AMME Undergraduate Thesis/Project topics 2016
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INNOVATION

The study of innovation involves developing and sustaining new technologies and organisational forms and practices to create competitive advantage and/or economic, social, environmental improvement.

Topics will be finalised in consultation with the student and can be selected from the following areas:

- Leadership and the development of engineering managers - the development of managers as leaders to enhance organizational effectiveness is crucial in times of change. This topic will involve students understanding the theory of leadership and its practical application in engineering management.

- Management of organisational change - the need to maintain competitiveness means that change is the organisational norm. This topic will investigate the factors and conditions that impact on change in strategy, operations or projects that allow managers to innovate and make more effective choices.

- ‘Digital disruption’, the development of smart technologies and their impacts – a new stage of technology development with advanced computing and mechatronics is rapidly advancing. The potential for industrial, organisational and social change will be investigated along with the nature of specific engineering associated with these developments.

- Space engineering and technology development – Recent discussions on space flights to Mars have reignited debate on the costs and benefits of space engineering. This topic will investigate the nature and potential of wider industrial and technological innovation as a result of Space engineering R&D.
- Organisational learning and knowledge management - this topic will examine the readiness of engineer managers to undertake the management of learning and knowledge in organisations, leading to a better understanding of the factors necessary to generate effective organisational outcomes.

- Human resource development - career development for C21 professionals will mean inevitable job and career changes. This topic will investigate the development of engineering careers, organisational career planning and the personal and skill development necessary for the development of successful careers.

- Management of industrial research, innovation and technology development - Competitiveness through new technology and product development is a cornerstone of business success. This topic will examine the factors that lead to success (and failure) in the technology/product development process.

- Gender equity/women in engineering - This topic will examine the factors necessary for women to enjoy successful careers in engineering, the factors that inhibit this, and the implications for organisational competitiveness and Australian society.

- Humanitarian Engineering- The Nature and Development of Humanitarian Engineering within the Engineering profession will be examined to discover the challenges and benefits for both engineers and/or recipients of humanitarian development assistance.

- Engineering Education#1 - the promotion of Mechanical, Mechatronic and Aeronautical Engineering in schools - This topic will involve investigating the relevance of the HSC’s “Engineering Studies” curriculum as a precursor to Engineering at University, and whether the Aeromech degree program successfully builds on this prior learning. It will also include how Aeromech can support Engineering Studies in an attempt to encourage more students to consider future careers in engineering.

- Engineering Education#2 – This topic will seek to examine the extent to which ideas of humanitarian engineering and social justice are utilised in Aeromech curriculum and teaching, and how these ideas are, or could be, utilised to enhance student learning and development of graduate attributes.

- Attitudes to professional engineering - This topic will examine the origins and the development of perceptions and understandings as to what
comprises professional engineering practice and its appropriateness to both individuals and society.