Integrative Science, Technology, Engineering, and Mathematics Education (I-STEM ED) is defined as: “the application of technological/engineering design based pedagogical approaches to intentionally teach content and practices of science 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 Education (EdD)

### Integrative STEM Education

#### Admission Requirements

- Master’s degree (3.3 graduate GPA min.);
- GRE scores;
- 2 writing samples;
- Faculty interview (F2F or Internet audio);
- 3 letters of recommendation;
- Resume

#### Degree Requirements

- Approved Plan of Study (POS);
- 90 semester hours (SH), inclusive of coursework from master’s degree and others as outlined below;
- Dissertation;
- Residency (12 SH of coursework taken in each of two consecutive semesters/summers);
- Qualifying and Preliminary Examinations.

The Integrative STEM Education coursework for this degree (shown below) is available via synchronous web-based, audio/video delivery. Graduate coursework from other universities may be transferred in or taken online or conventionally from Virginia Tech (subject to approval by the student’s graduate committee).

### Integrative STEM Education Core Courses (12+ SH)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>SH</th>
<th>Semester</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDCI 5804</td>
<td>STEM Education Foundations</td>
<td>3</td>
<td>Fall Semester</td>
</tr>
<tr>
<td>EDCI 5814</td>
<td>STEM Education Pedagogy</td>
<td>3</td>
<td>Fall Semester</td>
</tr>
<tr>
<td>EDCI 5824</td>
<td>STEM Education Trends and Issues</td>
<td>3</td>
<td>Spring Semester</td>
</tr>
<tr>
<td>EDCI 5834</td>
<td>STEM Education Research</td>
<td>3</td>
<td>Alternate Spring Semesters</td>
</tr>
<tr>
<td>EDCI 5844</td>
<td>STEM Education Seminar</td>
<td>1</td>
<td>Fall and Spring Semesters</td>
</tr>
<tr>
<td>EDCI 5854</td>
<td>Biotechnology Literacy by Design</td>
<td>3</td>
<td>Alternate Spring Semesters</td>
</tr>
<tr>
<td>EDCI 5774</td>
<td>Readings in STEM Education</td>
<td>3</td>
<td>Fall and Spring Semesters</td>
</tr>
<tr>
<td>EDCI 5964</td>
<td>Field Studies in [I-STEM] Education</td>
<td>3</td>
<td>Fall and Spring Semesters</td>
</tr>
</tbody>
</table>

#### Education Electives

- Learning Sciences, Educational Foundations, Educational Administration, etc.

#### Research & Dissertation Courses

- 12+ SH of coursework and 24+ SH of EDCI 7994 (dissertation), as approved by the graduate student’s committee

#### For more information

Teaching & Learning Administrative Assistant (540) 231-5558