**Description: Mechanical Practice 4**

<table>
<thead>
<tr>
<th>Subject</th>
<th>Cat-Nbr</th>
<th>Class</th>
<th>Term</th>
<th>Mode</th>
<th>Units</th>
<th>Campus</th>
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<tr>
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<td>3904</td>
<td>14657</td>
<td>2, 2002</td>
<td>ONC</td>
<td>0.00</td>
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**Academic Group:** FOENS  
**Academic Org:** FOES02  
**HECS 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 and heat flux. 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:

- conduct tests in accord with a general requirement;  
- measure a variety of engineering quantities of an importance to many engineering processes;  
- estimate the uncertainty in measuring the characteristics of fluid and gas flows;  
- participate constructively in and lead a team.
TOPICS

Description | Weighting (%) |
-------------|--------------|
1. Liquid flow rate measurements | 15.00 |
2. Measuring forces due to the flow of fluids | 10.00 |
3. Flow rate of gases and forces due to the flow of gases over bodies | 25.00 |
4. Head losses in straight pipes and fittings | 25.00 |
5. Measuring temperature heat and flux | 25.00 |

TEXT and MATERIALS required to be PURCHASED or ACCESSED:

Books can be ordered by fax or telephone. For costs and further details use the 'Book Search' facility at http://bookshop.usq.edu.au by entering the author or title of the text.

*MEC3904 Mechanical Practice 4 External Study Package*, USQ Publication,

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.


STUDENT WORKLOAD REQUIREMENTS

<table>
<thead>
<tr>
<th>ACTIVITY</th>
<th>HOURS</th>
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<tbody>
<tr>
<td>Directed Study</td>
<td>5</td>
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<tr>
<td>Laboratory or Practical Classes</td>
<td>20</td>
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<td>Private Study</td>
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ASSESSMENT DETAILS

<table>
<thead>
<tr>
<th>Description</th>
<th>Marks Out of</th>
<th>Wtg(%)</th>
<th>Required</th>
<th>Due Date</th>
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<td>INDIVIDUAL SKILLS COMPETENCY</td>
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<td>Y</td>
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<td>GROUP SKILLS COMPETENCY</td>
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OTHER REQUIREMENTS

1. This course may require attendance at a residential school.
2. Attendance and satisfactory performance in a minimum of 80% of practical and/or residential school sessions is compulsory for a passing grade to be awarded in this course.
3. The only final grades awarded in this course are Pass (P) or Fail (F) grades.
4. A minimum standard of communication skills must be demonstrated in order for a passing grade to be achieved.
5. The due date for an assignment is the date by which a student must submit the assignment to the USQ. The onus is on the student to provide proof of the submit date, if requested by the Examiner.
6. Students must retain a copy of each item submitted for assessment. This must be produced within five days if required by the Examiner.
7. 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.
8. If students submit assignments after the due date without prior approval then a penalty of up to 20% of the total marks for the assignment will apply for each working day late.
9. 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.
10. The Faculty of Engineering and Surveying will NOT accept submission of hand written or typed assignments by facsimile, e-mail or computer diskette. Students in remote locations who do not have regular access to postal services may be given special consideration.
11. 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.
12. 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; IDSM (Incomplete Deferred Examination and Make-up).