



The University of Southern Queensland

## Course specification

### Description: Exploring Science and Technology in Early Childhood

Subject	Cat-nbr	Class	Term	Mode	Units	Campus
ECE	2017	35238	2, 2004	ONC	1.00	TWMBA

<b>Academic group:</b>	FOEDU
<b>Academic org:</b>	FOE004
<b>Student contribution band:</b>	1
<b>ASCED code:</b>	070101

### STAFFING

Examiner: Lyn Bower

Moderator: Noel Geoghegan

### RATIONALE

Fleer and Hardy (1996) suggest that children's early experiences with science-related concepts and materials are vital for the development of values and attitudes in science and technology. Early science learning and exploration covers the areas of cognitive, conative and affective development. Therefore, educators and parents play an important part as role models by supporting and guiding the development of positive attitudes in the early years and creating imaginative and challenging environments for learning. With increasing technology and availability of information it is also essential for early childhood educators to have the necessary skills to make appropriate choices and informed decisions to develop children's thinking skills and abilities.

### SYNOPSIS

This course will examine the importance of developing children's creativity, curiosity, problem solving skills and sense of wonder and appreciation of the environment, in the exploration of science and technology. The course will focus on different approaches to teaching science and the development of positive attitudes for life long learning while taking into account children's cultural and diverse backgrounds. It aims to develop student's creativity, problem solving and analytical skills and their passion for science and technology.

### OBJECTIVES

On completion of this course students will be able to:

1. demonstrate creative and problem-solving skills in their approach to science and technology;
2. discuss the value of hands-on experiences for children in science activities;

3. explain a number of approaches to teaching science;
4. demonstrate how to listen effectively and respond to children's questions;
5. demonstrate essential questioning techniques to further extend children's knowledge of science and technology;
6. select, organise and present suitable materials for science experiences for young children;
7. demonstrate the ability to develop children's appreciation of the natural environment;
8. demonstrate some knowledge of science content and an ability to effectively access such knowledge through a variety of sources including web-based materials;
9. develop an enthusiastic scientific attitude and an understanding of developing positive attitudes in young children;
10. analyse curriculum documents and appropriate assessment methods;
11. discuss the importance and impact of culture, values and diversity;
12. use written communication effectively and appropriately;
13. write clearly, grammatically correctly and with accurate spelling and punctuation.

## TOPICS

	Description	Weighting (%)
1.	Learning and teaching styles	5.00
2.	Creative problem solving	15.00
3.	Listening and responding to young children's questions and effective questioning	10.00
4.	Approaches to teaching science in ECE	15.00
5.	Environmental science in early childhood - teaching appreciation and developing a sense of wonder	10.00
6.	Technology in early childhood	15.00
7.	Cultural and diverse backgrounds	5.00
8.	Using web-based materials	10.00
9.	Curriculum documents and other resources	5.00
10.	Using resources - community and parents	10.00

## 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).

Book of readings

## 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.

1998, , *Every Child*, Vol 4, no.4.

(Special Edition - Environment Australia Summer 1998)

Benson, C 1999, *Teaching Science and Design and Technology in the Early Years*, David Fulton, London.

De Vries, R et al 2002, *Developing Constructivist Early Childhood Curriculum: Practical Principles and Activities*, Teachers College Press, New York.

Elliott, S & Emmett, S 1991, *Snails Live in Houses Too: Environmental Education for the Early Years*, Horwitz Grahame Pty Ltd, Cammeray.

Fleer, M 2001, *I Want to know...?: Learning About Science*, Australian Early Childhood Association, Watson, ACT.

Fleer, M & Hardy, T 2001, *Science for Children: Developing a Personal Approach to Teaching*, 2nd edn, Prentice Hall, Sydney.

Harlan, J & Rivkin, M 2000, *Science Experiences for the Early Childhood Years: An Integrated Approach*, 7th edn, Prentice Hall, USA.

Hooper, D 1999, *Integrating Technology into the Science Curriculum*, Hawker Brownlow Education, Australia.

Johnston, J 1999, *Enriching Early Scientific Learning*, Open University Press, Buckingham, Philadelphia.

Koch, J 1999, *Science Stories: Teachers and Children as Science Learners*, Houghton Mifflin Company, Boston.

Rockwell, R, Williams, R & Sherwood, E 1992, *Everybody has a Body: Science from Head to Toe*, Gryphon House, Mt Rainer.

Siraj-Blatchford, J 1999, *Supporting Science, Design and Technology in the Early Years*, Open University Press, Buckingham, Philadelphia.

## STUDENT WORKLOAD REQUIREMENTS:

ACTIVITY	HOURS
Assignments	50.00
Directed Study	25.00
Lectures	13.00
Online Discussion Groups	10.00
Private Study	40.00
Tutorial	26.00

## ASSESSMENT DETAILS

Description	Marks out of	Wtg(%)	Due date
ASSIGNMENT 1	999.00	50.00	30 Aug 2004 (see note 1)
ASSIGNMENT 2	999.00	50.00	25 Oct 2004

### NOTES:

1. 999 indicates that this course will be graded using one of the following letter grades: HD, A, B, C, F, or Incomplete. Plus and minus may be used with each of these letter grades.

## 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. Students should demonstrate a professional attitude and commitment by attendance at and participation in at least 80% of scheduled classes.
- 2 Requirements for students to complete each assessment item satisfactorily:  
To complete each of the assignments satisfactorily, students must obtain at least at least a grade of C- for each assignment. To complete each of the assessment items satisfactorily, students must demonstrate their ability to write clearly, grammatically correctly and with accurate spelling and punctuation.
- 3 Penalties for late submission of required work:  
If assignments are submitted after the due date without an approved extension of time, University penalties may be applied.
- 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: (i) satisfactorily completing the examination and assignments; and (ii) obtaining at least a C grade of the total weighted marks available for all summative assessment items.
- 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/corporateservices/calendar/part5.htm> or in the current USQ Handbook.

### **ASSESSMENT NOTES**

- 1 Students must retain a copy of each item submitted for assessment. This must be produced within 24 hours if required by the Examiner. (c) The examiner may grant an extension of the due date of an assignment in extenuating circumstances. (e) The Faculty will NOT accept submission of assignments by facsimile.