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MAKER WORKSHOP

Sponsors & Supporters

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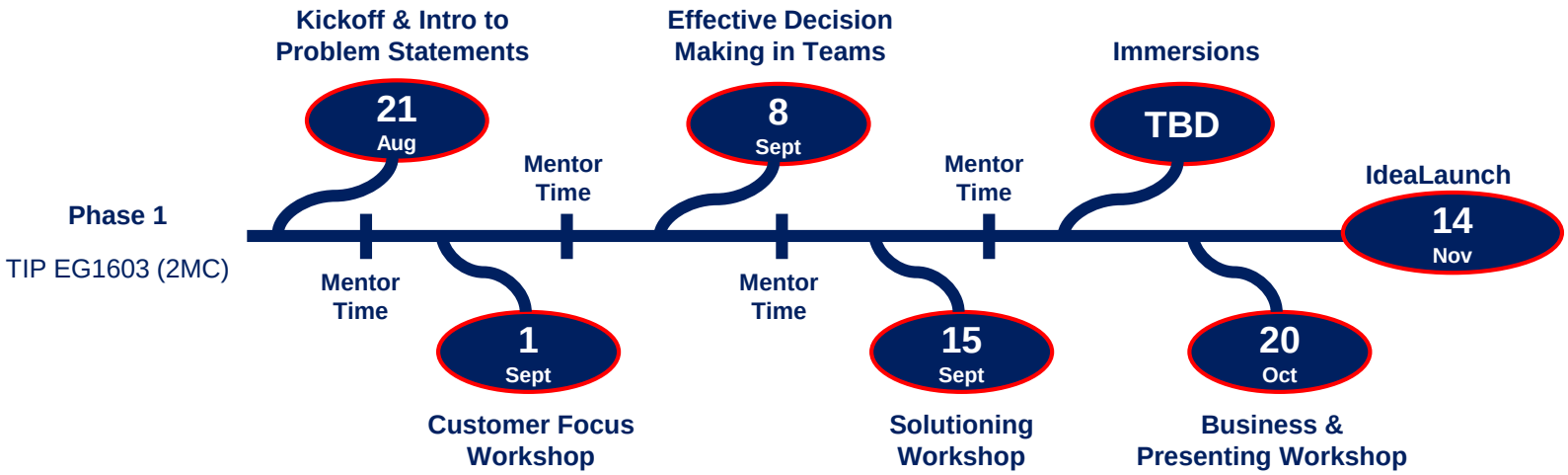
Journey Recap: Phase 1



Selected teams advance to Phase 2

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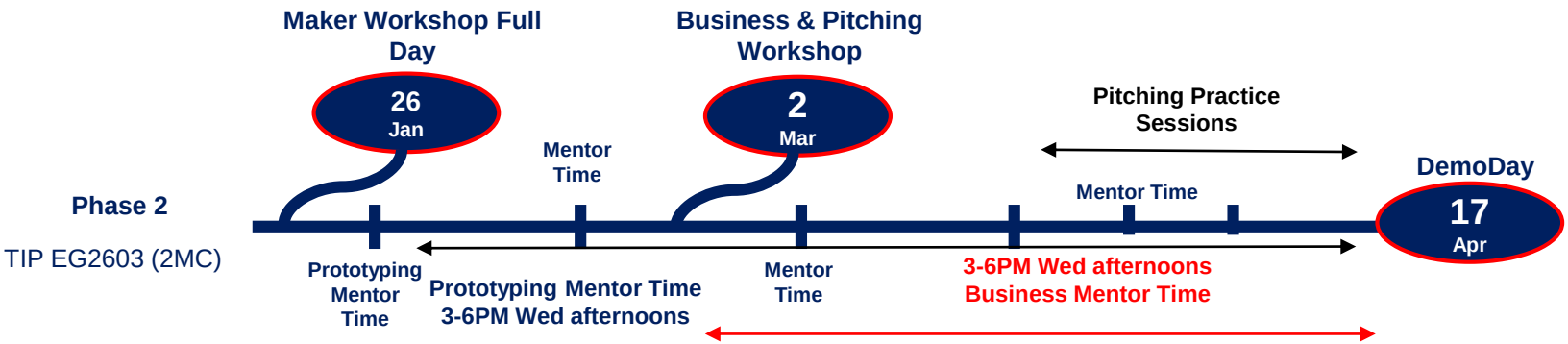
Phase 2: Process



Maker Workshop (Full day):
- Various maker workshops to enhance maker skills

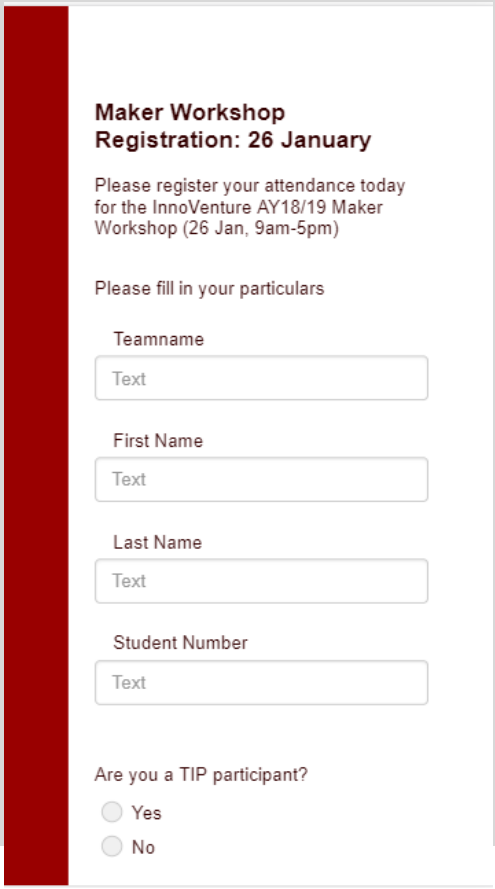
Business & How to Pitch Workshop
- Build on Phase 1 to expand on business models and financing.
- Pitch perfect!

Mentor Time
- Teams meet with Prototyping or Business mentors throughout the process
  - Business - Bi-weekly - Start in March 2
  - Prototyping - Bi-weekly - Start in December

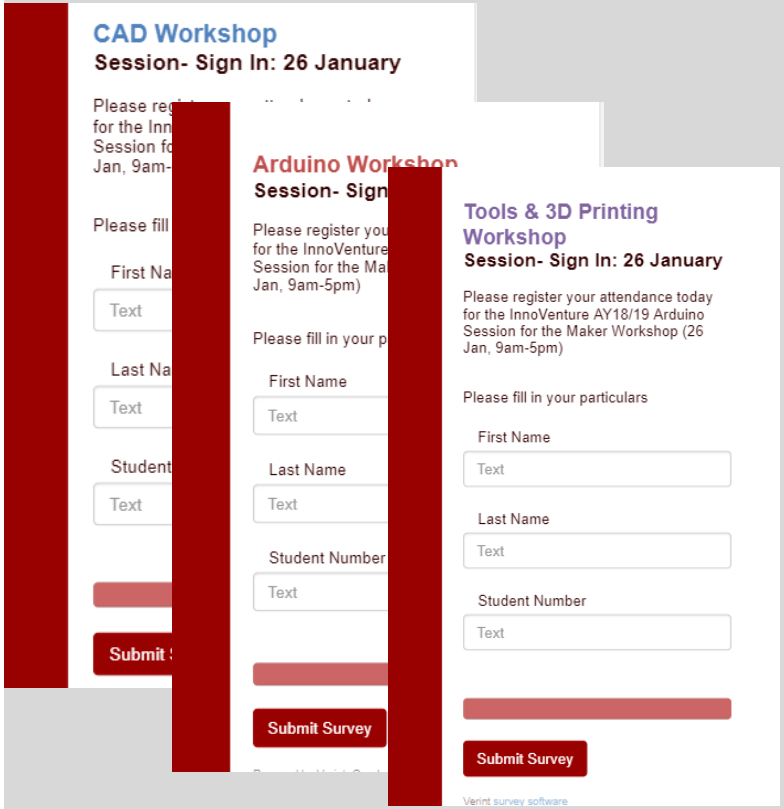
DemoDay:
- Final Pitches to a panel of industry
- Continued support for the promising teams with viable solutions after the competition ends

Attendance Logistics for Today

(1) Attendance Register for Today by scanning QR at TechHub



(2) At Each Workshop Session. Register by scanning QR at Venue:



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What Is Our Goal?

Teach students how to create & capture value from technology in an experiential way…

…and solve real world problems in teams!

Not

"Here is the theory" and "Submit your paper"

Rather

Experience by Doing

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Product/Service Value Framework

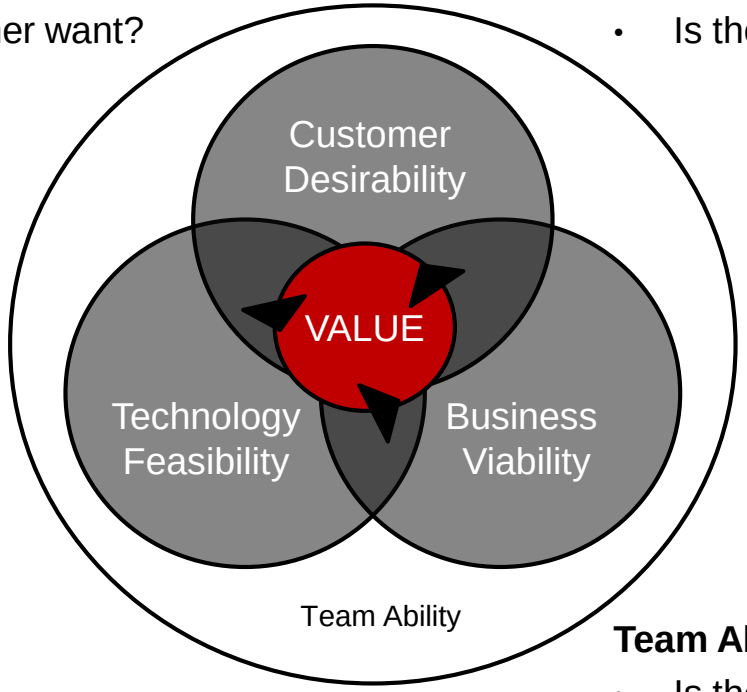
Combined Engineering and Business Perspective

Customer Desirability

- Who is our customer?
- What does our customer want?

Business Viability

- What are the revenue stream(s)?
- Is the business model sustainable?



Technology Feasibility

- Can it be made?
- Is it unique?

Team Ability

- Is there a team?
- Can they execute?

Source: Adapted from IDEO Design Thinking

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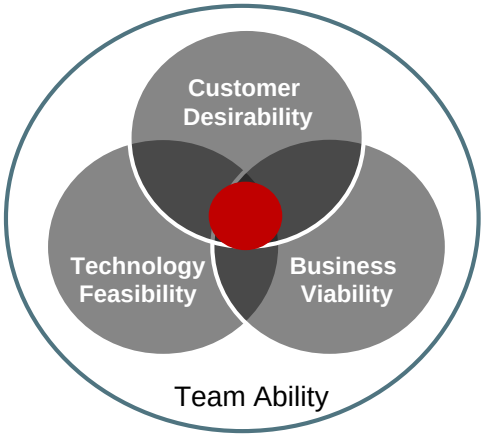
Leadership Development

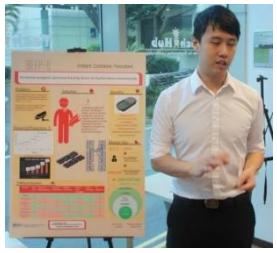
Methodology



Successful Product Framework:

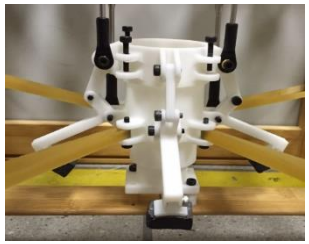
- Combined Engineering and Business Perspective
- Beyond just technical feasibility and customer desirability: see the bigger picture

Influence Skills




- Communication (pitch & presentation)
- Industry exposure & engagement
- Leading teams
- Creative problem solving skills
- Able to spot opportunities

Technical Mastery

- Maker & Prototyping Skills
- Business understanding

Source: Adapted from IDEO Design Thinking

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What we expect from you

- Pro-active attitude
- Work actively with mentors, advisors and company representatives
- It's still a competition; just like real life entrepreneurship!
- Be frugal, resourceful & creative
- Stick to agreements and deadlines
- If 'stuck', let us know! – we can help

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Resource

- Problem Statement Companies
- Mentors: Business & Prototyping
- Budget to build prototype
- Feel free to find and contact profs, industry folks, anyone that can help you succeed!

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Access to PS Reps

- Teams will have direct access to PS representatives
- CC the InnoVenture lead in all mails
- 1 main contact person per team
- Compile sufficient useful questions before sending mail to avoid spam
  - Please be specific in your questions

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InnoVenture Mentors

Each Team will be assigned 2 mentors

- Prototyping Mentor
- Business Mentor (to be introduced on Mar 2)

All the tools and guidance to help you learn and succeed

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Prototype Budget: Claims Process

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Questions

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Technopreneurship and Incubation Programme (TIP) - EG2603

Reflection Assignment to be done by Saturday 2 February 10 a.m
Assignment will be placed in IVLE

Technopreneurship and Incubation Programme (TIP) - EG2603

EG2603
2MCs; count towards UEM; pass/fail

Website: https://tinyurl.com/NUSTIP

Purpose: to help you develop leadership and team work skills through reflection and coaching

Eligibility:

- Open to all NUS Undergraduate Students regardless of Faculty
- Exchange students are **NOT** eligible
- Only for students who have not received credits for EG1603 or EG2603 in previous InnoVentures

Conditions (2MC's for EG2603)

- Attend **all** workshops (unless valid excuse and proof of absence provided)
- Leadership Development: submit reflection assignments after each workshop AND final Phase 2 reflection report (questions reflecting back on what has happened, what struggles you've over come etc (max 300 words per question))
- Meet at least 4x over the course of Phase 2 with Prototype (2x) and Business (2x) mentors
- Create a solution together with your team and present at Demo Day
- *Failure to complete the criteria will be reflected on your transcript as you will be officially enrolled in the program*

Signup for TIP: https://tinyurl.com/TIP2019EG2603

Register at **https://tinyurl.com/TIP2019EG2603** registration is now **closed**

- Link also available on IVLE
- Confirmed registration only after confirmation email from Vinod Vasnani (vinod@nus.edu.sg)

TIP Reflection Assignments

- After each workshop a reflection assignment must be completed (2x)
  - 1 week to complete assignment
  - Submit in TIP folder in IVLE (no late submissions, folder closes)
  - Max 300 words per question

- 1 final reflection assignment of Phase 2
  - 1 week to complete assignment
  - Submit in TIP folder in IVLE (no late submissions, folder closes)
  - Max 300 words per question

TIP Credits

EG2603 TIP (2 modular credits)

- Attend workshops
- Attend mentor sessions (Prototyping & Business)
- Pitch at Demo-Day
- Reflection Assignments after workshop sessions

- Enrolment from the **beginning of the semester (January 2019) - *closed***
  - Requires commitment!
  - S/U grading; meet requirements to earn it!

- Withdrawal during phase 2 after normal registration will reflect as “F” or “C/U” grade

Mentor Meetings

- Each team will be assigned a Prototype and Business Mentor. Open to everyone (20 minute slots)
- TIP participants to attend at least 2 Prototype & 2 Business Mentor meetings – sign in at every session
  - Can attend as a team
- See IVLE for Timeslots, likely Wednesdays – 3pm-6pm (E3-06-02)
  - If you can't make these timeslots then arrangements can be made with the mentor to meet at other times. For Business mentors, you may also meet them using web conference tools such as Skype etc.
- What can you discuss?
  - Team dynamics
  - Solution designs
  - Business plans
  - Problem definition
- Sign up process for time slots will be announced in the coming weeks. Do note that time slots will close day before

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InnoVenture Mentors (Prototyping)

Prototyping Lead/ Instructor (EDIC)

Lim Hong Wee obtained his Master's of Engineering in Mechanical Engineering from NUS in 2013. He also has a Graduate Certificate in the Management of Technology. He is currently holding concurrent appointment in both Engineering Design Incubation Centre (EDIC) and Institute of Engineering Leadership (IEL) as an instructor for engineering design and prototyping.

His expertise is in engineering design, including CAD design, simulation, analysis, design optimization and manufacturing. He has design and managed numerous race vehicles and teams for the Formula SAE competition and a full electric roadster. His experience allows him to guide his students to think innovatively for a unique solution.

Prototyping Mentor

Hisham Bary is CEO/ Co-Founder, Ideal Factory. With a background in Mechanical Engineering, CAD and Design Thinking as well as a subconscious need to acquire at least one of every kind of tool on the planet, Hisham helps transition ideas from concepts into physical prototypes. These days, you can find him tearing things apart to understand how they work, getting his hands dirty playing around with power tools, machines or immersing himself in his personal projects, when he's not busy helping others trying to realize theirs. Sham is proficient in Computer Aided Design, Mechanical Design, General CNC Cutting, Machining, Fabrication, Idea Conceptualisation and Shop Safety.

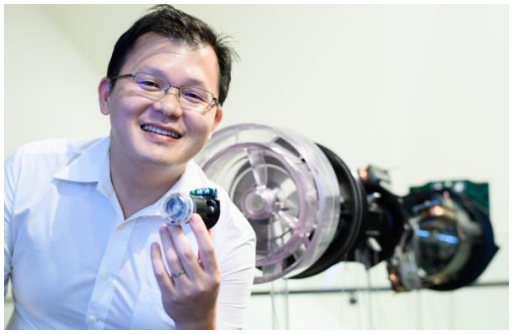
Prototyping Mentor

Richard Chee is a senior manager at MVP Studio, NUS Enterprise. He is an Electrical Electronics Engineering by training and specialised in power electronics, firmware coding capable in ‘C’, assembly language, visual studio, designing PCB layout, schematics creation and RF know-how.

He has industry experience in driving concepts to mass production and product certification at type approval hoses.

He started off working in Philips, Infineon and Intel as a development engineer and manager to develop wireless product in LTE/3G tablets and cellular phones. After that he moved on to another 2 start-ups to develop cellular smartphones and MedTech devices.

Prototyping Mentor



Hengky is part of the Motors Design and Mechanical Validation Teams in Dyson Singapore.

Originally from Indonesia, Hengky moved to Singapore to pursue his studies and graduated from Nanyang Technological University in 2004. He majored in Mechanical and Production Engineering. He went on to master his knowledge on Innovation in Manufacturing Systems and Technology and graduated from Singapore-MIT Alliance in 2005.

Before joining Dyson, he was an integral part of the R&D team involved in designing cash machines and cash dispenser systems.

Hengky joined Dyson in April 2014 and has contributed to the design and development of the previous generation of Dyson Digital Motors (including v9, V6, V4, and V2 motors) ever since. He is currently involved on the V10 motor and its derivatives. Throughout his journey at Dyson – he's studied every single component of the Dyson Digital Motor, and its' function in the overall motor performance. What fascinates him at Dyson is the motors technology itself.

In his free time, Hengky enjoys spending time with his family, and occasionally indulges in baking. He loves driving his car and it is his dream to be able to drive around the world one day.

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Prototype Mentor Assignment

Problem Statement	Team	Prototyping Mentor
CHAMPS	Engin Bros	HongWee
CHAMPS	Lit Fam	Hisham
CHAMPS	Others	Henky
CHAMPS	Watersavers	Sudarshan
InnoSparks	Innoventers	HongWee
InnoSparks	Wewchair	HongWee
InnoSparks	WheelSparks	Sudarshan
SAF MC	BluBox	Richard
SAF MC	Digitrolley	HongWee
SAF MC	Fortitude	Henky
SAF MC	Hard Hats	Hisham
SAF MC	InnovAID	Richard
SAF MC	Innovation & Design	Henky
SAF MC	Innoventurers	Hisham
SAF MC	Jango	Sudarshan
SAF MC	Semiconducting Unicorns (SU)	Richard
SAF MC	STACK	Hisham
SAF MC	Team G.A.I.N.	Henky
SAF MC	WAF	Hisham
Surbana Jurong	MICC Engineers	Richard
Surbana Jurong	SEC	HongWee
Surbana Jurong	The Pace Makers	Sudarshan

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Today's Schedule

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Teams	Time	Bootcamp
BluBox Digitrolley Engin Bros Fortitude Hard Hats InnovAID Innovation & Design	1000 - 1200	CAD
	1300 - 1500	Arduino
	1500 - 1700	Workshop

Teams	Time	Bootcamp
Innoventers Innoventurers Jango Lit Fam MICC Engineers Others SEC Semiconducting Unicorns	1000 - 1200	Arduino
	1300 - 1500	Workshop
	1500 - 1700	CAD

Teams	Time	Bootcamp
STACK Team G.A.I.N The Pace Makers WAF Watersavers Wewchair Wheelsparks	1000 - 1200	Workshop
	1300 - 1500	CAD
	1500 – 1700	Arduino

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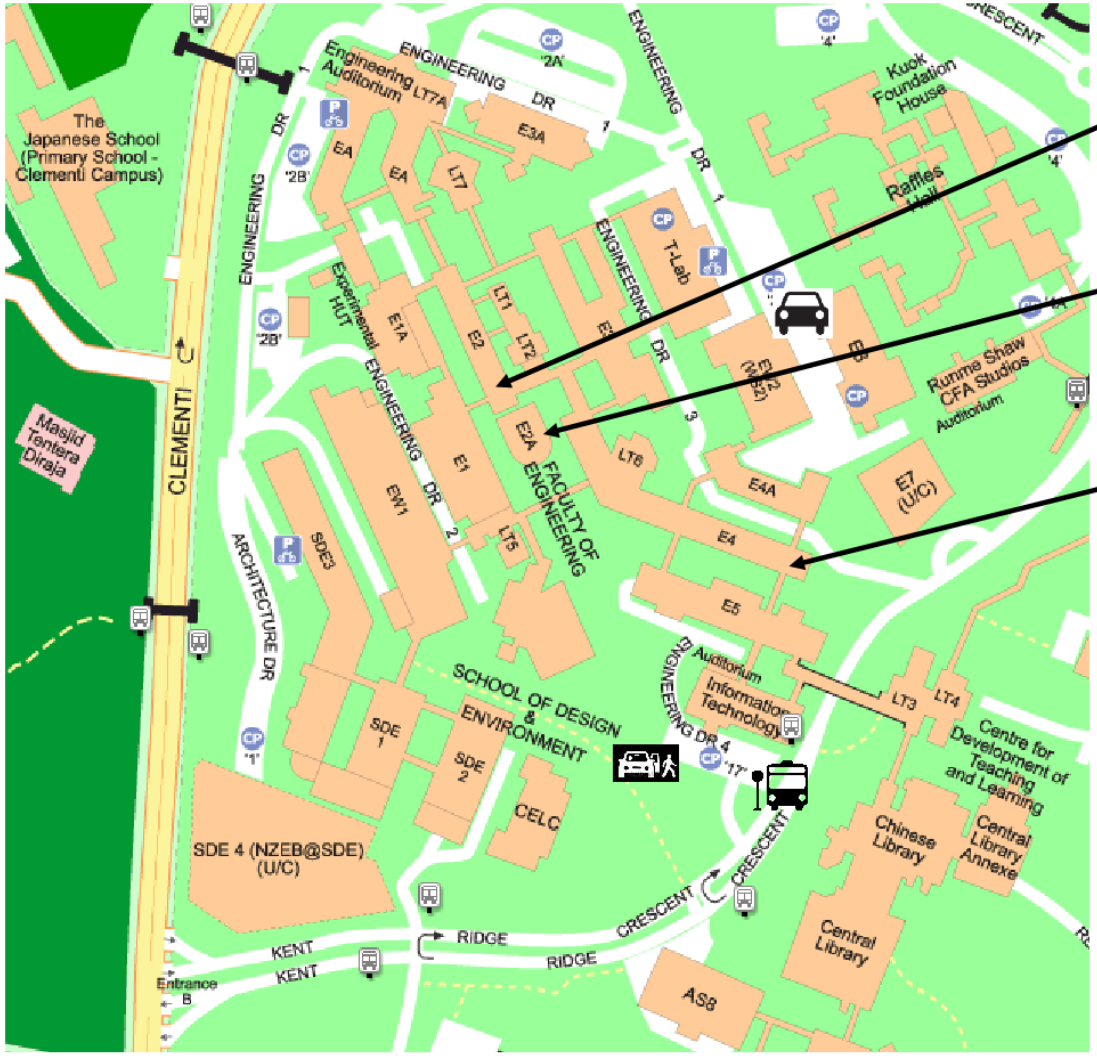
Session Venues

CAD	EDIC Studio 2: E2A-03-01
Arduino	EDIC Studio 1: E2A-02-01
Workshop	Fab Lab: E4 – 02 – 06



Questions

Meet your Mentor Time

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InnoVenture Mentors (Business)

Mentor/Programme Lead

Adjunct Associate Professor Vinod Vasnani

Vinod has over 20 years of experience as an entrepreneur and an intrapreneur having started his career at Emerson Process Management in R&D. Subsequently, he was involved in Product Management where he was involved in R&D and the roll out of its market leading DeltaV control systems in Asia Pacific. In late 1999, he joined Accellion soon after it was founded. There he built and worked with a diverse team of engineers to deliver market leading secure distributed file transfer used by thousands of enterprises today. Vinod is currently a co-founder of Qryptal which is focused on developing a platform for document security and integrity.

At NUS he works and coaches teams through IEL initiatives: InnoVenture, TechLaunch and Enterprise Development. He has a keen interest in Innovation, Leadership and Technology. He is interested in what drives the learning to increase human capability and performance in teams and organizations.

Business Mentor

Professor Hang Chang Chieh

Following a stint in Shell, he entered the NUS Faculty of Engineering as an academic and was subsequently appointed as Vice-Dean, Head of Electrical Engg, and NUS's Deputy Vice-Chancellor (research). In parallel, he became the founding Deputy Chairman of the National Science and Technology Board (NSTB) from 1991-2000. During 2001 to 2003, Prof Hang was seconded to NSTB (renamed A*STAR) as its Executive Deputy Chairman. He pioneered the establishment of the Grow Enterprise with Technology Upgrade Programme to transfer know-how and manpower from A*STAR research institutions to small-and-medium enterprises. His own area of expertise is in digital control systems. In addition to serving on the Boards of several local enterprises, he has recently co-founded EMF Innovation in Singapore and India to develop and commercialize disruptive, frugal digital motors for transportation and other industrial applications.

Business Mentor

Adjunct Professor Lim Soon Hock

Prof Lim has more than 30 years of experience as a board member, CEO, technopreneur and private investor, across various highly competitive industries in a global environment. He is best known as the former Vice President and Managing Director of Compaq Computer Asia Pacific, for taking the company to US$1 billion from under US$30m – in just seven short years. Mr Lim is currently the Founder and Managing Director of PLAN-B ICAG Pte Ltd, a boutique corporate advisory firm, which he set up in 1996. He has been a member of the panel of judges for various business plan's competitions, for example Start-Up Singapore, Singapore Prestige Brand Award, SMU's Master of Innovation Programme's Final Capstone Presentations, SiTF Awards 2016 and Raffles Business Symposium, to name a few. Mr Lim is also on the mentorship panels of the Singapore Business Federation and DBS Business Class and SMU's Final Capstone Project Presentations.

Business Mentor

Dr Soon Hwee Ping

Innovative scientist, who has gained 7.5 years experiences in industrial research. With a unique combination of scientific and business approaches, she has successfully attracted funding from business and government sectors to drive her research ideas in lab to several marketable products in air pollution sensing and purification technologies for homes and automotive. Having understood the importance of both technical and business competencies in future fast-changing work environment, she is also enthusiastic in contributing to the new university curriculums that prepare students for the great challenges in a VUCA world.

Business Mentor

Tan Kim Seng has over 30 years of experience in fund management, banking, entrepreneurship, engineering and training. He is the CEO and co-founder of 3V SourceOne Capital, a regional growth equity firm. He is currently an Adjunct Associate Professor at the NUS Department of Industrial Systems and Engineering Department. He previously served as the Honorary Treasurer and chaired the Industry Development and Valuation Committees of the Singapore Venture Capital and Private Equity Association. Singapore.

He was an Executive Director of UOB Venture Management responsible for direct investments in China, USA and ASEAN. His portfolio included IT, biomedical, cleantech, F&B, consumer goods and real estate companies. He has 5 years of experience in engineering, automation and new product introduction with Texas Instruments and Northern Telecom. Kim Seng is a member of the Investment panel of Enterprise Singapore SEEDS Capital and also the Nanyang Technological University's Strategic Research Innovation Fund. He holds a M.Sc. (Industrial Eng.) and a B.Eng. (EE) (Hons) degree from the National University of Singapore. He is an alumnus of the US Venture Capital Institute and Institute of Banking & Finance.