NUS SOC Summer Workshop 2025

Cloud, IoT & AI / Media, Analytics & AI

Solving Real World Problems with Simulation

Course Information

Pre-requisites

- Which year of study is appropriate for your topic?

  Year 2 and above.

- What background and programming languages are required for your topic?

  Prior knowledge of Probability and Statistics, and knowledge of a high level language such as C would be good.

- What do you think is attractive/unique about your topic to students?

  Simulation is so pervasive, it is used in almost every field, be it in Medicine, Transportation, Manufacturing, Traffic systems, etc. It will be a useful knowledge/tool to have when one goes out to the working world.

Learning content and Teaching

- What will be covered during “trial” lectures?

  Basics of Modelling and Simulation, Input Modelling, Random Numbers, Statistical Distributions.

- What will be covered during the “advanced” seminars?

  Experimentation, Output Analysis, Applications of Simulation (Digital Twinning, Crisis management, Traffic Management)

- What will be the nature of the project work? How do you intend to split students into project groups, each consisting of 3 or 4 students?

  They will be designing and implementing a real world simulation application. Project groups of 3 to 4 per group, no preference in splitting.

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- Do you have any recommendations for references (books) students can study to prepare for your topic before coming to NUS?

  Banks, Carson, Nelson, Nichol, “Discrete-Event System Simulation”, 5th Edition, Pearson

- Besides their own personal laptops, what other equipment or software would students need for your topic?

  We will be using the simulation software Arena by Rockwell Automation.

  www.arenasimulation.com

  You may download on your laptop first. This will be the student version. The full licensed version will be provided during the course.