



SISP 1302

Fundamentals of Robot Control and Action

Course Description

This laboratory-based course introduces students to the fundamentals of a robot construction. The course will help to answer the following questions: How does a robot sense its surroundings? How does a robot acquire its power? How does a robot control its motion? And how does a robot think? Students will learn how to design a robot through a step-by-step design laboratory instead of programming an existing robot.

Topics

1. Tools and Components
2. Providing a Stable Power
3. Synchronization of Actions by Clocking
4. Controlling Speed of Motors
5. Converting Electrical Information to Action
6. Sensing the Environment
7. Making Decision with Logic Integrated Circuits

Grading Scheme

- Quizzes (30%)
- Lab Reports (30%)
- Class Project (40%)

[Topics and grading schemes are subject to change as deemed appropriate. Students will receive information and guidelines in class on how they will be assessed for the course.]

Attendance Requirement

Class attendance is expected and required. The minimum attendance required is 70%.

Instructor

Prof. Mansun CHAN

Prof. Chan received both his BS degree in Electrical Engineering (highest honors) and BS degree in Computer Sciences (highest honors) from University of California at San Diego. He completed his MS degree and PhD degree at University of California at Berkeley. Prof. Chan joined the EEE faculty at HKUST in 1996. He is now a Chair Professor of the Department of Electronic and Computer Engineering, a Fellow of IEEE and a Distinguished Lecturer of IEEE EDS Society. Prof. Chan is a recipient of a number of awards including the IEEE EDS Education Award, the Engineering School Distinguished Teaching Award and the Teaching Excellence Appreciation Award. He has been teaching SISP 1302 '*Fundamentals of Robot Control and Action*' for the HKUST Summer Institute since 2011 and has received excellent teaching evaluations from high school students he had taught in the past.