



Integrative Science, Technology, Engineering, and Mathematics Education is defined as: “technological/engineering design based pedagogical approaches used to *intentionally* teach the content and practices of science, technology, engineering and mathematics education *through* the content and practices of technology/engineering education. Integrative STEM Education is equally applicable at the natural intersections of learning within the continuum of content areas, educational environments, and academic levels” (Wells & Ernst, 2012/2015).

## Doctor of Philosophy (PhD) Integrative STEM Education (I-STEM ED)

### Admission Requirements

Master’s degree (3.3 graduate GPA min.); GRE scores; 2 writing samples; Faculty interview (F2F or via audio/video web conferencing); 3 letters of recommendation; Resume

### Degree Requirements

Approved Plan of Study (POS); 90 semester hours (SH), inclusive of approved coursework from a prior master’s degree and others as outlined below; Dissertation; Residency (two consecutive semesters of full-time enrollment); Qualifying and Preliminary Examinations. The Integrative STEM Education (I-STEM ED) coursework for this degree (shown below) is available via synchronous web-based, audio/video delivery. Graduate coursework may be taken from Virginia Tech online or conventionally, or may be transferred in from other universities (subject to approval by the student’s graduate committee).

### Integrative STEM Education Core Courses (15+ SH)

EDCI 5804: I-STEM Education Foundations	(3 SH – Fall Semester)
EDCI 5814: I-STEM Education Pedagogy	(3 SH – Fall Semester)
EDCI 5824: I-STEM Education Trends and Issues	(3 SH – Spring Semester)
EDCI 5834: I-STEM Education Research	(3 SH – Alternate Spring Semesters)
EDCI 5844: I-STEM Education Seminar	(3 SH – Fall and Spring Semesters)
EDCI 5854: Biotechnology Literacy by Design	(3 SH – Alternate Spring Semesters)
EDCI 5774: Readings in STEM Education	(3 SH – Fall and Spring Semesters)
EDCI 5964: Field Studies in [I-STEM] Education	(3 SH – Fall and Spring Semesters)

### Education Electives

Learning Sciences, Educational Foundations, Educational Administration, etc.

### Research & Dissertation Courses

15+ SH of coursework and 30+ SH of EDCI 7994 (dissertation), as approved by the graduate student’s committee

### For more information

Enrollment Services Assistant (540) 231-5348