Description: Technology in Mathematics/Science Education

<table>
<thead>
<tr>
<th>Subject</th>
<th>Cat-nbr</th>
<th>Class</th>
<th>Term</th>
<th>Mode</th>
<th>Units</th>
<th>Campus</th>
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<tbody>
<tr>
<td>EDU</td>
<td>5431</td>
<td>66919</td>
<td>2, 2007</td>
<td>WEB</td>
<td>1.00</td>
<td>Toowoomba</td>
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</tbody>
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Academic group: FOEDU
Academic org: FOE003
Student contribution band: National Priority Teaching
ASCED code: 079999

STAFFING
Examiner: John Green
Moderator: Bruce Waldrip

OTHER REQUISITES
State law in Queensland (Australia) requires that all adults working/undertaking professional experience/researching with children under the age of 18, in the state of Queensland are required to possess a current suitability card (Blue Card). (See "Other Requirements" for further information.) Also see: http://www.childcomm.qld.gov.au/employment/bluecard/informationSheets.html

RATIONALE
While the widespread availability of modern computing and networking hardware will indeed be necessary if technology is to realise its promise, the development and utilisation of useful educational software and information resources, along with the adaptation of curricula to make effective use of technology, are likely to represent more formidable challenges.

SYNOPSIS
This course will focus on the potential role of technology in achieving the goals of current educational reform efforts through the use of new pedagogic methods focusing on the development of higher-order reasoning and problem-solving skills. NOTES: 1. This course (EDU5431) is available through INTERNET DELIVERY ONLY. There are NO print materials for this course. 2. For details of the technical requirements and accessing Internet study materials, please consult the following URL: http://usqconnect.usq.edu.au.

OBJECTIVES
The course objectives define the student learning outcomes for a course. The assessment item(s) that may be used to assess student achievement of an objective are shown in parenthesis. On completion of this course students will be able to:

1. understand the differences between science, as investigation, and technology as design;
2. value the impact of technology on themselves and their community;
3. understand the interrelationships of sciences, mathematics and technology;
4. effectively use technological tools to access resources, collect and process data, and facilitate the learning of science and mathematics;
5. effectively use technological tools to simulate mathematical and scientific concepts;
6. effectively use technology as a medium to communicate concepts about science and mathematics;
7. develop creative teaching strategies and resources that incorporate technological media to enhance understanding in science and mathematics;
8. develop an understanding of the materials and systems and the related mathematical and scientific concepts that affect everyday life.

TOPICS

<table>
<thead>
<tr>
<th>Description</th>
<th>Weighting (%)</th>
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<tbody>
<tr>
<td>1. Computer Technology as: An environment for the simulation of any of a wide range of devices and machines; a tool for the symbolic manipulation or graphical display of mathematical functions, equations, and proofs; a facility for the collection, examination and analysis of statistical data</td>
<td>30.00</td>
</tr>
<tr>
<td>2. Computer Technology as: A flexible laboratory instrument supporting the collection of scientific data from various physical sensors; a general or application-specific numerical spreadsheet; a &quot;digital workbench&quot; for the creation of musical, artistic, and other creative works</td>
<td>30.00</td>
</tr>
<tr>
<td>3. Computer Technology as: A &quot;digital workbench&quot; for the creation of musical, artistic, and other creative works; an interactive hypertext encyclopaedia incorporating various forms of multi-media illustrations, and supporting the rapid traversal of cross-reference links OR a medium for communication with teachers, parents, community members, experts, and other students, both locally and over great distances, and for the organization and coordination of group projects</td>
<td>40.00</td>
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TEXT and MATERIALS required to be PURCHASED or ACCESSSED

ALL textbooks and materials are available for purchase from USQ BOOKSHOP (unless otherwise stated). Orders may be placed via secure internet, free fax 1800642453, phone 07 46312742 (within Australia), or mail. Overseas students should fax +61 7 46311743, or phone +61 7 46312742. For costs, further details, and internet ordering, use the 'Textbook Search' facility at http://bookshop.usq.edu.au click 'Semester', then enter your 'Course Code' (no spaces).

REFERENCE MATERIALS

Reference materials are materials that, if accessed by students, may improve their knowledge and understanding of the material in the course and enrich their learning experience.


STUDENT WORKLOAD REQUIREMENTS

<table>
<thead>
<tr>
<th>ACTIVITY</th>
<th>HOURS</th>
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<tbody>
<tr>
<td>Assessment</td>
<td>55.00</td>
</tr>
<tr>
<td>Directed Study</td>
<td>25.00</td>
</tr>
<tr>
<td>Private Study</td>
<td>75.00</td>
</tr>
</tbody>
</table>

ASSESSMENT DETAILS

<table>
<thead>
<tr>
<th>Description</th>
<th>Marks out of</th>
<th>Wtg(%)</th>
<th>Due date</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASSIGNMENT 1</td>
<td>999.00</td>
<td>50.00</td>
<td>24 Jul 2007</td>
</tr>
<tr>
<td>ASSIGNMENT 2</td>
<td>999.00</td>
<td>50.00</td>
<td>24 Jul 2007</td>
</tr>
</tbody>
</table>

NOTES
1. The Examiner will advise the due dates for all assessment items. Letter grades will be used in this course and displayed in the notes section.

IMPORTANT ASSESSMENT INFORMATION

1 Attendance requirements:
There are no attendance requirements for this course. However, it is the students’ responsibility to study all material provided to them or required to be accessed by them to maximise their chance of meeting the objectives of the course and to be informed of course-related activities and administration.

2 Requirements for students to complete each assessment item satisfactorily:
To satisfactorily complete an individual assessment item a student must achieve at least a grade of C-. (Depending upon the requirements in Statement 4 below, students may not have to satisfactorily complete each assessment item to receive a passing grade in this course.)

3 Penalties for late submission of required work:
If students submit required assignments late without the approval of the Examiner, they can expect to be given a Fail grade for the course.

4 Requirements for student to be awarded a passing grade in the course:
To be assured of receiving a passing grade a student must achieve at least 50% of the total weighted marks available for the course.

5 Method used to combine assessment results to attain final grade:
The final grades for students will be assigned on the basis of the weighted aggregate of the grades obtained for each of the summative assessment items in the course.

6 Examination information:
There is no examination in this course.

7 Examination period when Deferred/Supplementary examinations will be held:
There will be no Deferred or Supplementary examinations in this course.

8 University Regulations:
Students should read USQ Regulations 5.1 Definitions, 5.6. Assessment, and 5.10 Academic Misconduct for further information and to avoid actions which might contravene University Regulations. These regulations can be found at the URL http://www.usq.edu.au/corporateservices/calendar/part5.htm.

ASSESSMENT NOTES

1. The due date for an assignment is the date by which a student must despatch the assignment to the USQ. The onus is on the student to provide proof of the despatch date, if requested by the Examiner.

2. Students must retain a copy of each item submitted for assessment. This must be produced within five days if required by the Examiner.

3. The examiner may grant an extension of the due date of an assignment in extenuating circumstances.

4. In the event that a due date for an assignment falls on a local public holiday in their area, the due date for the assignment will be the next day. Students are to note on the assignment the date of the public holiday for the Examiner’s convenience.

5. Students who have undertaken all of the required assessments in a course but who have failed to meet some of the specified objectives of a course within the normally prescribed time may be awarded the temporary grade: IM (Incomplete - Make up). An IM grade will only be awarded when, in the opinion of the examiner, a student will be able to achieve the remaining objectives of the course after a period of non-directed personal study.

6. Students who, for medical, family/personal, or employment-related reasons, are unable to complete an assignment or to sit for an examination at the scheduled time may apply to defer an assessment in a course. Such a request must be accompanied by appropriate supporting documentation. One of the following temporary grades may be awarded IDS (Incomplete - Deferred Examination; IDM (Incomplete Deferred Make-up); IDB (Incomplete - Both Deferred Examination and Deferred Make-up).

7. When there is more than one marker for a single item of assessment, the distributed patterns and means for the different markers will be compared and marks adjusted if necessary.

8. The Faculty will normally only accept assessments that have been written, typed or printed on paper-based media, except for WEB courses.

9. Marking criteria will depend upon the nature of individual projects. Marking criteria are provided in course material as mark sheets/guides or as part of assignment specifications.

10. Student workload requirements are as required for the completion of the study and as negotiated between student and supervisor.

11. All assessment items must be submitted.

12. Summative assessment items will receive a numerical score. The course examiner is responsible for awarding grades

OTHER REQUIREMENTS

1. Students enrolling in WEB courses MUST have ongoing convenient and reliable access to the Internet in order to access course materials and participate in activities that will affect assessment. The levels of equipment required may change from time to time, with the most recent specification listed at http://www.usq.edu.au/currentstudents/computingstandards/default.htm. You can check whether your computer system meets these requirements from USQAssist (http://usqassist.usq.edu.au/).
IMPORTANT NOTE: Working with Children: State law in Queensland requires that all adults (including university students, pre-service educators, trainers, vocational teachers, industry educators) working with children under the age of 18, in the state of Queensland*, obtain approval before commencing such work. Many education courses include a practical component (professional experience, project work, research, assessment etc...) that may require engagement with children under the age of 18. It is your responsibility to ensure that you possess a current suitability card (Blue Card) before commencing any practical components of this course. DO NOT PARTICIPATE IN ANY PRACTICAL EXPERIENCE WITH CHILDREN UNDER 18 UNLESS YOU POSSESS A CURRENT 'BLUE CARD'. For further information: http://www.childcomm.qld.gov.au/employment/bluecard/informationSheets.html. *If you are undertaking practical experience outside the state of Queensland, Australia you should check local requirements.