Summer Programme (9 – 20 July 2018)

Exploring New Space Technologies and Applications

@ National University of Singapore

Programme Outline

In this programme, we will cover some basic knowledge of satellite applications, satellite motions in space, different types of satellite orbits, mission simulations, functions of satellite systems and subsystems, and design qualifications and philosophies. You will work in groups to discuss mission planning and satellite design. You will have the opportunity to construct the mockup of your own satellite using 3D printing and other construction materials.

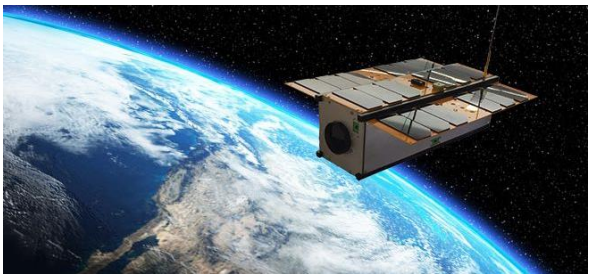
Besides the technical programme, we will also conduct a campus tour, visit to Satellite Technology and Research Centre (STAR) and Center for Remote Imaging, Sensing and Processing (CRISP). A Singapore city tour will also be arranged.

When will this Programme be Conducted?

Time: 2 weeks, from 9-20 July 2018

Venue: Engineering Design and Innovation Centre,
Block E2A, 5 Engineering Drive 2,
National University of Singapore, 117579

Accommodation: University Town, NUS



Detailed Programme : Exploring New Space Technologies and Applications

Week 1	Programme and Activities
Day 1	Morning • Opening Address • Ice-breaking session • Brief introduction of Global Satellite Agencies and their Roles Afternoon • NUS Campus Tour • Different satellite configurations eg nanosats, cubesats, microsats, etc • Case studies or examples of some student projects from other institutions
Day 2	Morning • Space Environments and Orbits • Subsystems in a satellite Afternoon • System Tool Kit (STK) Simulation Environment • Company Visit
Day 3	Morning • Orbital Mechanics • Orbital Mechanics Simulations Afternoon • Attitude Determination and Control Subsystem (ADCS) • Free & Easy – Bonding time
Day 4	Morning • Electrical Power Subsystem (EPS) • Thermal Subsystem Afternoon • Visit to the Center for Remote Imaging, Sensing and Processing (CRISP) • Tracking, Telemetry and Command (TT&C)
Day 5	Morning • On-Board Computer (OBC) • Satellite Launch & Operations Afternoon • Visit to the Satellite Technology and Research Centre (STAR) • Testing of Satellites

Week 2	Programme and Activities
Day 1	<u>Morning</u> • Structure & Mechanisms • Power Budgets <u>Afternoon</u> • Re-cap of theory • Creative Activity on Satellite Design
Day 2	Singapore Tour Evening : BBQ
Day 3	<u>Morning</u> Introduction to 3D Printing <u>Afternoon</u> Brainstorming & Prototyping
Day 4	Brainstorming & Prototyping (Cardboard / 3D Printing / Laser Cut)
Day 5	<u>Morning</u> Final Project Presentation End of Programme