

# ENGG 5204

## Professional Practice in Engineering Management

Lecturers

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and

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# Why Professional Practice?

Because all engineers must be professional

Which means:

- trustworthy
- knowledgeable and competent
- accredited
- self-regulated
- ethical

# What skills does an engineer need?

Besides good technical skills? - 9Cs

- Common-sense
- Creativity
- Communication
- Collaboration (teamwork)
- Commitment (project management)
- Caring (inter-personal skills)
- Command (leadership)
- Cost aware (economic literacy)
- Future orientation

# Engineers Australia Stage 1 Competencies

Stage 1 competency is the level of preparation necessary and adequate for entry to practice. A person who is Stage 1 competent has:

- a thorough understanding of the body of engineering knowledge relevant to their occupational category;
- the ability to apply this knowledge to representative problems and situations, typical of the responsibilities of practitioners in that category; and
- the attributes and skills necessary to function as a professional, and the intellectual skills to test and continually extend their knowledge through lifelong learning in formal and informal contexts.

# CORE UNITS OF COMPETENCY AND ASSOCIATED ELEMENTS

## Engineering Practice

- C1.1 Presents and develops a professional image
- C1.2 Pursues continuing professional development
- C1.3 Integrates engineering with other professional input
- C1.4 Develops engineering solutions
- C1.5 Identifies constraints on potential engineering solutions

## Engineering Planning and Design

- C2.1 Interprets and scopes design requirements
- C2.2 Prepares concept proposal and seeks advice on latest technology
- C2.3 Implements planning and design process
- C2.4 Reviews the design to achieve acceptance
- C2.5 Prepares and maintains documentation during the design process
- C2.6 Validates design

## Self Management in the Engineering Workplace

- C3.1 Manages self
- C3.2 Works effectively with people
- C3.3 Facilitates and capitalizes on change and innovation
- C3.4 Plans and manages work priorities and resources
- C3.5 Maintains customer focus and relationships with clients/stakeholders/suppliers / regulators
- C3.6 Manages information

# Engineers Australia Competence Requirements for Engineering Executive

## **Leadership**

- 1 Leadership
- 2 Strategic Direction and Entrepreneurship

## **Management**

- 3 Planning
- 4 Change and Improvement
- 5 Customer Focus
- 6 Processes, Products and Services
- 7 People/Human Resources

## **Business**

- 8 Supplier Relationships
- 9 Information
- 10 Finance, Accounting and Administration

# Course Objectives

- An introduction to the various elements of engineering practice
- An understanding of the role of the engineer in industry
- Basic knowledge of the law of contracts and legal responsibility
- Teamwork and leadership skills
- An understanding of the professional responsibilities of engineers
- Competence in verbal communication and presentations
- Competence in reading and writing reports
- An understanding of ethical considerations.

# Course Structure

- Weeks 1-3 - Fundamentals of Professional Engineering Practice
- Weeks 4-5, 7 – Project Management
- Weeks 8-10 - Legal Concepts and Practice
- Weeks 11-13 – Professional, Ethical and Environmental Challenges

# The ENGG5204 Learning Process

- Lectures – introduction to concepts
- Lecturers with a wide range of skills and practical experience
- Demonstration exercises
- A professional engineering project
- Project teams

# Assessment Tasks

1. Group presentation on a professional engineering practice issue - Week 4
2. Group project focusing on a specific case study solution + research – Week 8
3. Application of legal study to engineering related real life case study (Group Project) – Week 11
4. Major Group Report on a major professional engineering practice issue – Week 13

# Group Presentation - Week 4

- Week 2 - Team formation  
- Topic selection
  1. The Queensland Government Water Recycling Strategy
  2. The Chatswood-Epping Rail Link
  3. The Beijing Water Cube
  4. A topic of your choice, to be approved
- Week 4 - Presentation

# Major Group Project - Week 13

- Week 3 – Introduction to major project
- Week 4 – Submission of topic proposal
- Week 13 – Submission of report

# Your ENGG5204 Resources

- Coordinator and lecturers
- Course Outline
- Textbooks – see Course Outline
- Course website -
- Library
- Your team
- You, you, you

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# Other Key Matters

- Submission of Assignments  
Letterbox – Room 246, Link Building  
4pm on due date
- Attendance
- Library Tutorials
- Academic Honesty
- Group Operations

# Engineering in History

The background of the slide is a deep blue gradient. On the left side, there is a bright, glowing light source that creates a shimmering, rippling effect across the surface, resembling water reflecting sunlight. The overall atmosphere is serene and expansive.