MONDAY, AUGUST 25, 2003, P.M.

SESSION 9: INTERNATIONAL SYMPOSIUM ON FUTURE EDUCATION NEEDS AND DELIVERY STRATEGIES FOR THE METALS AND MATERIALS SECTOR

Sponsor: Management in Metallurgy Section, The Metallurgical Society of CIM
Room: Port Hardy
Chairman: R.A.L. DREW, McGill University, Montréal, Québec, Canada

PAPER 9.1 — 14:00
THE INTRODUCTORY MATERIALS SCIENCE AND ENGINEERING COURSE.
W.D. CALLISTER, University of Utah, Salt Lake City, Utah, U.S.A.

This paper will discuss a number of issues that pertain to the introductory materials science and engineering course taught at the university/college level. Topics to be addressed include the following: (1) the "typical" introductory course; (2) generating student interest; (3) providing relevance to topic discussions; (4) dealing with the breadth versus width dilemma; (5) traditional (i.e., "metals first") versus integrated organizational approaches; (6) topic coverage decisions; (7) summaries of successful approaches used by seasoned faculty; (8) available computer/web resources; and (9) textbook issues.

PAPER 9.2 — 14:25
MATERIALS EDUCATION IN THE UK — PART OF A NATIONAL DISCIPLINARY NETWORK.
C. BAILLIE, UK Centre for Materials Education and Imperial College, London, United Kingdom

This paper will discuss a national UK model for distributed education development and the implications on higher education in the UK of the disciplinary aspect of the Higher Education Funding Council's Teaching and Learning Enhancement fund. In this session, the latest developments in the growing materials education community will be considered, especially in the light of diminishing numbers of departments dedicated to materials. This national disciplinary network provides a dynamic arena for materials lecturers to discuss issues concerning student learning based on discipline based pedagogic research. Academics, who usually only meet to discuss research, are finding new reasons to talk to each other. They are inspired by the very diversity of universities that are involved. Through various schemes, including a teaching development grant program, workshops and several large national collaborative development projects, lecturers are able to share ideas and concerns about student numbers. The network aims for national solutions focussed on collaboration and community, rather than competition and fragmentation.

PAPER 9.3 — 14:50
U.S. ABET ENGINEERING CRITERIA 2000 — PHILOSOPHY AND INITIAL IMPLEMENTATION ISSUES.
C.J. VAN TYNE, Department of Metallurgical and Materials Engineering, Colorado School of Mines, Golden, Colorado, U.S.A.

In 1997, the Engineering Accreditation Commission (EAC) of the Accrediting Board for Engineering and Technology (ABET) in the United States approved a new approach to the accrediting process for engineering programs. The new approach has been called Engineering Criteria 2000 (EC2000). After a four-year transition period, where schools could choose which criteria (old criteria or EC2000) for the evaluation of their programs, the use of the new criteria became mandatory for all engineering programs seeking accreditation in 2001. The presentation will highlight some of the philosophical changes that are imbedded within EC2000. A review of several examples, both positive and negative, will be used to illustrate how several engineering programs have approached the new accreditation process. A brief review of generic weaknesses found in programs not achieving full accreditation during the first two years of implementation will also be presented.

COFFEE BREAK 15:15 – 15:30

PAPER 9.4 — 15:30
APPLICATION OF TECHNOLOGY TO TEACHING LARGE CLASSES IN MATERIALS ENGINEERING.
D. WILKINSON and N. PROVATAS, Department of Materials Science and Engineering, McMaster University, Hamilton, Ontario, Canada

Currently, an introductory materials course is taught to about 450 second year students at McMaster. Starting in January 2004, this course will move to first year with an enrolment of 800. Classes of this size present a special challenge to small departments with limited resources. In addition, introductory materials courses are often plagued by the need to focus on fundamentals while making clear connections to the real world. These issues are being addressed in part through the application of various learning technologies and large-class interaction strategies. These include: extensive use of PowerPoint presentations; extensive use of in-class demonstrations; active learning segments in each lecture; web-based homework; and applications-oriented tutorials. Recent experience and future plans in each of these areas will be presented.

PAPER 9.5 — 15:55
THE FUTURE OF CANADIAN METALLURGY.
W.M.G. BACON, Primary Metals Technology, Inco, Mississauga, Ontario, Canada
(Abstract not available at press time.)

PAPER 9.6 — 16:20
CURRICULUM DEVELOPMENT FOR MATERIALS ENGINEERING AT THE UNIVERSITY OF ALBERTA.
R. EADIE, D. IVEY and T. ETSELL, Chemical and Materials Engineering, University of Alberta, Edmonton, Alberta, Canada

There have been significant changes in this program during the past twenty years. These changes have been driven by the following factors, which will be discussed: Rise in importance of non-metallic materials; Increase in student numbers; Structural changes in the Faculty of Engineering; Introduction of Co-operative Education program; Influence and feedback from local industries that hire most of our engineers; Trends in North America to five courses per term in engineering; and Directive to increase the design component in engineering education. Some consideration will be presented as to the future development of the program.

PANEL DISCUSSION (ONE HOUR): "FUTURE NEEDS AND CHALLENGES IN METALS AND MATERIALS ENGINEERING EDUCATION."
Animators: R.A.L. DREW, McGill University, Montreal, Quebec, Canada, and
D.G DIXON, The University of British Columbia, Vancouver, British Columbia, Canada