AT Computational Physics

Overview

AT Computational Physics is an introductory college-level course in physics that will also incorporate coding using vPython and mathematical modelling using Excel. Students will work with a mentor's assistance to develop their knowledge and understanding of the introductory concepts of classical mechanics and coding. Students will learn physics theory, perform experiments and compare their experimental results to the data predicted via modelling. As the program progresses, students will dedicate more of their time to an individualised, student-initiated and designed project using and applying the physics and computer-generated data knowledge they have acquired over throughout the program.

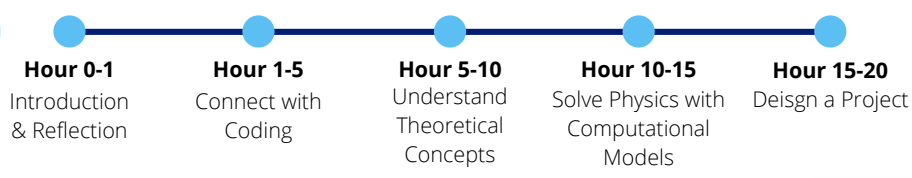
Objectives

- Foster better technical understanding of how computers work
- Enhance practical programming skills
- Develop computational thinking when tackling problems in regarding programming and computer technologies
- Understand how physics relates to real-life problems and how computer models can be used to assist in physics
- Improve logical problem-solving skills

Structure

- Reflect on current knowledge of the range of topics that AT Computational Physics covers and identify strengths and weaknesses
  - Develop a personalised curriculum
- Incorporating various physics problems into computational model in order to identify the value of technical knowledge in solving real-world problems
  - Develop critical thinking skills to solve complex issues
- Spend time familiarising oneself with computer coding language
- Practising programming skills in order to develop understanding of complex theoretical concepts
- Design a project that applies both physics and computer-generated data knowledge
  - Demonstrate applied knowledge

20 hour PROGRAM



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