# ARCHITECTURE: ROBOTICS AND AUTONOMOUS SYSTEMS, MSD

The Master of Science in Design: Robotics and Automated Systems (MSD-RAS) explores avenues for re-situating the role of architectural design within present day autonomous technologies. The program critically develops novel approaches to manufacturing, construction, occupation, demolition and re-use, through creative engagement with robotics, material systems, and design-computation. Students develop skills in advanced forms of robotic manufacturing, artificial intelligence, sensor and vision technologies in order to develop methods for design that harness production or live adaption as a creative opportunity. Operating predominantly through material prototyping and robotic fabrication, participants critically assess the socio-political, ethical and philosophical dimensions of a recent societal shift towards algorithmic and autonomous technological dependence, and provoke alternative forms of dialogue with industry and culture that address our individual and collective engagement with the built environment. The work of the program is both highly speculative and physically manufactured. Students collaboratively develop robotically manufactured architectural prototypes (part or whole) that is presented and exhibited at the completion of the program.

## Curriculum

A total of 10 course units are required.

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|---|---|---|
| **First Year** | | |
| **Summer** | | **Course Units** |
| ARCH 8000 | Introduction to 3D Programming | 0 |
| | **Course Units** | **0.00** |
| **Fall** | | |
| ARCH 8010 | Material Agencies: Robotics & Design Lab I: Part I | 1 |
| ARCH 8011 | Material Agencies: Robotics & Design Lab I: Part II | 1 |
| ARCH 8030 | General Overview of Algorithmic Design and Robotic Fabrication | 0.5 |
| ARCH 8050 | Intro to Cyberphysic Systems | 0.5 |
| ARCH 8070 | RAS Theory | 1.0 |
| Designated Elective (within Architecture + Engineering) | | 1.0 |
| | **Course Units** | **5.00** |
| **Spring** | | |
| ARCH 8020 | Material Agencies: Robotics & Design Lab II | 2.0 |
| ARCH 8040 | Advanced RAS Programming | 1.0 |
| ARCH 8060 | Experimenta Tooling | 1.0 |
| ARCH 8080 | Scientific Research and Writing | 1.0 |
| | **Course Units** | **5.00** |
| | **Total Course Units** | **10.00** |

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2023 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.