

Guidelines for Teaching Modules funded by Minerva Canada

INTRODUCTION

Minerva Safety Management Education encourages and sponsors the research and publication of engineering and business student Teaching Modules that can be incorporated into the curriculum of Business and Engineering Schools in Canada.

Minerva Canada initiated its “Bridging the Gap” project in 2012 where it identified gaps in Health and Safety(H&S) education in the engineering curriculum based on what industry needed from new graduates they hired as well as what Minerva saw needed from new student attribute requirements from the Canadian Engineering Accreditation Board. Under a partnership agreement with Mitacs Canada, Minerva undertook to develop 19 engineering student teaching modules developed by a graduate student under the supervision of an engineering professor and with company support providing subject matter expertise on the topic. Three further modules were developed outside this partnership arrangement leaving Minerva with a total of 22 modules and which are all expected to be completed by 2016. A total of 14 different Canadian universities and colleges were involved in this Minerva project and approximately half the modules are currently on the Minerva website.

Although each module was designed to be 1-3 hours in classroom, e-learning teaching duration, there are some modules on the website that can be broken up into several classroom discussions. Each module will provide the fundamentals of the engineering, science associated with the topic, the hazard and risk topics associated the subject matter, an introduction to best practices and a testing element. Each module is a contained topic, which is relatively small in nature. The Minerva modules were started to address gaps in the engineering school curriculum. Minerva is currently working on a project to address the gaps on H&S education in Business schools although several of these modules can be easily integrated into Business courses.

TOPIC FOCUS

Teaching Modules should focus on Health and Safety topics that can support and be integrated into existing courses within Business and Engineering Schools. Any topics that are lightly covered in classes, do not exist in the curriculum or are not among Minerva’s current list of Teaching Modules would also be ideal candidates for new Teaching Module topics.

TEACHING MODULE CONTENT

Each module will define the following:

- The learning objectives and outcomes and module structure. Structure should follow the format currently found in the Risk Management module on Minerva’s website.

- Importance of the subject matter to the graduate Engineering or Business School student.
- The fundamental theory, existing literature information, material and some historical perspective on the subject matter.
- The practical applications of the subject matter and its theory used within industry.
- Safety issues and problems experienced within industry and risk mitigating measures put in place.
- Lessons learned from past events leading to new technologies,
- Procedures, systems, etc.
- Challenges and opportunities for industry
- Project assignments and reading reference material
- An exam, test, multiple choice quiz, etc. to test if learning objectives were met at the end of each module. Backup instructor notes and answers to exam questions will be provided in a separate document, power point slides. These will be included in a password protected segment of Minerva's website.

FUNDING APPLICATIONS:

Requests for funding of developing student Teaching Modules should be e-mailed to Minerva Canada (minerva@safetymanagementeducation.com). A Minerva Working Committee will review the submission and make recommendations to the Minerva Board. Funding provided for Teaching Modules is currently in the \$6,000-\$10,000 range. The format of Teaching Modules should be consistent with those found on the Minerva website (For examples of Teaching Modules go to www.safetymanagementeducation.com and click on Teaching Resources and Teaching Modules). Applicants can be professors teaching in Canadian universities and colleges or graduate student under the supervision of a professor.

Requests should include:

- The topic selected for the Teaching Module
- The proposed author(s), university/college and a detailed account of how the Teaching Module can be employed in future teaching venues within Business and/or Engineering Schools (e.g.

mandatory core courses to maximize student exposure to SHE management principles. Reasons for selecting the Teaching Module topic should be outlined.

- The name of the organization that will be working with the author(s) to provide subject matter expertise, pertinent data on the topic, etc.
- A proposed budget and work plan with milestones and timelines.
- Anticipated duration to deliver the Teaching Module in class.

If the proposal is approved, a contract will be signed between the professor/student and Minerva. Included in the terms shall be 2 or 3 progress payments. A DRAFT version of the Module shall be submitted to the Minerva Committee for review and approval of any progress payment(s). A FINAL version shall be submitted for review and approval before the final progress payment and publication. A one-page summary of the Teaching Module shall be provided with the Final version detailing possible areas in the curriculum where it can be used (e.g. Risk Management, Change Management, Labour Relation, etc.)

It is a condition of Minerva sponsorship that each Teaching Module is the shared property of Minerva Safety Management Education Inc. and the university, college preparing the Module. All Modules will be placed on Minerva's website. The Minerva Canada Teaching Modules found on its website are for educational purposes and can be reproduced free of charge without the permission of Minerva Canada. They can also be used or referenced in any periodicals, research papers or textbooks used for educational purposes. They cannot be distributed, sold for commercial purposes or modified without the express permission of Minerva Canada.