Course Outline

MATS6004
Materials Industry Management
Materials Science and Engineering
Science
T2, 2019
1. Staff

<table>
<thead>
<tr>
<th>Position</th>
<th>Name</th>
<th>Email</th>
<th>Consultation times and locations</th>
<th>Contact Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Course Convenor</td>
<td>Dr Owen Standard</td>
<td><a href="mailto:o.standard@unsw.edu.au">o.standard@unsw.edu.au</a></td>
<td>Room 243, School of Materials Science and Engineering (Building E10), by appointment</td>
<td>Phone: 9385 4437</td>
</tr>
</tbody>
</table>

External Presenters

- TBA, UNSW Careers & Employment
- TBA, Professionals Australia
- TBA, Autodesk (Aust)
- Professor Craig Freedman, formerly Aust. School of Business UNSW and Macquarie Uni.
- To Be Advised, MCIC Foundations, UNSW Division of Enterprise

2. Course information

Units of credit: 6
Pre-requisite(s): None
Timetabling website: TBA

Teaching times and locations:

<table>
<thead>
<tr>
<th>Day</th>
<th>Lecture</th>
<th>Lecture</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Location</td>
<td>Location</td>
</tr>
<tr>
<td></td>
<td>Colombo Theatre A</td>
<td>Electrical Engineering G22</td>
</tr>
<tr>
<td>Monday</td>
<td>11:00-14:00</td>
<td>11:00-13:00</td>
</tr>
<tr>
<td>Weeks</td>
<td>1, 3-11</td>
<td>1-10</td>
</tr>
</tbody>
</table>

2.1 Course summary

This course covers selected topics in management skills for the materials industry. Students will understand the basic elements of management including project planning, financial tools, strategic analysis and professional ethics.
2.2 Course aims
To provide students with a working knowledge of selected important management and business issues they will encounter in the materials engineering and chemical engineering workplace, as well as the ability to:

- Identify and specify key features pertaining to career development and professional issues for engineering graduates.
- Apply strategic business analysis principles to engineering business situations.
- Develop understanding of economic principles and application of these to real business situations.
- Undertake project management and risk management
- Understand innovation and commercialisation principles and identify opportunities for product development.

2.3 Course learning outcomes (CLO)
At the successful completion of this course you (the student) should be able to:

1. Gain an understanding of the basic concepts of project planning and management
2. Have an understanding of how apply financial management skills to the materials industry
3. Have an understanding of the application of professional ethics in the materials industry
4. Understand the economic drivers in the materials processing industry
5. Demonstrate competency in strategic business analysis

2.4 Relationship between course and program learning outcomes and assessments

<table>
<thead>
<tr>
<th>Course Learning Outcome (CLO)</th>
<th>LO Statement</th>
<th>Program Learning Outcome (PLO)</th>
<th>Related Tasks &amp; Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>CLO 1</td>
<td>Gain an…</td>
<td>1 &amp; 3</td>
<td>2, 3 &amp; 4</td>
</tr>
<tr>
<td>CLO 2</td>
<td>Have an…</td>
<td>3</td>
<td>2, 3 &amp; 4</td>
</tr>
<tr>
<td>CLO 3</td>
<td>Have an…</td>
<td>3</td>
<td>1, 2, 3 &amp; 4</td>
</tr>
<tr>
<td>CLO 4</td>
<td>Understand…</td>
<td>3</td>
<td>2, 3 &amp; 4</td>
</tr>
<tr>
<td>CLO 5</td>
<td>Demonstrate…</td>
<td>1, 4 &amp; 5</td>
<td>1, 2, 3 &amp; 4</td>
</tr>
</tbody>
</table>
3. Strategies and approaches to learning

3.1 Learning and teaching activities

(Based on UNSW Learning Guidelines)

- **Students are actively engaged in the learning process.**

It is expected that, in addition to attending classes, students will read, write, discuss, and engage in analysing the course content.

- **Effective learning is supported by a climate of inquiry where students feel appropriately challenged.**

Students are expected to be challenged by the course content and to challenge their own preconceptions, knowledge, and understanding by questioning information, concepts, and approaches during class and study.

- **Learning is more effective when students’ prior experience and knowledge are recognised and built on.**

Coursework, tutorials, assignments, laboratories, examinations, and other forms of learning and assessment are intended to provide students with the opportunity to cross-reference these activities in a meaningful way with their own experience and knowledge.

- **Students become more engaged in the learning process if they can see the relevance of their studies to professional and disciplinary contexts**

The course content is designed to incorporate both theoretical and practical concepts, where the latter is intended to be applicable to real-world situations and contexts.

**Lectures:** The core concepts will be taught in lectures, students will have access to the lectures notes before class for annotation during the lecture. Students will be engaged in the learning process through class discussions and problem-solving questions independently and working together with partners and groups.

3.2 Expectations of students

- Students must attend at least 80% of all classes with the expectation that students only miss classes due to illness or unforeseen circumstances
- Students must read through lecture notes and lab sheets prior to class
- During class, students are expected to engage actively in class discussions
- Students should work through lecture, tutorial and textbook questions
- Students should read through the relevant chapters of the prescribed textbook.
- Students should complete all assessment tasks and submit them on time.
- Students are expected to participate in online discussions through the Moodle page
4. Course schedule and structure

This course consists of 40 hours of class contact hours. You are expected to take an additional 110 hours of non-class contact hours to complete assessments, readings and exam preparation spread over the term.

<table>
<thead>
<tr>
<th>Week</th>
<th>Topics</th>
<th>Activity</th>
</tr>
</thead>
</table>
| 1    | Course Introduction and Objectives  
      | Career Development – Cover Letter and Resume  
      | Engineering Competencies | Management Research Topic (10%) |
| 2    | Career Development – Interview Process  
      | Professional Issues for Students and Graduates  
      | Career Perspectives and Innovation & Commercialisation |  |
| 3    | Strategic Entrepreneurship – Business Viability Principles  
      | Strategic Entrepreneurship – Business Practices | Business Case – Pt 1  
      | Lean Canvas Development (25%) |
| 4    | Strategic Entrepreneurship – Business Practices  
      | Economics and Accounting |  |
| 5    | Economics and Accounting  
      | Risk Management | Business Case – Pt 2  
      | Complete Case and Pitch (25%) |
| 6    | Risk Management  
      | Project Management | Risk Assessment (15%) |
| 7    | Project Management | Project management plan (25%) |
| 8    | Strategic Entrepreneurship – Business Leadership |  |
| 9    | Technical Management and Graduate Attributes |  |
| 10   | Business Case Assignment Project Group Work | Business Case – Pt 2  
      | Complete Case and Pitch (25%) |

*Schedule subject to change depending upon availability of external presenters*
## 5. Assessment

### 5.1 Assessment tasks

<table>
<thead>
<tr>
<th>Assessment task</th>
<th>Description</th>
<th>Weight</th>
<th>Due date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Management Research Topic (Individual work)</td>
<td>Students are to research a selected management topic (from a list of topics provided by course coordinator) and to prepare a detailed research report outlining the management theory underlying the topic and to evaluate current practices employed by management. For the latter, students will be expected to contact at least one company to conduct an interview to survey their current practices. Topics and details of the assessment requirements are provided separately.</td>
<td>10%</td>
<td>End of Week 3</td>
</tr>
<tr>
<td>Business Case – (Groups of 5 max.)</td>
<td><strong>Part 1- Lean Canvas Development:</strong> A selection of business scenarios/problems will be provided (students can also suggest their own for approval by course coordinator). Each group should choose one scenario and conduct any business analyses you consider appropriate to identify the viability of such an operation. This will include statement of the problem, potential solutions, unique value proposition, target customers/markets, cost structure etc. You should make and justify a recommendation (either to proceed or not proceed). Your analyses should draw conclusions of the viability of the operation in the context of the Australian market. Specific details of the assessment task will be provided separately.</td>
<td>25% (group mark)</td>
<td>End of Week 5</td>
</tr>
<tr>
<td>Risk Assessment (Individual Work Only)</td>
<td><strong>Pt 2 Complete Case and Pitch:</strong> For the lean canvas developed in Business Case – Pt 1, students will develop this into a coherent written business case and prepare a group video to present their work. The Business Case Assignment and Pitch is intended to utilise any/all aspects of the course material and serves to integrate understanding of the course content. Specific details of the assessment task will be provided separately.</td>
<td>25% (Individual mark)</td>
<td>End of Week 10</td>
</tr>
<tr>
<td>Project Management Plan (Groups of 5 max.)</td>
<td>For the business scenario/problem in the Lean Canvas Business Case you are required to identify the various risks to it and their causes, perform a risk analysis to determine the risk rating (consequence x likelihood), and finally recommend control measures/treatments to reduce the risks to acceptable levels. Specific details of the assessment task will be provided separately.</td>
<td>15%</td>
<td>End of Week 7</td>
</tr>
<tr>
<td></td>
<td>For the business scenario/problem in the Lean Canvas Business Case you develop a detailed project management plan for its implementation. Specific details of the assessment task will be provided separately. Specific details of the assessment task will be provided separately.</td>
<td>25%</td>
<td>End of Week 8</td>
</tr>
</tbody>
</table>
Further information
UNSW grading system: https://student.unsw.edu.au/grades
UNSW assessment policy: https://student.unsw.edu.au/assessment

5.2 Assessment criteria and standards
Assessment criteria and standards for each assessment tasks are available on the course Moodle page.

5.3 Submission of assessment tasks

- UNSW operates under a Fit to Sit/Submit rule for all assessments. If a student wishes to submit an application for special consideration for an exam or assessment, the application must be submitted prior to the start of the exam or before an assessment is submitted. If a student sits the exam/ submits an assignment, they are declaring themselves well enough to do so. Information on this process can be found here: https://student.unsw.edu.au/special-consideration. Medical certificates or other appropriate documents must be included. Students should also advise the lecturer of the situation.
- Unless otherwise specified in the task criteria, all assignments must be uploaded via Moodle prior to the due date for submission.
- Assignments/lab reports submitted after the due date for submission will receive a 10% of maximum grade penalty for every day late, or part thereof.
- Students who have a disability that requires some adjustment in their teaching or learning environment are encouraged to discuss their study needs with the course coordinator prior to, or at the commencement of, their course, or with the Equity Officer (Disability) in the Equity and Diversity Unit: https://student.unsw.edu.au/disability. Early notification is essential to enable any necessary adjustments to be made.
- Rules governing conduct during exams are given at: https://student.unsw.edu.au/exam-rules

5.4. Feedback on assessment
Marks and feedback for the Management Research Topic, Strategic Business Analysis Assignment, and Project Management Plan will be provided within 2 weeks after submission of each assessment task. Marks and feedback on the Business Case Assignment will be provided at the same time as the UNSW release of Semester course marks.

6. Academic integrity, referencing and plagiarism

Referencing system: Harvard, please see the following site for details of the referencing system: https://student.unsw.edu.au/harvard-referencing

Referencing is a way of acknowledging the sources of information that you use to research your assignments. You need to provide a reference whenever you draw on someone else's words, ideas or research. Not referencing other people's work can constitute plagiarism.

Further information about referencing styles can be located at https://student.unsw.edu.au/referencing

Academic integrity is fundamental to success at university. Academic integrity can be defined as a commitment to six fundamental values in academic pursuits: honesty, trust, fairness, respect,
At UNSW, this means that your work must be your own, and others’ ideas should be appropriately acknowledged. If you don’t follow these rules, plagiarism may be detected in your work.

Further information about academic integrity and plagiarism can be located at:

- The Current Students site https://student.unsw.edu.au/plagiarism, and
- The ELISE training site http://subjectguides.library.unsw.edu.au/elise/presenting

The Conduct and Integrity Unit provides further resources to assist you to understand your conduct obligations as a student: https://student.unsw.edu.au/conduct.

7. Readings and resources

- Articles selected by specific topic from the following serials:
  - M.J. Baker and Susan J. Hart, Marketing and Competitive Success, P. Allan, New York, 1989

8. Administrative matters

School Office: Room 137, Building E10 School of Materials Science and Engineering
School Website: http://www.materials.unsw.edu.au/
Faculty Office: Robert Webster Building, Room 128
Faculty Website: http://www.science.unsw.edu.au/

9. Additional support for students

- The Current Students Gateway: https://student.unsw.edu.au/
- Academic Skills and Support: https://student.unsw.edu.au/academic-skills
- Student Wellbeing, Health and Safety: https://student.unsw.edu.au/wellbeing
- Disability Support Services: https://student.unsw.edu.au/disability-services
- UNSW IT Service Centre: https://www.it.unsw.edu.au/students/index.html
- Special Consideration: https://student.unsw.edu.au/special-consideration