PROPOSAL TO REVISE A COURSE

(formerly known as subject)

1. COURSE DETAILS

1.1 Course ID

COMP3241 (Comp9245)

1.2 Course name - Long Real-Time Systems: Specification, Design and Implementation

1.3 Course name - Abbreviated

Real-Time Systems

1.4 Course Authority Dr. Stefan M. Petters ext/email 57346/smp@cse.unsw.edu.au

1.5 Organisational Unit responsible for course

School/Department: AOU Code: School of Computer Science and Engineering COMPSC

1.6 Revision of Course Summary Checklist

Indicate the type of revision proposed by checking the appropriate box(es).

to change the course name or number: CURRENT COURSE ID/NAME NEW COURSE ID/NAME					
Х	to amend the Handbook description	no requisite	to vary the pre-requisites or co- es		
no	to vary the contact hours	no	to vary the unit of credit value		
no eg. dista	to offer the course by alternative means ance education.	no	Other (specify)		

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1.7 Justification of Proposal

The existing course description is a number of years old and needs to be brought up to date with best practice in the field. The course ELEC3041, which has a similar title, is not appropriate for Computer Engineering, Software Engineering or Computer Science students (other than those with Telecommunications or Electrical Engineering minor), as it overlaps very significantly with COMP3231/COMP9201. Furthermore ELEC3041 has a strong focus on Control Engineering.

1.8 Consultation Process

Which other interested parties, including other academic units, students and visiting committees, have been consulted on this proposal? Provide further details under sections 2.3 and 2.4 and attach any copies of correspondence.

- Course developed in consultation with NICTA.
- Consultation with Dr. Ray Eaton of EE, regarding contents of ELEC3041 resulted in agreement that there is very little overlap between COMP3241/9245 and ELEC3041 and targets different audiences.

1.9	Units of credits	Session/s offered	Hours Per Week
	6UoC	Session 1	5 HpW

1.10 **Pre-requisites:**

(COMP3231 or COMP9201) and (COMP3111 or COMP9008 or COMP2110 or COMP2111)

Co-requisites: -Exclusions: -

1.11 Current Entry in the Faculty Handbook, with Proposed Revision Clearly Indicated <u>or</u> Proposed Entry in the Faculty Handbook (including course description)

System taxonomy. Time and causality. Characteristics of real-time systems and their environment. Structured design techniques overview: Real-time Structured Analysis and Design (RTSAD); Design Approach for Real-Time Systems (DARTS); Real-Time Object Oriented Design techniques such as HRT-HOOD. Real-time systems design such as real-time UML; model driven and software architectures; software and requirements engineering for real-time systems; temporal reflection. Performance analysis: worst case execution time analysis; scheduling tasks (rate montonic, generalised rate, slack scheduling); timed trace analysis;. reliability analysis and fault tolerance. Risk assessment and minimisation. Famous faults and disasters. Time triggered architectures and approaches. Real-time languages and language Extensions. Real-time communication. From design to implementation: use of real-time development system and associated language. Design project using a structured design technique and a development environment. example projects include: gas-burner control system, automated teller machine, mine control system, rail control or automotive cruise control.

- 1.12 Is this course replacing an existing course?
 - Give previous course ID and name
- NO X (modifi cation)

YES

1.13 Undergraduate / Postgraduate / Other-

(delete what is not applicable)

1.14 Core / Elective (delete one)

1.15 Program stage

Indicate the program stage in which the course is usually taken. Stage 3 or 4 for undergraduates, subject to prerequisites anytime for postgraduates, subject to prerequisites.

1.16 Program/s in which course is be available

3645 BE Computer Engineering, 3647 BE Bioinformatics, 3648 BE Software Engineering, 3978 BSc Computer Science, plus combined courses that include one of these, and 5432 GradDip CompIT, 8682 MCompIT, 7344 GradCert IT, 8684 MIT, 2665 ME, 2765 MSc, and 1650 PhD.

1.17 Proposed teaching methods and assessment practices

examinable (formal)

1.18 Assessment grades to be used

full range of grades

1.19 Mode of delivery

Internal X

External

Other (specify)

1.20 Information Technology Requirements for students

Standard resources available in school

1.21 Textbooks

Provide full details of all set and recommended textbooks in accordance with textbook list guidelines Text:

Burns, Alan & Wellings, Andrew: Real-Time Systems and Programming Languages (3rd ed), Addison Wesley, 2001

Recommended and background reading:

Douglass, Bruce, Powell: Real-Time UML (3rd ed), Addison Wesley, 2004

Halbwachs, Nicolas: Synchronous Programming of Reactive Systems, Kluwer Academic Publishers, 1993

Berry, Gerard: The Esterel v5 Language Primer, Ecole des Mines and INRIA, 1999,

ftp://ftp-sop.inria.fr/meije/esterel/papers/primer.pdf

Kopetz, Hermann: Real-time Systems : Design Principles for Distributed Embedded Applications, Kluwer Academic Publishers, 1997

State of the art papers, which will be provided on the course web page.

1.22 Industrial experience component

N/A

2. **RESOURCE STATEMENT**

2.1 Enrolments

Estimated or proposed enrolments for the next three years.

2005	40
2006	40
2007	40

2.2Additional Resource Requirements Resulting from Revision

Staffing Requirements:

Hours per week

3 Full-time Academic Staff to be taught by NICTA conjoints, with a small amount of assistance from A/Prof. Arcot Sowmya, with her contribution amounting to at most 10% of the lecture contact)

- 1 Part-time Teaching Staff: 1 hour of tutorial duties per 20 students enrolled
- 0 General Staff

Field Costs:	N/A
Studio/Laboratory Requirements:	N/A
Materials Requirements:	N/A
Equipment Costs:	N/A
Computing Requirements:	Standard for CSE courses, and already available
Library Requirements:	Standard textbook requirements for a course of this size
Capital funds Requirements:	N/A

2.3 Servicing Implications:

Will service teaching be provided or has been in the past and will it no longer be provided, by another department/school? NO.

2.4 Teaching Arrangements:

(i) Will other units contribute on a regular basis to the teaching of this course?

YES

NO

(ii) If so, which units are involved and what proportion of the course will they teach?

2.5 Alternative Delivery Arrangements:

Х

N/A

2.6 Multi-mode Delivery Guidelines

N/A

2.7 Details of Tuition Fees:

Standard fees for an Engineering course of this type.

Proposed fee:

- \$ for non-award enrolment (local)
- \$ for non-award enrolment (international)
- \$ for course which forms part of full fee-paying course (local)
- \$ for course which forms part of full fee-paying course (international)

3. AUTHORISATION

3.1 University Librarian's Endorsement

Note: this section of the Proposal must be signed by a Library representative, stating:

I have examined the Library needs related to the above proposal and certify that existing Library holdings, staffing, services and accommodation are adequate / inadequate (delete one) to cover the demands that are inherent in it.

Appropriate arrangements for the use of digitised material to support this course have been made by the Course Authority with the University Librarian.

Further Comments:

University Librarian / /2004

3.2 Head of School's Approval

Note: this section of the Proposal must be signed by the Head of School, stating:

I have examined the resource implications of the above proposal in regard to staff, space, materials, equipment, capital funds, and computing, and certify that the School can cover the demands that are inherent in it.

Further Comments:

Head of School / /2004

3.3 Dean's Approval

Note: this section of the Proposal must be signed by the Dean, stating:

I have examined the resource implications of the above proposal in regard to staff, space, materials, equipment, capital funds, and computing, and certify that:

(Tick whichever is applicable)

3.3.1 (i) the proposal involves no additional resources. (A statement from the Head of

School explaining how this can be achieved must be provided); or

- the proposal involves additional resources and it is proposed to redeploy existing resources within the faculty. (A statement from the Head of School explaining how this will be achieved must be provided); or
- (iii) the proposal involves additional resources to be obtained as set out below; or
- (iv) the additional resources essential to bring the proposal into effect cannot be found within resources available to the faculty.
- 3.2.2 **Fees** (delete if not applicable):
 - a fee will not be charged for this program (other than HECS)
 - a fee will be charged for this program for local fee-paying students
 - a fee will be charged for international students

If a fee is to be charged the Dean certifies as follows:

I have ensured that the Vice-Chancellor has been advised of the proposed fee arrangements, and note that approval of fee arrangements is needed before the new program can be implemented.

3.3.3 the proposal conforms to the University's commitment to Equal Opportunity in Education.

Statement from Head of School on Source of Additional Resources and/or Further Comments:

Dean

/ /2004