

## **MS Engineering Access from Non-Engineering Undergraduate Degree**

Admission to the MS Engineering (MSE) program requires an undergraduate degree in engineering, physical science, or related technical field. Prospective applicants who have a bachelor's degree in a different field and are lacking sufficient technical background for direct admission have two options to meet the eligibility requirements for the MSE program:

**Option 1 (4+1):** In this option, students enroll in the BSEE program as post-baccalaureate students, complete the degree requirements up to the junior level, and then apply for admission to the 4+1 BSEE+MSE program. Admission to the accelerated 4+1 program is contingent on meeting the GPA requirement (average of 3.0 or above) in the undergraduate courses. Students pursuing this route end up with two degrees: a BS Electrical Engineering and a MS Engineering.

**Option 2 (“Bridge” coursework):** In this option, students enroll as post-baccalaureate students, complete only the minimum set of courses to meet the eligibility requirements for the MSE program, and then apply for admission to the MSE. This is a shorter and more direct path. At the end of it, students are awarded a single degree: a MS Engineering (with their chosen specialty).

The 4+1 option (option 1) provides ample preparation for any of the MSE specialties. The “bridge” coursework option is intended to focus only on the minimum set of courses needed to have the background necessary for the applicant to succeed in the MSE specialty of interest. Because of this, the set of “bridge” courses depends on the MSE specialty selected, as indicated below. Admission to the MSE program is contingent on meeting the GPA requirement (average of 3.0 or above) in the “bridge” courses. Depending on the student's background, some of the “bridge” courses may be waived by the MSE Admissions Committee.

### **List of “Bridge” Courses for Access to the Different MSE Specialties**

#### **(a) MSE in Electrical Engineering**

Math: MATH 251, 252, 321, 341, and 243 or 465

Physics: PHY221 and 222

Programming: CST116 or ENGR 267

Engineering: EE 131, 133, 221, 223, 225, 321, 331 and 333

Note: Must complete EE530 as part of the MSE curriculum

#### **(b) MSE in Embedded Systems Engineering**

Math: MATH 251 and 252

Programming: CST 116 and 126

Engineering: EE 131, 133, 221, 223, 331, 333, and 335

#### **(c) MSE in Optical Engineering**

Math: MATH 251, 252, 254 and 341

Physics: PHY 221, 222 and 223

Programming: CST 116 or ENGR 267

Engineering: EE 221, 223 and 225

**(d) MSE in Power Systems Engineering**

Math: MATH 251, 252 and 321

Physics: PHY 221 and 222

Programming: CST 116 or ENGR 267

Engineering: EE 221, 223, 225 and EE 321 or REE 243

Note: Must complete EE 561 as part of MSE curriculum

**(e) MSE in Robotics, Autonomous Systems and Control Engineering**

Math: MATH 251, 252, 321, 341 and 243 or 465

Physics: PHY 221 and 222

Programming: CST 116 or ENGR 267

Engineering: EE 221, 223, 225, 321

Note: Must complete EE 561 as part of MSE curriculum

**(f) MSE in Systems Engineering**

Math: MATH 251, 252, 341, and 243 or 465

Physics: PHY 221 and 222

Programming: CST 116 or ENGR 267

Engineering: EE 221, 223 and 225

**Sample curriculum map for “bridge” year (for a 3-year MSE plan)**

<b>MSE Specialty</b>	<b>TERM 1</b>	<b>TERM 2</b>	<b>TERM 3</b>	<b>TERM 4</b>
<b>Electrical Engineering</b>	MATH 251 PHY 221 CST 161 or ENGR 267 EE 131	MATH 252 PHY 222 EE 133 EE 221	MATH 321 MATH 341 EE 223 EE 331	MATH 243 or 465 EE 225 EE 321 EE 333
<b>Embedded Systems Engineering</b>	MATH 251 CST 161 EE 131	MATH 252 EE 133 EE 221 EE 333	EE 223 EE 331 EE 335 CST 126	<b>Graduate-level courses</b>
<b>Optical Engineering</b>	MATH 251 PHY 221 CST 116 or ENGR 267	MATH 252 PHY 222 EE 221	MATH 254 MATH 341 PHY 223 EE 223	EE 225 <b>Graduate-level courses</b>
<b>Power Systems Engineering</b>	MATH 251 PHY 221 CST 116 or ENGR 267	MATH 252 PHY 222 EE 221	MATH 321 EE 223 <b>Graduate-level course (ENGR 511, 512 or 513)</b>	EE 225 EE 321 or REE 243 <b>Graduate-level course (ENGR 511, 512 or 513)</b>
<b>Robotics, Autonomous Systems and Control Engineering</b>	MATH 251 PHY 221 CST 116 or ENGR 267	MATH 252 PHY 222 EE 221	MATH 321 MATH 341 MATH 243 or 465 EE 223	EE 225 EE 321 <b>Graduate-level course (EE561 or ENGR 511/512/513)</b>
<b>Systems Engineering</b>	MATH 251 PHY 221 CST 116 or EGR 267	MATH 252 PHY 222 EE 221	MATH 341 MATH 243 or 465 EE 223	EE 225 <b>Graduate-level courses</b>