

IDMEC/IST
Institute of Mechanical Engineering
Instituto Superior Technico, Lisbon

Report on
Research Groups
Mechanical Design, IDMEC/IST
Aerospace Science & Technology (CCTAE/IST)

and Research Lines
Aeronautics and Space

by
The Scientific Advisory Council Member

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Review Report on
Mechanical Design and Aerospace Science and Technology
(IDMEC/IST and CCTAE/IST)

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Introduction

Professor J. N. Reddy is the member of the Scientific Advisory Council that is responsible for the evaluation of the *research groups* in Mechanical Design in IDMEC and Aerospace Science and Technology in CCTAE and *research lines* in Aeronautics and Space. Professor Reddy visited the centre during 16-18 of June 2008 and February 14-17, 2009. On February 16, Professor Rodrigues organized presentations of the Centre's research activities by members of the two groups to Professor Reddy. Professor Reddy also visited IDMEC/IST on July 17. This report is largely based on the summary of the activities provided and the presentations made to Professor Reddy.

General Comments on Research Groups

1. *Mechanical Design* (Coordinator: Prof. Carlos Mota Soares)
2. *Aerospace Science and Technology* (Coordinator: Prof. Braga da Costa Campos).

From the presentations made to Prof. Reddy it was clear that the quality of research is **excellent**. The projects are well-balanced between basic research to engineering applications. The productivity of the two groups is very high, with Group 1 showing exceptional productivity compared to Research Group 2. The faculty members involved in Group 1 should be commended for their research productivity in the form of number of Ph.D. students advised, number of journal papers published, number of research projects undertaken, and the national and international conferences organized. Group 2 consists of people with experience in aeronautics, flight dynamics, and space science. The group is in the final stages of assembly of six-degree-of-freedom flight simulator. The group is assessed as very good in terms of projects carried out, papers published, students graduated, and organization of conferences.

General Comments on Research Lines

1. *Aeronautics* (Coordinator: Prof. Afzal Suleman)
2. *Space* (Coordinator: Prof. Braga Campos).

The aeronautics research line is doing **exceptionally** well in its mission by conducting state-of-the art research in multifunctional materials, structural health monitoring, advanced composite materials, and multidisciplinary optimization (to name a few significant areas). The space research line is small but doing **very good** by carrying out research magnetohydrodynamics, earth ionosphere, and earth terrestrial systems.

Recommendations

1. The two researches lines of “Aeronautics” and “Space” should be combined into one research line called “Aeronautics and Space” because of their intimate relationship and activities.
2. To create 3 new research lines in the Associative Laboratory Framework in order to include better the Mechanical Design, Manufacturing and Engineering Systems activities.
3. To admit within LAETA, the Research Unit of Aeronautics and Space of University of Beira Interior as a Research Group, from January 2010.
4. To organize the Research Group of Experimental Mechanics and New Materials and New Technologies and Advanced Manufacturing Processes as one Research Group.