

New Course Offering for Engineers

POE372 - Science, Technology, Politics, Society and the Environment

Engineers normally take HIE289 or a suitable substitute in the fall term of their fourth year. This is a new half-credit course which meets the Canadian Engineering Accreditation Board learning objectives:

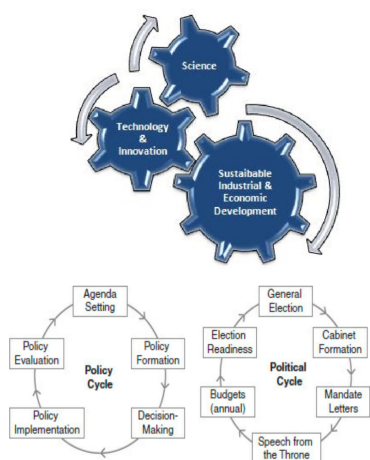
“An ability to analyze social and environmental aspects of engineering activities. Such ability includes an understanding of the interactions that engineering has with the economic, social, health, safety, legal, and cultural aspects of society, the uncertainties in the prediction of such interactions; and the concepts of sustainable design and development and environmental stewardship.”¹

POE372 - Science, Technology, Politics, Society and the Environment (0.5 credit)

“This course introduces Science and Technology Studies (STS) and the ways in which STS researchers study how social, political, cultural, and material conditions shape scientific work and how science, in turn, shapes society. On the one hand, this course explores how methodological and substantive innovations from science and technology invigorate diverse social sciences and humanities disciplines. On the other hand, the course investigates the multiple effects of science and technology on global environmental change, particularly in terms of water and energy resources and sustainable development.” (RMC Calendar. 2-0-4. Two contact hours and four study hours per week for a 13-week semester).

The course will be offered online in conjunction with a full-credit course for social sciences and humanities students. Engineering students are free to audit the weekly seminars or complete additional work for the full credit.

POE372 draws on research and publications supporting the Institutional Policy Studies stream of the Joint Command and Staff Program offered to mid-career officers at the Canadian Forces College. It consists of four modules with online video lectures, interactive questionnaires, and quizzes. Evaluation is by short-answer quiz and open-book exam.



The course begins by exploring foundational concepts: science and technology; politics and public policy; environment and society; and growth and development. The course is then divided into four modules of three weeks each.

Models and Tools. Module 1 equips students with descriptive models to understand government and policy development, and analytical tools to explore Canada’s innovation strategies and policy decision-making processes in Ottawa.

¹ Canadian Engineering Accreditation Board, *A Guide to Outcomes Based Criteria for Visiting Team Chairs and Program Visitors*, Version 1.25, March 2015, p. 23.

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Environment and Growth. Module 2 considers science, technology, and the problem of growth—balancing population, resources and technology. We consider the contributions of the carbon economy since the industrial revolution, the anticipated costs of climate change, and alternative future scenarios for policy makers. This is relevant to broader problems of *international security*: climate, environment, and sustainability on a global scale.



Society and Employment. Module 3 addresses the impact of science and technology on society. Robotics and artificial intelligence are having a growing impact on employment, and new techniques of surveillance through electronic devices and the internet of things are having an impact on society and democracy. National policy on investment and markets affects the concentration and acceleration of technology. Canada's trade and industry policies have sought to foster innovation and benefit from investment, from the Glassco Commission to recent efforts to limit foreign influence and control. This is relevant to broader problems of *human security* and individual empowerment in globalized markets with precarious employment.



Procurement and Defence. Module 4 turns to science, technology, and defence procurement. We consider the impact of the national shipbuilding strategy on Canada's industrial infrastructure. Choice of the next generation fighter aircraft affects Canadian industries' capacity for innovation. The course finishes with strategies for the cunning cubicle warriors of Ottawa's procurement process. This is relevant to *national security*, with political, economic, and social dimensions.



Associate Professor David Last served 30 years in the Canadian Army and has been teaching at RMC since 2000 in the Department of Political Science and Economics. He has also taught in the International Affairs and Institutional Policy Studies streams of the Joint Command and Staff Program (JCSP) at the Canadian Forces College in Toronto.