

Primary Objectives of the BSEMT Program

1. To provide students with the capabilities to be immediately employable and productive in the workplace.
2. To provide the education so that graduates are knowledgeable in both theory & application.
3. To instill the necessary skills so that the graduates are qualified for positions of responsibility.
4. Provide the base of knowledge so that graduates are prepared for lifelong learning and can adapt to new and emerging technologies.
5. Instill the need for creativity in the design of systems, components or processes.

A graduate of Vermont Tech's plus 2 BSEMT degree should be able to:	Course(s) associated with outcome	Assessment Protocols	Time Line	Person Responsible	Benchmark/Target/Standards
1. Use standard software engineering tools in the mechanical, electrical, and software areas (CAD, software development systems, circuit simulators, schematic editors.).	MT101, CS211, EL214, EM423/424	Verify the achievement of the course objectives for the course(s) listed to the left	3 Fall 3 Spring 4 Fall 4 Spring	Instructors & program coordinator of BSEMT	Comprehensive laboratory report requirements. Exams and quizzes requiring detailed analysis. Final exam or project.
2. Exhibit a basic knowledge of classical mechanisms, manufacturing techniques, fluid mechanics, applied mechanics, material science, AC circuit analysis, analog and digital electronics, and microprocessors. (The junior year 'crossover' courses: MT202, MT203, MT315, MT326, EL214, EL219, EL315, EL319	MT202, MT203, MT315, MT326, EL214, EL219, EL315, EL319	Verify the achievement of the course objectives for the course(s) listed to the left	1 Fall 2 Fall	Instructors & program coordinator of BSEMT	Programming problem assignments and lab work targeting the course objectives
3. Demonstrate a working knowledge of various sensors and the circuitry needed to use them. (EM301, EL214)	EM301, EL214	Verify the achievement of the course objectives for the course(s) listed to the left	1 Spring 2 Fall	Instructors & program coordinator of BSEMT	Comprehensive laboratory report requirements. Exams and quizzes requiring detailed analysis. Final exam or project.
4. Program in several languages including those related to microcontrollers and PLCs.	CS211, EL214, EM411	Verify the achievement of the course objectives for the course(s) listed to the left	2 Fall	Instructors & program coordinator of BSEMT	Programming problem assignments and lab work targeting the course objectives
5. Demonstrate a working knowledge of control theory and control systems design, both analog and digital.	EL219, EM423, EM424	Verify the achievement of the course objectives for the course(s) listed to the left	2 Fall 2 Spring	Instructors & program coordinator of BSEMT	Comprehensive laboratory report requirements. Exams and quizzes requiring detailed analysis. Final exam or project.
6. Understand the fundamentals of electronic communication in and between systems.	EL330	Verify the achievement of the course objectives for the course(s) listed to the left	2 Fall 2 Spring	Instructors & program coordinator of BSEMT	Comprehensive laboratory report requirements. Exams and quizzes requiring detailed analysis. Final exam or project.
7. Research and evaluate new technologies (electrical, mechanical, or software), make recommendations about such technologies based on features, performance, and cost, and implement those new technologies in a design.	EM301, EM411, EM449/450	Verify the achievement of the course objectives for the course(s) listed to the left	2 Spring	Instructors & program coordinator of BSEMT	Comprehensive laboratory report requirements. Exams and quizzes requiring detailed analysis. Final exam or project.
8 Research, read, and understand relevant documents.)	All Courses	Verify the achievement of the course objectives for the course(s) listed to the left	1 Spring 2 Spring	Instructors & program coordinator of BSEMT	Comprehensive laboratory presentations including graphical and manuf. items and prototype.
9. Communicate clearly (in writing and orally) with his or her peers as well as with management level personnel.	EM449/450	Verify the achievement of the course objectives for the course(s) listed to the left	1 Fall 1 Spring 2 Fall 2 Spring	Instructors & program coordinator of BSEMT	Oral and written presentations of technical project papers
10. Apply engineering principles and design, develop, and troubleshoot electro-mechanical products.	MA204, EM304, PH211, EM449/450	Verify the achievement of the course objectives for the course(s) listed to the left	1 Fall 1 Spring 2 Fall 2 Spring	Instructors & program coordinator of BSEMT	Comprehensive laboratory report requirements. Exams and quizzes requiring detailed analysis. Final exam or project