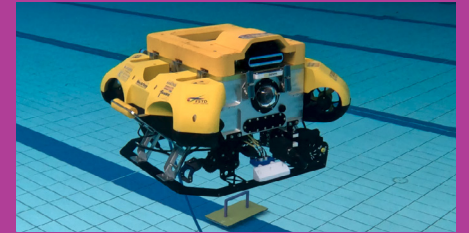Design complex engineering systems and automation for various applications.

Student-built Galassia nanosatellites

Special Competition Projects

Bumblebee

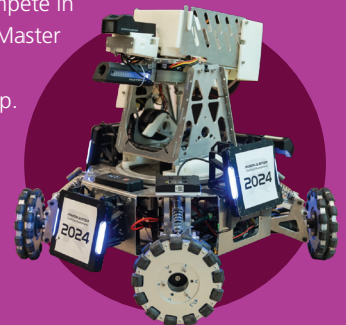Design autonomous system of underwater vehicles, surface vehicles, and unmanned aerial vehicles.

NUS Formula FSAE

Build, test, and race formula-style electric race cars in the annual FSAE Michigan competition.

NUS Calibur Robotics

Design and fabricate specialised robots to compete in the DJI RoboMaster University Championship.

Profiles of Current Students

Students in *i*DP come from diverse disciplines within the College of Design and Engineering as well as other Colleges/Faculties/Schools in NUS, creating a very vibrant community that is passionate about their innovation, design, and entrepreneurship projects.

Charlyn Kwan Ting Yu

Bachelor of Engineering (Computer Engineering), Class of 2026
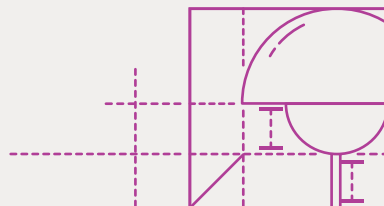NOC Toronto
President of *i*DP Students' Club 2024

"*i*DP is a truly rare opportunity that allows me to embrace my inner engineer and contribute to meaningful projects not found anywhere else in NUS."

Chan Syn-I

Bachelor of Engineering (Biomedical Engineering), Class of 2025
NOC Paris

"*i*DP stood out to me because it really resonates with what I like to do which is to innovate and create."

Muhammad Zakir Haziq Bin Mohd Padzal

Bachelor of Engineering (Engineering Science), Class of 2026
NOC Malaysia

"I leverage my second major in *i*DP to fuse entrepreneurial creativity with engineering expertise, crafting prototypes like a computer vision-enabled boxing robot that seamlessly integrates my passion for sports and cutting-edge technology."

Teoh Xu En

Bachelor of Engineering (Electrical Engineering), Class of 2025
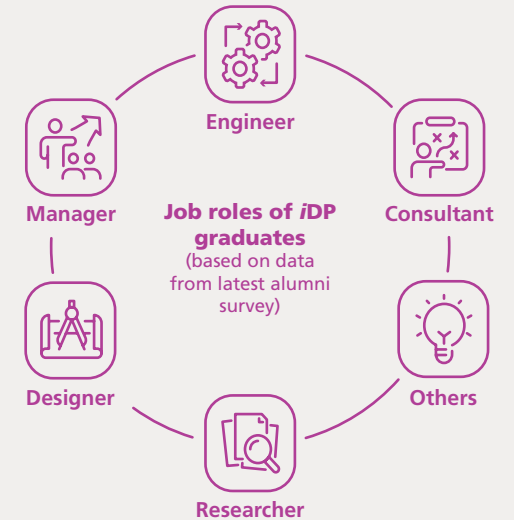Team Lead, Bumblebee

"I chose *i*DP for its wide range of projects, the opportunity to collaborate with passionate, multi-disciplinary team members and the chance to apply engineering knowledge to real-world challenges."

Where Our Graduates Go

*i*DP graduates go on to take up diverse roles like engineers, product designers, product managers, and consultants in a wide range of industries such as engineering, financial services, public service, and research and development. The majority of *i*DP graduates secure their first job before graduation. Many *i*DP graduates also founded their own start-up companies.

Engineer

Manager

Job roles of *i*DP graduates
(based on data from latest alumni survey)

Consultant

Designer

Others

Researcher

Our Start-Up Founders

Vishnu Saran

Bachelor of Engineering (Materials Science and Engineering), Class of 2019

CEO, Invigilo Technologies
Invigilo is Singapore's leading AI video analytics solution provider for improving workplace safety in high-risk environments.

Nguyen Tuan Dung

Bachelor of Engineering (Mechanical Engineering), Class of 2023

Co-founder and COO, HiveBotics
HiveBotics is redefining the future of work by automating laborious and hazardous tasks, starting with restroom cleaning.

Chang Qingyang

Bachelor of Engineering (Civil Engineering), Class of 2021

Co-founder and CEO, ConcreteAI
ConcreteAI is a construction technology start-up that develops solutions for real-time monitoring of concrete curing for construction companies to improve productivity and quality assurance.

Nandiraju Rishi Bharadwaj

Bachelor of Engineering (Chemical Engineering), Class of 2024

Founder and Director, Innorini Life Sciences
Innorini is an organisation that focuses on pioneering research and development in the pharmaceutical and nutraceutical domains.

How to Apply?

Students who are applying to an Engineering major may select *i*DP as a second major or minor in the NUS application form, or join *i*DP during their first or second year in NUS. Students who are applying to other majors may join *i*DP during their first or second year in NUS.

There is no specific requirement for admission into *i*DP other than enrolment in any primary major in NUS. We welcome applicants from all disciplines who are enthusiastic to be part of our unique learning experience.

Contact

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