

UVM'S SENIOR EXPERIENCE IN ENGINEERING DESIGN (SEED) PROGRAM



**HAVE A DESIGN PROBLEM THAT NEEDS A SOLUTION?
NEED ENGINEERING SUPPORT FOR AN IDEA?
WANT TO BUILD A PROOF-OF-CONCEPT? LOOKING FOR FUTURE EMPLOYEES?**

The SEED program links seniors in the Electrical Engineering (EE) and Mechanical Engineering (ME) programs with the best Vermont and New England businesses.

Start-ups, companies, farms, healthcare providers, non-profits, researchers and individual entrepreneurs have all participated as clients in over 160 projects since 2007.

The multi-disciplinary student teams collaborate with their client, the course instructors, faculty mentors and UVM staff to address a design need, build a device, engineer a process, or formulate a mathematical model.

SEED projects have resulted in successful devices, marketed products, start-up companies, and useful tools, software programs and analyses.

From a company's perspective, a SEED project allows the client to address a long-standing problem that requires a proof-of-concept investigation or proto-type build. A SEED project also offers the opportunity to work directly with likely candidates for entry-level engineering positions. Practicing engineers often find that mentoring students is a personally rewarding experience.

Students relish the opportunity to engage in engineering practice, apply the theory they have been learning and prepare for work in industry. This capstone experience aims to allow the students "to model, analyze, design, and realize physical systems, components or processes" as required by engineering accreditation (ABET). Course material teaches the open-ended design process and the involvement of clients and users is a vital component that provides real world context.

Want to participate?

For 2015-16, there is a projected need for 30+ projects for 140 students. Projects originate as statements of need from the clients. Clients can sponsor a project at three different levels. Program Sponsors support three student teams working independently on one project idea. Team Sponsors will work with one team to solve a single project idea. Start-Up Sponsors are smaller companies who will work with one team. Client representatives come to campus for a Meet and Greet event, interact with that year's students and solicit interest in their projects before teams are assigned.

What are a client's responsibilities?

A client should be prepared to commit staff to support the student team throughout the year-long course. Bi-weekly meetings, in person, over phone or virtually are an expectation. Clients support the program given their Sponsorship level: Program Sponsors (\$10,000), Team Sponsors (\$5,000) and Start-Up Sponsors (\$1,000). Clients also provide funds for the components and materials required to build the prototype device.

Intellectual property?

Your SEED project could be patentable! UVM can implement any type of intellectual property needs of a client. CDA, NDA, government and ITAR-level commitments have been made. Professional support is provided by UVM's Office of Commercialization.

What happens during the year?

Fall Semester: instruction on design, brainstorming, literature review, safety and intellectual property; Preliminary Design Review, mechanical and electrical drawings, budgeting, and a timeline for building, testing and revision.

Spring Semester: team work, machining, prototyping, safety, and commercialization; teams actualize their devices; device demonstrations, testing and presentation at Engineering Design Night; and Final Design Review.

PREVIOUS CLIENTS:

Industry: IBM, General Dynamics, Applied Research Associates, Green Mountain Coffee Roasters, Boston Scientific, Lord-Microstrain, Greensea Systems, Ideas Well Done, UTC Aerospace-Goodrich, MITRE, Burton Snowboards, Numia Medical, MMIC, Ascension Technology, Hayward-Tyler, LPA Designs, Inverted Innovations, ECHO Lake Aquarium and Science Center, Kaman-Vermont Composites, Plasan Composites, Gordon's Window Décor, Country Home Product-DR Power, S.O.H. Wind, BombTech Golf, Pedal Power, E.A.S.Y., Caledonia Spirits and Winery, Jasper Hill Farm, HG Skis, Intervale Farm, Choquette Dairy Farm, Green Mountain Power- VAAFM, Flex-A-Seal, Velan, Vermont Energy Investment Corp.-Efficiency Vermont, Goetz Composites.

UVM-Based: Vermont Space Grant Consortium/VT-NASA EPSCoR, Proctor Maple Research Center, UVM Extension Program, UVM Transportation Research Center, Paul Miller Research Center Farm, Vermont Lung Center, UVM Dept. of Rehabilitation and Movement Science; Student-funded: Eleview, UVM AERO Racing, UVM Mini-Baja Racing.

UVM Grant Funded Research: National Institute for Health, National Science Foundation, Dept. of Energy, National Park Services, UVM Clean Energy Fund.

YOUR COMPANY COULD BE NEXT!

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