# NVIDIA/Cal Poly Robotics Teaching Kit with Jet

## Module 1: Course Introduction

### Lecture Slides

* **1.1** Course Introduction
* **1.2** Introduction to Robotics
* **1.3** Introduction to Jetson TK1/TX1
* **1.4** Jet Overview
* **1.5** Introduction to ROS

### Labs

* **Lab 1**: [Building the Robot](module1/lab1_building_robot/chassis_construction.pdf)
* **Lab 2**: [Using ROS and Jet](module1/lab2_ros_introduction/ros_introduction.pdf)

### Questions

* [Student Version](module1/questions/module1_questions.pdf)
* [Answers](module1/questions/module1_answers.pdf)

## Module 2: Sensors and Actuators

### Lecture Slides

* **2.1** Sonar, Accelerometer, and Gyroscope
* **2.2** Camera, Motors, and Encoders

### Labs

* **Lab 3**: [Sense and Avoid](module2/lab3_sense_and_avoid/lab3.pdf)

### Questions

* [Student Version](module2/questions/module2_questions.pdf)
* [Answers](module2/questions/module2_answers.pdf)

## Module 3: Computer Vision

### Lecture Slides

* **3.1** Introduction to Computer Vision
* **3.2** Image Filtering
* **3.3** Image Moments

### Labs

* **Lab 4**: [OpenCV Intro](module3/lab4_opencv_intro/lab4.pdf)
* **Lab 5**: [Object Tracking](module3/lab5_object_tracking/lab5.pdf)

### Questions

* [Student Version](module3/questions/module3_questions.pdf)
* [Answers](module3/questions/module3_answers.pdf)

## Module 4: Machine Learning

## Module 5: Dead Reckoning

## Module 6: Path Planning

## Module 7: Robot Localization

## Module 8: Control

## Module 9: Obstacle Avoidance

## Module 10: Final Project

* [Harvester](projects/Harvester.pdf)
* [Capture-the-Flag](projects/Capture-the-Flag.pdf)