The University of Southern Queensland

Course specification

Description: Mechanical Practice 4

<table>
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<tr>
<th>Subject</th>
<th>Cat-nbr</th>
<th>Class</th>
<th>Term</th>
<th>Mode</th>
<th>Units</th>
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Academic group: FOENS
Academic org: FOES02
Student contribution band: 2
ASCED code: 030799

STAFFING
Examiner: Ruth Mossad
Moderator: Bob Fulcher

RATIONALE
The successful practice of the profession of Mechanical Engineering requires a clear understanding of the relationship between engineering and engineering practice. An ability to recognise when a particular theory is applicable and an ability to accommodate the deviations from the theory that occur in the real world is essential. Some knowledge of a wide range of practical techniques, proprietary devices, materials, construction methods etc is also necessary. The engineer must be able to assess a complex situation, identify the critical elements and develop a workable, cost effective solution. All of this requires considerable self-confidence, and the ability to work with and lead teams.

SYNOPSIS
This course aims at providing you with practical skills needed in many industrial processes. It is designed to teach you the different ways of measuring velocity of a fluid (gas or liquid), forces due to fluids and temperature of a fluid or a solid. You will learn to estimate flow rates and head losses in fluid systems, and heat flux in thermal systems. The course is designed to help you review some of the basis of fluid mechanics and heat transfer as well as validate and relate these to practical situations.

OBJECTIVES
On completion of this course, students should be able to:

1. conduct tests in accord with a general requirement;
2. measure a variety of engineering quantities of an importance to many engineering processes such as pressure, velocity, temperature, forces, flow rate etc;
3. report on and discuss your findings;
4. participate constructively in and lead a team.

TOPICS

<table>
<thead>
<tr>
<th>Description</th>
<th>Weighting (%)</th>
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<tbody>
<tr>
<td>Liquid flow rate measurements</td>
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<tr>
<td>Measuring forces due to the flow of fluids</td>
<td>10.00</td>
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<td>Flow rate of gases and forces due to the flow of gases over bodies</td>
<td>25.00</td>
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<tr>
<td>Head losses in straight pipes and fittings</td>
<td>25.00</td>
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<tr>
<td>Measuring temperature and estimate heat flux</td>
<td>25.00</td>
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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.

Esposito, A. 1998, *Fluid Mechanics with Applications*, Prentice Hall,
(International Edition)

(S1 Version)


STUDENT WORKLOAD REQUIREMENTS:

<table>
<thead>
<tr>
<th>ACTIVITY</th>
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<td>Classes</td>
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<td>Private Study</td>
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ASSESSMENT DETAILS

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<tr>
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<th>Wtg(%)</th>
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<td>TASK 4</td>
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<tr>
<td>TASK 5</td>
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<td>20 Jul 2004</td>
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NOTES:
1. Each assessment must be completed within one week after conducting the experiment.

IMPORTANT ASSESSMENT INFORMATION

1 Attendance requirements:
   This course requires attendance at a residential school. 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.

2 Requirements for students to complete each assessment item satisfactorily:
   To complete the practical component satisfactorily, students must submit, by the due date, a practical report which meets the requirements of the assessment scheme.

3 Penalties for late submission of required work:
   Practical reports submitted after the due date will not be assessed.

4 Requirements for student to be awarded a passing grade in the course:
   To be assured of receiving a passing grade students must complete at least 80% of the practical and other activities at a satisfactory standard, as stated in 2 above.

5 Method used to combine assessment results to attain final grade:
   As P is the only passing grade available for this course, all students who are qualified for a passing grade, under the requirements in 4 above, will be given a grade of P. Other students will be given either a Failing grade or an Incomplete grade.
6 Examination information:
   There is no examination in this course.
7 Examination period when Deferred/Supplementary examinations will be held:
   Not applicable.
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
   despatched to USQ within 24 hours if required by the Examiner.
3 In accordance with University's Assignment Extension Policy (Regulation 5.6.1),
   the examiner of a course may grant an extension of the due date of an assignment
   in extenuating circumstances.
4 The Faculty will normally only accept assessments that have been written, typed
   or printed on paper-based media.
5 The Faculty will NOT accept submission of assignments by facsimile.
6 Students who do not have regular access to postal services or who are otherwise
   disadvantaged by these regulations may be given special consideration. They should
   contact the examiner of the course to negotiate such special arrangements.
7 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 day.
   Students are to note on the assignment cover the date of the public holiday for the
   Examiner's convenience.
8 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.
9 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).