ROBOTICS
THE UNIVERSITY OF UTAH

PhD Course Requirements

CORE COURSES

Required (12 credits)

MECHANICS	CONTROL	COGNITION	PERCEPTION
ROBOT 6000 Robotics I: Mechanics	**ROBOT 6100** Robotics II: Control	**ROBOT 6200** Motion Planning *or* **CS 6300** Artificial Intelligence	**CS 6640** Image Processing *or* **CS 6320** Computer Vision

SEMINARS

Required (3 credits)

ME EN 6890
or **CS 7930**
or **ECE 6900**

ROBOT 6800
Robotics Seminar
(Enroll in 2 semesters for
1 credit each semester)

ALLIED COURSES

3 engineering courses (9+ credits, as needed to reach the 30-credit hour minimum)

RESEARCH

Minimum 14 credits required

ROBOT 7970
PhD Dissertation

ELECTIVE COURSES

Select 3 courses from two different categories (9 credits):

MECHANICS

ROBOT 7000
Manipulation, Mobility
ROBOT 7010
System Identification for Robotics

COGNITION

CS 6350
Machine Learning
ROBOT Special Topics
Robot Learning
ROBOT Special Topics
Advanced AI

CONTROL

ME EN 6200/ ECE 6615
Classical Control Systems
ECE 6670
Control of Electric Motors
ME EN 6210/ ECE 6652/ CH EN 6203
State Space Control
ME EN 7200
Nonlinear Control
ME EN 7210
Optimal Control
ECE 6570
Adaptive Control

DESIGN

ROBOT 6500
Advanced Mechatronics
ROBOT 6960
Wearable Robotics
ECE 6780/ CS 6780
Embedded System Design
ECE 6960
Robotic Millisystems
ROBOT Special Topics
Medical Robotics
ROBOT Special Topics
Adv Design in Robotics

HUMAN-ROBOT INTERACTION

CS 6360
Virtual Reality
ROBOT 7400
Haptics for VR,Tele-operation, and Physical Human-Robot Interaction
ROBOT 6400
Neural Engineering and NeuroRobotics
ROBOT Special Topics
Intro to Physical Human-Robot Interaction

PERCEPTION

CS 7640
Adv. Image Processing
CS 6353
Deep Learning for Image Analysis
ECE 6530
Digital Signal Processing
ROBOT Special Topics
Algorithmic Foundations of Robotics

10/23/25