

Example Curriculum for Unmanned Underwater Vehicles (UUV's)

1st Summer

Student project with WHOI and MIT advisers

"Survey" of oceanography subject

18.089 and/or WHOI short course. Review of Mathematics (no degree credit)

1st Fall semester

2.003, U, 12, Dynamics and Control, I

2.20, H, 12, Marine Hydrodynamics

18.0851, H, 12, Computational Science and Engineering I

2.THG, Thesis research

1st Spring Semester

2.22, G, 12, Design Principles for Ocean Vehicles

2.680, G, 12, Unmanned Marine Vehicle Autonomy, Sensing, and Communication

18.0751, G, 12, Methods for Scientists and Engineers

2.THG, Thesis research

2nd Summer

2.THG, Thesis research

2nd Fall semester

2.151, G, 12, Advances System Dynamics and Control

2.154, G, 12, Maneuvering and Control of Surface and Underwater Vehicles

2.688, G, 12, Principles of Oceanographic Systems: Sensors and Measurements

2.THG, Thesis research

2nd Spring Semester

2.066, G, 12, Acoustics and Sensing

2.160, G, 12, Identification, Estimation and Learning

2.THG, Thesis research

3rd Summer

2.THG, Thesis research

Summary

11 Subjects / 132 units

10 G credit / 120 units

1 U credit / 12 units

Thesis

Course Summary: 6 Hydrodynamics and Control, 1 Ocean Acoustics, 2 Mathematics, 9 Mech Engin. subjects

Comments: This is heavily weighted towards control and autonomy for UUV's with some acoustics since many of the on board systems for UUV's use sonars. It does satisfy all the MIT and WHOI requirements and is sequenced by fall/spring availability. Please observe note above re every other year offerings of graduate subjects.