



The University of Southern Queensland

Course specification

The current and official versions of the course specifications are available on the web at <http://www.usq.edu.au/coursespecification/current>.
Please consult the web for updates that may occur during the year.

Description: Technology in Mathematics/Science Education

Subject	Cat-nbr	Class	Term	Mode	Units	Campus
EDU	5431	90704	2, 2009	WEB	1.00	Toowoomba

Academic group:	FOEDU
Academic org:	FOE003
Student contribution band:	National Priority Teaching
ASCED code:	079999

STAFFING

Examiner: John Green
Moderator: Karen Spence

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 (Assignments 1 and 2)
2. value the impact of technology on themselves and their community (Assignments 1 and 2);
3. understand the interrelationships of sciences, mathematics and technology (Assignments 1 and 2);
4. effectively use technological tools to access resources, collect and process data, and facilitate the learning of science and mathematics (Assignments 1 and 2);

5. effectively use technological tools to simulate mathematical and scientific concepts (Assignments 1 and 2);
6. effectively use technology as a medium to communicate concepts about science and mathematics (Assignments 1 and 2);
7. develop creative teaching strategies and resources that incorporate technological media to enhance understanding in science and mathematics (Assignments 1 and 2);
8. develop an understanding of the materials and systems and the related mathematical and scientific concepts that affect everyday life (Assignments 1 and 2).

TOPICS

Description	Weighting (%)
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	30.00
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 "digital workbench" for the creation of musical, artistic, and other creative works	30.00
3. Computer Technology as: A "digital workbench" 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	40.00

TEXT and MATERIALS required to be PURCHASED or ACCESSED

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.

Whether you are on, or off campus, the USQ Library is an excellent source of information <http://www.usq.edu.au/library/> . The gateway to education resources is here... <http://www.usq.edu.au/library/faculties/education/default.htm>

Jacobsen, MJ & Kozma, RB 2000, *Innovations in science and mathematics education*, Lawrence Erlbaum Associates, Mahwah, NJ.

Tinker, R & Krajick, JS 2001, *Portable technologies: Science learning in context*, Kluwer Publishers, Dordrecht, Netherlands.

STUDENT WORKLOAD REQUIREMENTS

ACTIVITY	HOURS
Assessments	55.00
Directed Study	25.00
Private Study	75.00

ASSESSMENT DETAILS

Description	Marks out of	Wtg (%)	Due date
ASSIGNMENT 1	999.00	50.00	07 Sep 2009 (see note 1)
ASSIGNMENT 2	999.00	50.00	30 Oct 2009

NOTES

1. 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 assignments after the due date without (prior) approval then a penalty of x* Equivalence Points gained by the student for the assignment will apply for each working day late. Note: the x value cannot be greater than 2. *To be advised.
- 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>.

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/>).
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