The University of Southern Queensland

Course Specification

Description: Educational Use of Computers in the Mathematics Classroom

<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>
</tr>
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<tbody>
<tr>
<td>EDU</td>
<td>4222</td>
<td>25268</td>
<td>2, 2003</td>
<td>ONC</td>
<td>1.00</td>
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</table>

Academic Group: FOEDU
Academic Org: FOE002
HECS Band: 1
ASCED Code: 070100

STAFFING
Examiner: John Green
Moderator: Petrea Redmond

RATIONALE
Just as graphing calculators had a major impact on the teaching and learning of mathematics in schools, computers are revolutionising the way mathematical reasoning is conveyed to the typical school learner. Such changes are occurring at a time when pre-service teachers generally reflect on their own mathematics education experiences and question their ability to teach the subject meaningfully. Recent years have seen a growing prominence of software that is specially developed for the use of teachers of school mathematics. When used in appropriate teaching contexts this software has the potential to illuminate a child's conception of mathematical principles in ways previously deemed unimaginable. This elective course serves to strengthen the use of computers as a pedagogical tool and to prepare teachers for the time when all students will have access to computers.

SYNOPSIS
The course serves to advance the pedagogy, theory and quality of teaching and learning in Primary and Middle School mathematics using computing technologies. This will heighten a teacher's appreciation of the pedagogical implications associated with the introduction of computers into the mathematics curriculum. The course is practical in nature involving considerable first hand experiences at assessing, using and evaluating a large variety of mathematics education software. At the same time, it will assist pre-service teachers to grow in their personal, practical theories about teaching mathematics. Throughout the course, links between key mathematical concepts important in the Primary and Middle School mathematics curriculum will be established.

OBJECTIVES
Upon the successful completion of this course students will be able to:
TOPICS

Description Weighting (%)  
1. Research and Evaluation on Teaching Mathematics with Computers 25.00  
2. Teaching "Space" with Computers 15.00  
3. Teaching "Number" with Computers 15.00  
4. Teaching "Measurement" with Computers 15.00  
5. Teaching "Chance and Data" with Computers 15.00  
6. Teaching "Algebra" with Computers 15.00

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.


(for Windows and Macintosh Operating Systems)


**STUDENT WORKLOAD REQUIREMENTS**

<table>
<thead>
<tr>
<th>ACTIVITY</th>
<th>HOURS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Directed Study</td>
<td>70</td>
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<tr>
<td>Private Study</td>
<td>70</td>
</tr>
<tr>
<td>Workshops</td>
<td>24</td>
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**ASSESSMENT DETAILS**

<table>
<thead>
<tr>
<th>Description</th>
<th>Marks Out of</th>
<th>Wtg(%)</th>
<th>Required</th>
<th>Due Date</th>
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<tbody>
<tr>
<td>SEMINAR PRESENTATION &amp; DISCUSS</td>
<td>999.00</td>
<td>60.00</td>
<td>Y</td>
<td>22 Jul 2003</td>
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<td>PORTFOLIO</td>
<td>999.00</td>
<td>40.00</td>
<td>Y</td>
<td>22 Jul 2003</td>
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</table>

**NOTES:**

. Students will be advised by the Course Leader about assignment due dates. Letter grades will be used in this course and will be displayed in the Notes Section.

**IMPORTANT ASSESSMENT INFORMATION**

1 Attendance requirements:
   It is the students' responsibility to attend and participate appropriately in all activities (such as lectures, tutorials, laboratories and practical work) scheduled for them, and 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 complete each of the assessment items satisfactorily, students must obtain at least 50% of the marks available (or at least a grade of C-) for each assessment item.

3 Penalties for late submission of required work:
If students submit assignments after the due date without prior approval then a penalty of 20% of the total marks available for the assignment will apply for each working day late.

4 Requirements for student to be awarded a passing grade in the course:
To be assured of a passing grade, students must demonstrate, via the summative assessment items, that they have achieved the required minimum standards in relation to the objectives of the course by satisfactorily completing all summative assessment items (the examination and assignments).

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 marks (or 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/SECARIAT/calendar/Part5/ or in the printed version of the current USQ Handbook.

ASSESSMENT NOTES

1 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.

2 Marking criteria are provided in course material as mark sheets/guides or as part of assignment specifications.

3 All assessment items must be attempted/submitted and passed.