



# **National Committee on Applied Mechanics**

## **STRATEGIC PLAN 2008-2012**

### **Preamble**

The successful development and functionality of any product involves a number of carefully considered steps: including analysis of the static and dynamic loading on the product; selection of appropriate geometry, material and manufacturing processes; development of methods for monitoring, maintaining and improving the performance of the product through its lifecycle; and finally, recycling or safe disposal of the product. Applied Mechanics encompasses the mathematical modelling and physical formulation of these steps. It is a wide-ranging discipline, covering areas as diverse as the design of a chair, the rolling process for steel plate, the flight dynamics of an aeroplane, or the functionality of a hearing aid. New concepts and technologies are the result of Applied Mechanics solutions that have been developed for each of the challenges that arises. Applied Mechanics is an essential part of engineering theory and practice, without which the products and lifestyle that most of us enjoy today would not exist. Future challenges for this world require Applied Mechanics solutions and the technical advantages that result from these solutions are all encompassing for improved conditions for all concerned.

### **1 Introduction**

Applied Mechanics is a key enabling discipline that underpins progress across a diverse range of industry sectors. The role of the National Committee on Applied Mechanics (NCAM), within the purview of the Mechanical College of Engineers Australia (EA), is to ensure that new developments in this field are widely disseminated, and that any issues arising from or affecting these developments are identified and addressed.

The field of Applied Mechanics is very broad, and NCAM deliberately restricts its attention to those areas *not* already covered by some other specialised discipline or practice group within EA. Current areas of interest include:

- Machine Dynamics and Vibration
- Manufacturing Processes and Technology
- Structural Mechanics and Materials
- Frontier Technologies
- Applied Mechanics Education

This list is reviewed periodically and updated to encompass emerging areas of interest.

## 2 Vision

To enable Australia to be a world leader in the knowledge and use of Applied Mechanics for the benefit of Australian industry and technology.

## 3 Mission

To promote and foster education, training, research and development in the field of Applied Mechanics.

## 4 Key Objectives and Strategy

The following key objectives have been identified to achieve this mission:

### 4.1 Provide suitable forums for practitioners of Applied Mechanics to share and update their skills and knowledge.

#### *Strategy*

- Oversee and support the organisation of the triennial Australian Congress on Applied Mechanics (ACAM).
- Initiate and/or support continuing professional development (CPD) programs in strategic areas, through postgraduate courses, workshops, seminars and conferences.
- Invite eminent researchers, under the auspices of the Mechanical College of EA, to present their work at special seminars across Australia.
- Develop local networks by encouraging practitioners, from both industry and research groups, to present their work at EA technical sessions.

### 4.2 Promote and foster research and development in the field of Applied Mechanics.

#### *Strategy*

- Identify and support areas aligned with the **National Research Priorities**.
- Identify emerging areas of interest and promote them through dedicated workshops and special sessions at ACAM.
- Recommend and support the formation of National Panels within EA for significant new areas in Applied Mechanics.
- Coordinate special issues of the Australian Journal of Mechanical Engineering to promote new work in the field of Applied Mechanics.
- Assist postgraduate students to present their work at ACAM.
- Facilitate transitioning of research and development to industry.

### 4.3 Recognise and promote excellence in Applied Mechanics.

#### *Strategy*

- Nominate outstanding candidates for the A. G. M. Michell award.
- Identify and nominate suitable candidates for other EA and national awards, e.g. Australia Day honours.
- Present an award for Best Student Paper/Poster at ACAM.
- Publicise achievements in Applied Mechanics to the engineering profession and the community at large.

### 4.4 Support and monitor Applied Mechanics education, especially at the tertiary level.

#### *Strategy*

- Identify issues affecting Applied Mechanics education and develop strategies to address these issues.

- Participate in reviews of engineering education conducted by EA.
- Produce submissions through EA for Government inquiries on education as appropriate.
- Recognise good teaching practice by presenting an award for Innovation in Teaching of Applied Mechanics at ACAM.

**4.5 Represent the field of Applied Mechanics** within EA and also within the community at large.

*Strategy*

- Contribute to standards, policy and review documents prepared by EA.
- Produce submissions on Government policy and review documents.
- Liaise with national bodies such as the National Academies and the Australian Research Council to promote the interests and visibility of Applied Mechanics.
- Encourage informed debate on public issues that relate to Applied Mechanics.

**4.6 Collaborate closely with other groups** with overlapping areas of interest.

*Strategy*

- Liaise with specialised discipline or practice groups within EA that come under the general field of Applied Mechanics.
- Liaise with the corresponding National Committee in the Australian Academy of Science.
- Network with existing Research Centres involving Applied Mechanics and play an active role in the preparation of funding applications for new Centres.
- Network with international bodies that represent Applied Mechanics (e.g. IUTAM).

## **5 Implementation Plan and Review**

NCAM will develop a rolling three-year plan that identifies areas of particular focus for the intermediate future as specific short-term goals. Each goal will focus on one or more of the key objectives given in Section 4 above. The plan will also provide a mechanism by which the Committee can evaluate its progress.

NCAM will review and update the rolling three-year plan early every calendar year.