MTRN4010 Advanced Autonomous Systems

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Course Outline

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UNSW aspires to develop graduates who are rigorous scholars, capable of leadership and professional practice in a global community. The university has, thus, articulated the following Graduate Attributes as desired learning outcomes for ALL UNSW students.

UNSW graduates will be

1.   Scholars who are:
    (a)   understanding of their discipline in its interdisciplinary context   9
    (b)   capable of independent and collaborative enquiry   9
    (c)   rigorous in their analysis, critique, and reflection   9
    (d)   able to apply their knowledge and skills to solving problems   9
    (e)   ethical practitioners
    (f)   capable of effective communication

(iii)   learning and teaching strategies; and
(iv)   assessment strategies.

3.   TEACHING STRATEGIES

Lectures in the course are designed to provide a rich theory about the concepts taught. In addition, a number of examples will be presented as well, in order to illustrate the significance of the theory. For most classes lecture notes will be available on-line and beforehand. Students are encouraged to ask questions during the classes.
Problem solving classes and projects are designed to provide the student with the practical aspects of the concepts presented in the lectures. Students have the opportunity to test their implementations working with real data, provided by complex robotic platforms.

4.   ASSESSMENT

General

You will be assessed by way of assignments and a final examination.

The composition of the total mark will be as follows:

Final Examination	50%(*)
Assignments/Projects (total)	50%(*)
Total	**100%**

(*) In order to pass the subject, the total mark must be not less than 50%. Additionally,   45/100 and the total mark of the practical component not less than 50/100. Both components need to be passed. Passing just one component   , even if the total mark is 50% or higher.

All marks (tasks, projects, exam) will be always individually expressed in scale [0:100].

Assignments

Electronic copies of the assignments and projects will be available on the Moodle website. The list of assignments and related deadlines are expressed in the table of projects and problem solving classes.

Weeks 3,4,5   Study of Bayesian Estimation   Sensor Data Fusion. Gaussian Estimators: Kalman Filter

Task03   5%
Project01   42%
Project02   42%

This schedule may be subject to change at short notice, to suit exigencies.

(*):   During approximately 5 minutes, the student shows
his/her implementation (usually a program) and explains results. The evaluator
(demonstrator/lecturer) may ask questions about concepts and details related to the
project.

                             e, where the student may be asked to
answer more questio