

Course Competencies Template - Form 112

GENERAL INFORMATION			
Name: Dr. Susan Neimand	Phone #: (305) 237-6152		
Course Prefix/Number: EME3410	Course Title: Instructional Technology in Mathematics and Science		
Number of Credits: 2			
Degree Type	<input type="checkbox"/> B.A. <input checked="" type="checkbox"/> B.S. <input type="checkbox"/> B.A.S <input type="checkbox"/> A.A. <input type="checkbox"/> A.S. <input type="checkbox"/> A.A.S. <input type="checkbox"/> C.C.C. <input type="checkbox"/> A.T.C. <input type="checkbox"/> V.C.C		
Date Submitted/Revised: 3/10/08	Effective Year/Term: 2008-1		
<input checked="" type="checkbox"/> New Course Competency <input type="checkbox"/> Revised Course Competency			
Course to be designated as a General Education course (part of the 36 hours of A.A. Gen. Ed. coursework): <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
The above course links to the following Learning Outcomes: <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> <input checked="" type="checkbox"/> Communication <input checked="" type="checkbox"/> Numbers / Data <input checked="" type="checkbox"/> Critical thinking <input checked="" type="checkbox"/> Information Literacy <input type="checkbox"/> Cultural / Global Perspective </td> <td style="width: 50%; vertical-align: top;"> <input type="checkbox"/> Social Responsibility <input type="checkbox"/> Ethical Issues <input checked="" type="checkbox"/> Computer / Technology Usage <input type="checkbox"/> Aesthetic / Creative Activities <input type="checkbox"/> Environmental Responsibility </td> </tr> </table>		<input checked="" type="checkbox"/> Communication <input checked="" type="checkbox"/> Numbers / Data <input checked="" type="checkbox"/> Critical thinking <input checked="" type="checkbox"/> Information Literacy <input type="checkbox"/> Cultural / Global Perspective	<input type="checkbox"/> Social Responsibility <input type="checkbox"/> Ethical Issues <input checked="" type="checkbox"/> Computer / Technology Usage <input type="checkbox"/> Aesthetic / Creative Activities <input type="checkbox"/> Environmental Responsibility
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Course Description (limit to 50 words or less, must correspond with course description on Form 102): This course provides experiences that allow educators to use their knowledge of mathematics and science to select technology tools for application in the secondary classroom. Tools such as spreadsheets, statistical packages, graphing calculators, data-collection devices, probeware, virtual manipulatives, virtual labs, simulations, software, and Internet resources will be utilized.			
Prerequisite(s): departmental permission	Corequisite(s):		

Course Competencies: (for further instruction/guidelines go to: <http://www.mdc.edu/asa/curriculum.asp>)

Competency 1: The student will be able to engage in the use of appropriate mathematics and science technological tools for effective instruction by:

1. Creating spreadsheets to illustrate mathematics and science data. (FEAP 12, NCTM 6.1, and NSTA 5d)
2. Inputting and analyzing mathematical and scientific data through the use of graphing calculators. (FEAP 12, NCTM 6.1, and NSTA 5d)
3. Assembling probeware instruments in order to collect data for further analysis. (FEAP 12, NCTM 6.1, and NSTA 5d)
4. Downloading and analyzing real-time data from the Internet.
5. Accessing primary source documents from archival sources. (FEAP 12, NCTM 6.1, and NSTA 5d)
6. Utilizing mathematical and scientific problem-solving software. (FEAP 12, NCTM 6.1, and NSTA 5d)
7. Examining virtual manipulatives and simulations to provide concrete representation of abstract concepts. (FEAP 12, NCTM 6.1, and NSTA 5d)

Competency 2: The student will select appropriate technological tools for effective instruction in order to promote student learning by:

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1. Identifying the benefits and challenges to utilizing specific technologies to address various students learning needs. (FEAP 12, NCTM 6.1, and NSTA 5d)
2. Identifying technologies to address national and state content area standards. (FEAP 12, NCTM 6.1, and NSTA 5d)
3. Evaluating technologies according to essential criteria for the mathematics and science classroom. (FEAP 12, NCTM 6.1, and NSTA 5d)
4. Identifying some of the current issues in mathematics and science instruction that may impact the selection and use of technology. (FEAP 12, NCTM 6.1, and NSTA 5d)

Competency 3: The student will be able to 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. (FEAP 9, 12, NCTM 6.1, and NSTA 5d)
2. Planning and creating instructional environments and activities for mathematics and science that model successful integration strategies. (FEAP 9, 10, 12, NCTM 6.1, and NSTA 5d)
3. Applying key strategies for integrating technology into mathematics and science curricula to foster critical thinking and creative thinking. (FEAP 4 and 12, NCTM 6.1, and NSTA 5d)
4. Collaborating with colleagues and experts to implement effective technology integration strategies. (FEAP 3, 11, 12, NCTM 6.1, and NSTA 5d)
5. Applying traditional and authentic assessment strategies to student applications of technology in mathematics and science. (FEAP 1 and 12, NCTM 6.1, and NSTA 5d)

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