**Examples of AOSE Curricula**

The curriculum must satisfy the requirements imposed by the MIT Mechanical Engineering department and generally must include 2.688 Principles of Oceanographic Instrumentation (unless the student successfully petitions for a substitution; see [AOSE handbook](https://mit.whoi.edu/wp-content/uploads/sites/24/2022/10/AOSE_handbook_update_20221020.pdf) for details).

All MIT course descriptions may be found here: <https://catalog.mit.edu/subjects/>

**Notes on first summer:** The summer is a great time to get started on research and to learn more about your home department(s) and the institutions. This is also a good time to build or refresh some foundational skills. Several courses and workshops are offered.

Math: (1) The Joint Program students offer a non-credit math refresher course. It typically meets biweekly from mid-July through mid-August. (2) For a more in-depth and structured option, students may consider 18.089, which meets daily for 5 weeks.

Computing: (1) WHOI often offers 2-day Software Carpentries workshops in the summer. Recent topics have been R, python and Git. Matlab workshops have been offered in the more distant past and are being considered for the future. (2) For an in-depth introduction to Matlab, students may consider 6.057

**Sample Curriculum – Acoustics Focus**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Term** | **Subject** | **Level** | **Units** | **ESR** | **Description** |
| **1st Summer** | **2.THG** | **G** | **24** | **6** | **Thesis Research** |
| **1st Fall** | **2.681** | **G** | **12** | **1,2,5,6** | **Environmental Ocean Acoustics\*** |
|  | **18.085** | **N** | **12** | **1,2,6** | **Computational Science & Engineering** |
|  | **2.THG** | **G** | **12** | **6** | **Thesis Research** |
|  |  |  |  |  |  |
| **1st Spring** | **2.066** | **G** | **12** | **1,2,3,4,5** | **Acoustics and Sensing** |
|  | **2.680** | **G** | **12** | **3,4,7** | **Unmanned Marine Vehicle Autonomy, Sensing & Comm.** |
|  | **2.THG** | **G** | **12** | **6** | **Thesis Research** |
| **2nd Summer** | **2.THG** | **G** | **24** | **6** | **Thesis Research** |
| **2nd Fall** | **2.688** | **G** | **12** | **1,2,3,4,6** | **Princip. Oceanog. Instruments** |
|  | **6.456** | **G** | **12** | **1,2,3,4,5,6** | **Array Processing\*** |
|  | **2.THG** | **G** | **12** | **6** | **Thesis Research** |
| **2nd Spring** | **2.THG** | **G** | **36** | **6** | **Thesis Research** |
| **3rd Summer** | **2.THG** | **G** | **24** | **6** | **Thesis Research** |

**\*** 2.681 and 6.456 are offered in alternate years, their sequencing within the curriculum can shift accordingly.

**Sample Curriculum – Autonomy and Robotics Focus**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Term** | **Subject** | **Level** | **Units** | **ESR** | **Description** |
| **1st Summer** | **2.THG** | **G** | **24** | **6** | **Thesis Research** |
| **1st Fall** | **2.200** | **G** | **12** | **1,6** | **Marine Hydrodynamics** |
|  | **18.0851** | **G** | **12** | **1,5,6** | **Matrix Methods in Data Analysis, Signal Processing** |
|  | **2.THG** | **G** | **12** | **6** | **Thesis Research** |
| **1st Spring** | **2.24** | **G** | **12** | **12** | **Seakeeping of Ships and Offshore Energy Systems** |
|  | **2.680** | **G** | **12** | **3,4,7** | **Unmanned Marine Vehicle Autonomy, Sensing & Comm.** |
|  | **2.THG** | **G** | **12** | **6** | **Thesis Research** |
| **2nd Summer** | **2.THG** | **G** | **24** | **6** | **Thesis Research** |
|  | **2.688** | **G** | **12** | **1,2,3,4,6** | **Principles of Oceanographic Instruments** |
| **2nd Fall** | **6.456\*** | **G** | **12** | **1,2,3,4,5,6\*** | **Array Processing\*** |
|  | **2.THG** | **G** | **12** | **6** | **Thesis Research** |
| **2nd Spring** | **2.THG** | **G** | **36** | **6** | **Thesis Research** |
| **3rd Summer** | **2.THG** | **G** | **24** | **6** | **Thesis Research** |

**\*** 6.456 and 2.681 (Environmental Ocean Acoustics, 12 Units, ESRs 1,2,5,6) are offered in alternate years. Students are recommended to take one of these courses as available.