

| GENERAL INFORMATION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                       |
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| Course Prefix/Number: EME3430                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Course Title: <b>Instructional Technology in Mathematics and Science</b>                                                                                                                                                                                                                              |
| Number of Credits: 2 credits                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                       |
| Degree Type                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | <input type="checkbox"/> B.A. <input type="checkbox"/> B.S. <input type="checkbox"/> B.A.S. <input checked="" type="checkbox"/> A.A. <input type="checkbox"/> A.S. <input type="checkbox"/> A.A.S.<br><input type="checkbox"/> C.C.C. <input type="checkbox"/> A.T.C. <input type="checkbox"/> V.C.C. |
| Date Submitted/Revised: 2/29/12                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Effective Year/Term: 2012-1                                                                                                                                                                                                                                                                           |
| <input type="checkbox"/> New Course Competency <input checked="" type="checkbox"/> Revised Course Competency                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                       |
| Course Description (limit to 50 words or less):<br>Student will learn to use to use knowledge of mathematics and science content to select appropriate technology tools for diverse populations in the secondary classroom. The student will utilize tools such as spreadsheets, statistical packages, graphing calculators, data-collection devices, probeware, virtual manipulatives, virtual labs, simulations, software, Internet resources, and assistive technologies. Special fee. ( 2 hr. lecture ) |                                                                                                                                                                                                                                                                                                       |
| Prerequisite(s): EME2040                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Corequisite(s): EEX3071 , EDG3321                                                                                                                                                                                                                                                                     |

**Competencies:**
**Competency 1:**

The student will engage in the use of appropriate mathematics and science technological tools for effective instruction by:

1. Summarizing and creating spreadsheets to illustrate mathematics and science data.
2. Inputting and analyzing mathematical and scientific data through the use of graphing calculators.
3. Assembling probeware instruments in order to collect data for further analysis
4. Downloading and analyzing real-time data from the Internet.
5. Accessing primary source documents from archival sources.
6. Utilizing mathematical and scientific problem-solving software.
7. Examining virtual manipulatives and simulations to provide concrete representation of abstract concepts.

**Competency 2:**

The student will select appropriate technological tools for effective instruction in order to promote student learning by:

1. Identifying the benefits and challenges to utilizing specific technologies to address various students learning needs.
2. Identifying technologies to address national and state content area standards.
3. Evaluating technologies according to essential criteria for the mathematics and science classroom.
4. Integrating current information and communication technologies.
5. Identifying some of the current issues in mathematics and science instruction that may impact the

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selection and use of technology.

6. Identifying and utilizing current and emerging assistive technologies that enable students to participate in high-quality communication interactions and achieve their educational goals.

**Competency 3:**

The student will apply appropriate technological tools for effective instruction in order to promote student learning by:

1. Integrating spreadsheets, graphing calculators, probeware, the Internet, software, virtual manipulatives and simulations into mathematics or science lessons.
2. Planning and creating instructional environments and activities for mathematics and science that model successful integration strategies.
3. Applying varied instructional strategies and resources for integrating technology into mathematics and science curricula to foster critical/creative thinking.
4. Collaborating with colleagues and experts to implement effective technology integration strategies.
5. Applying traditional and authentic assessment strategies to student applications of technology in mathematics and science.

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