



The University of Southern Queensland

## Course specification

| <b>Description: Educating the Inquiring Person</b> |         |       |         |      |       |           |
|--|---------|-------|---------|------|-------|-----------|
| Subject  | Cat-nbr | Class | Term    | Mode | Units | Campus    |
| PRT  | 2201    | 41205 | 1, 2005 | ONC  | 2.00  | Toowoomba |

|                                   |                            |
|-----------------------------------|----------------------------|
| <b>Academic group:</b>            | FOEDU                      |
| <b>Academic org:</b>              | FOE002                     |
| <b>Student contribution band:</b> | National Priority Teaching |
| <b>ASCED code:</b>                | 070103                     |

### STAFFING

Examiner: Jerry Maroulis

### RATIONALE

Scientific and technological literacy are important for active citizenship. If schools are to assist learners to become scientifically and technologically literate, confident and competent teachers of science and technology will require more than knowledge of science and technology curriculum content. They will need to be well versed in pedagogical content knowledge, which represents the blending of content and pedagogy into an understanding of how particular topics, problems, or issues are organised, represented, and presented. An understanding of pedagogy related to specific content knowledge in science and technology, and how this might be interpreted to meet the needs of learners, in particular by taking into account their prior views, provides a sound base for effective teaching in these areas. Hence the approach taken in the design of this course is to treat content and pedagogy together. Moreover, students will be encouraged to draw upon their professional experiences to inform their study within the course and, wherever possible, to apply what they learn in this course during concurrent and subsequent professional experiences.

### SYNOPSIS

This course aims to develop pre-service teachers' understanding of relevant content in science and technology in parallel with associated pedagogical content knowledge. Classes will involve the presentation of relevant scientific and technological ideas, together with the identification of ways in which these ideas might be transformed so that they are accessible to children and young adolescents. Students will have opportunities to examine their own ideas about science and technology in the light of accepted knowledge in the field and will apply their understanding to devising ways to assist learners in developing appropriate ideas about science and technology. Problem-solving skills will be highlighted, together with an approach to science and technology that incorporates honesty, open-mindedness and information sharing. The relevant syllabi and other documents will be examined with a view to developing capabilities to interpret the curriculum to meet the needs of children and young adolescents. Students in this course will participate in an associated 15 day professional experience during which they will be encouraged to apply their learning from the course and from which they should be able to bring fresh insights to the course work. **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.

## OBJECTIVES

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

1. Demonstrate knowledge and understanding of the major concepts, principles, theories, laws and interrelationships in the Queensland 1-10 science and technology syllabus documents.
2. Apply knowledge and understanding of how children think and learn about science and technology to planning relevant learning experiences.
3. Apply pedagogical content knowledge to develop and implement learning experiences and assessment methods appropriate to science and technology education.
4. Evaluate, select and utilise resources appropriate to the teaching of science and technology
5. Demonstrate capabilities for applying information and communications technologies to support teaching and learning of science and technology
6. Demonstrate an understanding of the principles of risk management in teaching science and technology safely and effectively.
7. Demonstrate scientific and technological literacies appropriate to the lifeworlds of citizens in the twenty-first century including appreciation of the ethical dimensions
8. Demonstrate the ability to create and interpret multi-modal representations incorporating scientific and technological knowledge
9. Demonstrate ability to apply pedagogical content knowledge in classroom contexts.
10. Demonstrate knowledge, understanding and application of course content using appropriate personal, professional and academic literacies

## TOPICS

|    | Description   | Weighting (%) |
|----|---|---------------|
| 1. | Science and Technology Curriculum: interpreting the science and technology syllabus documents         | 40.00         |
| 2. | Epistemology of inquiring in science and technology   | 10.00         |
| 3. | Pedagogy for inquiry: pedagogical content knowledge; pedagogical knowledge for science and technology | 30.00         |
| 4. | Responsible science and technology education: safety, social and ethical dimensions                   | 5.00          |
| 5. | Planning of learning episodes in a specialist area of the curriculum                                  | 5.00          |

- |    |   |      |
|----|---|------|
| 6. | Planning authentic assessment tasks for inclusive, challenging environments | 5.00 |
| 7. | Implementing cross-curricular priorities                                    | 5.00 |

### **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).

State of Victoria (Department of Education, Employment and Training), 2001, Teachers' online primary science: enhancing teachers' knowledge of science [CD-ROM].

Queensland Studies Authority (QSA), 2005, Years 1-10 science syllabus, [Online], Available: <http://www.qsa.qld.edu.au/yrs1to10/kla/science/index.html> [Access Date: 11 January 2005].

Queensland Studies Authority (QSA), 2005, Years 1-10 technology syllabus, [Online], Available: <http://www.qsa.qld.edu.au/yrs1to10/kla/technology/index.html> [Access Date: 11 January 2005].

Fleer, M & Jane, B 2004, *Technology for children: research-based approaches*, 2nd edn, Pearson Education, Frenchs Forest.

### **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.

Brooks, JG & Brooks MG 2002, *In search of understanding: the case for constructivist classrooms*, Merrill Prentice Hall, Upper Saddle River.

Curriculum Corporation 1998, *Linking the learning areas: technology education*, Curriculum Corporation, Melbourne.

Eggen, PD & Kauchak, DP 2001, *Strategies for teachers: teaching content and thinking skills*, 4th edn, Allyn & Bacon, Boston.

Fleer, M & Hardy, R 2001, *Science for children*, Prentice Hall, Sydney.

Harriman, S 1996, *Design it, make it, appraise it*, Curriculum Corporation, Melbourne.

McLoughlin, K & Wright, B 1994, *Using tools in the classroom: R-7 technology and science*, Department for Education Training and Employment, South Australia.

Paterson, M 1997, *Thematic problem solving using technology and enterprise*, Ready-Ed Publications, Western Australia.

Peters, JM & Gega, PC 2002, *Science in elementary education*, Merrill, Upper Saddle River.

Skamp, R (ed) 2004, *Teaching primary science constructively*, 2nd edn, Thompson Learning, Sydney.

## STUDENT WORKLOAD REQUIREMENTS

| ACTIVITY                | HOURS  |
|-------------------------|--------|
| Assessment              | 40.00  |
| Lectures                | 22.00  |
| Private Study           | 188.00 |
| Professional Experience | 0.01   |
| Tutorials               | 22.00  |
| Workshops               | 22.00  |

## ASSESSMENT DETAILS

| Description                  | Marks out of | Wtg(%) | Due date                    |
|------------------------------|--------------|--------|-----------------------------|
| ASSIGN 1 (DESIGN PROPOSAL)   | 20.00        | 10.00  | 01 Mar 2005<br>(see note 1) |
| ASSIGN 2 (TEACHING RESOURCE) | 40.00        | 40.00  | 01 Mar 2005<br>(see note 2) |
| ASSIGN 3 (APPRAISALS)        | 10.00        | 10.00  | 01 Mar 2005<br>(see note 3) |
| PROFESSIONAL EXPERIENCE      | 1.00         | 0.00   | 01 Mar 2005<br>(see note 4) |
| MICROTEACHING                | 30.00        | 10.00  | 01 Mar 2005<br>(see note 5) |
| 3 HOUR CLOSED EXAMINATION    | 60.00        | 30.00  | END S1<br>(see note 6)      |

### NOTES

1. Students will be advised by the course leader with regards to all assignment due dates. Assignment due in week 5.
2. Assignment due in week 12.
3. Assignment due in week 15.
4. 15 days of Professional Experience must be successfully completed. A value of 1 indicates you have passed the Professional Experience component. Zero indicates you have not passed the Professional Experience component.
5. Students will be advised by the course leader of the dates for the microteaching assessment.
6. Students will be advised of the examination date for this course when the official examination timetable for semester 1 2005 has been finalised.

## 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. In order to be eligible to commence the professional experience placement on the scheduled date, all students must demonstrate appropriate

levels of engagement with course content at scheduled workshops prior to the commencement of the professional experience.

- 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 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 10% of the total marks gained by the student 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 receiving a passing grade a student must achieve at least 50% of the aggregate of the available weighted marks for the summative assessment items and obtain a rating of "successful" for the Professional experience.
- 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 obtained for each of the summative assessment items in the course.
- 6 Examination information:  
In a Closed Examination, candidates are allowed to bring only writing and drawing instruments into the examination.
- 7 Examination period when Deferred/Supplementary examinations will be held:  
Any Deferred or Supplementary examinations for this course will be held during the next examination period.
- 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> or in the current USQ Handbook.

## **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. The student must retain this copy until the grade for this course has been finalised.
- 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, such as a Show holiday, the due date for the assignment will be the next working day. Students are to note on the assignment cover 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.
- 9 Marking criteria are provided in course material as mark sheets/guides or as part of assignment specifications.
- 10 All assessment items must be submitted and passed.
- 11 Summative assessment items will receive a numerical score.
- 12 Students are expected to have successfully engaged in content covered in EDU1010 or a equivalent introductory curriculum and pedagogy course.

## **OTHER REQUIREMENTS**

- 1 Students will require access to e-mail and Internet access to USQConnect for this course.
  - 2 Students are to use a recognised referencing system as specified by the course examiner.
  - 3 Students will be expected to develop their own resources and therefore may incur some minor additional costs.
  - 4 **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:  
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