Unique Program

The Master's of Science (M.Sc.) Degree in Robotic Systems Development (MRSD) is an advanced graduate degree for beginning or early-entry practicing professionals that are already in, or seeking to enter into, the field of robotics and automation. This Master's degree distinguishes itself from any other offered program by teaching multi-disciplinary know-how and skills needed to succeed in today's industry. The curriculum provides a broad education in the sciences and technologies of robotics, while reinforcing theory through hands-on laboratory projects and exposing students to practical business principles and skills. The unique hands-on curriculum allows students to work on team-oriented and practical system-level robotics development and integration projects. Key business concepts and practices in the curriculum include technology planning, product development, team & project management, production, marketing and sales.

State-of-the-art Instruction, Hands-on Experience, and Exposure to Key Business Concepts

Overall the MRSD provides course-level instruction in the main technology areas, hands-on project courses, seminar-style business and management courses and a required internship with a recognized robotics and automation industry partner company. The program's curriculum is structured as 114-units of study and practice over 16 consecutive months. It is comprised of an on-campus two-semester full-time course load at Carnegie Mellon's Robotics Institute and a 7 month practicum/internship with an affiliated industrial partner in the field of robotics and/or automation. The MRSD program distinguishes itself by combining state-of-the-art instruction in the science and technology of robotics, hands-on implementation experience, and exposure to key business concepts and practices essential to high-technology product development company operations. Students will not only learn about the latest technical robotics topics and scientific methods and solutions, but will also be challenged to apply and refine innovative thinking and problem solving techniques in a team-oriented setting.

Critical Skills

The skills and knowledge students will be exposed to in this program are the critical skills technology companies seek in applicants for innovative product development projects, team management, production-readiness, marketing, sales & support as well as strategic technology planning, budgeting and overall leadership. The MRSD program will ensure graduates have a high level of technical and managerial competence, making them extremely desirable employment candidates. Graduates will be capable of operating at a higher technical/managerial level within a company from the start, drastically reducing the on-the-job training duration companies typically invest into an employee. They can expect to make an immediate higher-level contribution to their employers in the development and transition-to-production of future generations of integrated robotic and automation technologies, and/or be better prepared for the entrepreneurial world when it comes to starting up a new business.

For more information visit http://www.ri.cmu.edu/MRSD
Students will be required to participate in a two-semester on-campus seminar-style lecture- and team-project class. These two mini-courses will cover technical, business, management, finance, production, marketing & sales and writing/presentation providing a deep enough level of information for students to create a Technology Development Plan (TDP).

Students will be required to participate in a two-semester on-campus lecture-style core courses over two semesters, with two courses taught per semester in the following areas: Systems Engineering, Manipulation, Mobility & Control, Sensors & Perception, Robot Autonomy & Networking.

Students will be required to take one (1) technical and one (1) business elective during their two-semester course of study. This 12-unit course per semester allows for the student to learn more about their particular technical or business area of interest.

Students will be required to participate in a two-semester on-campus lecture- and laboratory-style project course. This course will allow students to form project teams to work on a hands-on robotic/automation topic proposed by the instructor(s) of interest to the robotics/automation industry at large.

Upon completion of their coursework, students will be required to participate in a 7-month internship with commercial/government-laboratory partners in the program. A final Internship Report (IR) and an oral presentation of their internship experiences will be expected by the end, and considered a final deliverable towards completion of their MRSD degree.