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.