

curriculum. As the business community continues to embrace these technologies it is imperative that business schools determine the role of these tools and applications in the classroom. In preparing students for the future it has become

necessary to evaluate new technologies and their role in educating students who will be competitive in the global marketplace.

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## Symposiums

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# Technology and Globalization: A Critical Teaching and Learning Initiative for Business and the MBA

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*"No new business is worth starting in these times unless it can go global." - Richard Branson, Virgin Empire*

*"The world is being turned into a digital representation. Distance means nothing if you have a digital infrastructure. Anything digital is borderless. You cannot put obstacles in the way of digital technology flowing everywhere." Andy Grove, Intel Corp. Chairman.*

*"Globalization 3.0 is shrinking the world from a size small to a size tiny and flattening the playing field at the same time. ... the thing that gives it its unique character - is the newfound power for individuals to collaborate and compete globally" - The World is Flat, Thomas L. Friedman, pg 10*

The "common body of knowledge" which widely characterizes curricula of Schools and Colleges of Business today dates back to the 1930s—a functional grouping of courses attempting to mirror the major functions of the enterprise: finance, operations, marketing, accounting. Coupled with the obligatory Organizational Behavior and Strategy courses, these subject areas remain the focus of MBA programs across the country today (Kurhana et al, 2005).

Even a casual review of other professional curricula (medicine, law, for example) suggests that maintaining the same theoretical perspective for almost 80 years would be a dereliction. Changes in medical and surgical practices, revolutionary court decisions and precedents—no patient or legal client would accept professional services from an individual whose understanding of his or her profession dated back 80 years! No medical or law school would take pride in offering such a program of study.

Similarly, few business leaders would agree that the practices (and indeed, the very functions) of business are the same as they were in 1930. Occasionally, an institution has the insight to identify emergent areas which—though outside the traditional functional areas—have an impact so profound as to demand curricular attention. In that light, the E. Phillip Saunders College of Business at Rochester Institute of Technology, having adopted a mission statement focused on globalization and technology, invited the authors to develop an innovative (and collaborative) seminar titled "Technology and Globalization."

At RIT, the seminar is offered in a team-based, fully integrated, action-learning approach. This means that faculty serve as designers and developers of the learn-

ers' experience and the students learn through active engagement with a series of progressively more complex projects or problems.

### WHY AN INTEGRATED APPROACH?

In a (1994) *Harvard Business Review* dialogue, management theorists and business educators express the need for integration of functional disciplines: "Certainly we must continue teaching the basic functions of business, but in a context that produces an understanding of the interdependencies of organizational functions" (Louis Lataif, Dean of the School of Management at Boston University, p. 128). "Let's stop pretending to train non-managers to be managers through detached case studies and disconnected theories" (Henry Mintzberg, Professor of Management, McGill University, Montreal, p. 129).

### HOW DOES IT WORK INSTRUCTIONALLY?

Underlying theory. Pedagogically, the model springs from theoretical literature on problem-based learning which emerges from a Constructivist philosophical view of how one comes to understand. Savery and Duffy (1994, pp. 1-2) characterize the view in terms of three propositions:

1. Understanding is in our interactions with the environment. (We cannot talk about what is learned separately from how it is learned.)
2. Cognitive conflict or puzzlement is the stimulus for learning and determines the organization and nature of what is learned. (The learner has a purpose for being here.)
3. Knowledge evolves through social negotiation and through the evaluation of the viability of individual understandings. (Other people are the greatest source of alternative views to challenge our current views and hence to serve as the source of puzzlement that stimulates new learning.)

Savery and Duffy also offer a set of relevant instructional principles:

1. Anchor all learning activities to a larger task or problem.
2. Support the learner in developing ownership for the overall problem or task.
3. Design an authentic task.
4. Design the task and the learning environment to reflect the complexity of the environment they should be able to function in at the end of the learning.
5. Give the learner ownership of the process used to develop a solution.

6. Design the learning environment to support and challenge the learner's thinking.
7. Encourage testing ideas against alternative views and alternative contexts.
8. Provide opportunity for and support reflection on both the content learned and the learning process.

The co-developers of the course felt strongly that the incredible speed of change in the two fields under examination required such an approach for many reasons, but, perhaps most importantly, helping learners to master not the facts of technology or international business, but rather, the capacity to continuously learn and update competence in these areas.

#### WHAT WILL HAPPEN AT THE SYMPOSIUM?

Symposium presenters consist of the co-authors of this seminar who have offered it a total of six times to date. After a brief introduction to the symposium's approach, participants will be invited to generate timely topics and concerns related to the two subject areas. A facilitated discussion will encourage participants to explore existing and potential synergies between the two most powerful forces in business today. Based on their research with business and industry and on their teaching experiences, the co-presenters will offer suggestions for learning challenges that participants will be able to apply in academic or training and development settings. Participants who request them will receive course materials and a summary of the symposium's key points.

This symposium is uniquely suited to IRMA's topic this year. Practical, timely, and appropriate for information managers and academicians as well, its outcomes should help participants to crystallize related issues for their home organizations.

# Experiences in Implementing a Network Engineering Technology Curricula

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#### ABSTRACT

*The purpose of this symposium is to share faculty experiences in the successful development of a laboratory-based Network Engineering Technology (NET) program. The symposium will include information on individual courses, the curricula as a whole, facilities required, and experiences in working toward accreditation from CAC/ABET. The symposium will present the individual elements of the lab-based curriculum architected around a network overview diagram that illustrates the infrastructure used to facilitate lab integration amongst the courses.*

#### INTRODUCTION

The focus of the Network Engineering Technology (NET) program is to create highly competent network engineers and administrators. Course materials are reinforced with tightly integrated lecture content and laboratory experiences. Supporting lecture material with laboratory exercises produces an active learning environment where "students must engage in such higher-order thinking tasks as analysis, synthesis, and evaluation", which aids in retention and understanding of material (Bonwell 1991). The NET program further reinforces the relationship between lecture and laboratory at the curriculum-level by utilizing course-based laboratory projects as pieces of the overarching network infrastructure. Collectively, these course-based lab projects combine to provide students with an education and hands-on experience in every aspect of network design, implementation, administration, security, and management.

Figure 1 illustrates the network architecture deployed by the students in the NET curriculum each semester. This diagram provides a basis for understanding how the individual course components collectively contribute to a holistic student learning experience. This architecture is critical to enabling cross-course collaboration among students with disparate technologies.

All course materials are designed with actual industry experiences in mind. Designing exercises in this manner ensures that the students gain knowledge of technologies and practices currently utilized in industry, and they will understand the processes for implementing and troubleshooting networks containing these components. As suggested by Qazi and Ishaq (Qazi 1998), students should be offered interdisciplinary projects that provide a seamless connection between the academic sphere and the professional world. This approach to education provides

students with the desired learning experience, preparing them for future work in corporate environments as required by CAC/ABET for accreditation.

The NET program is currently undergoing an accreditation review as an IT program by CAC/ABET and should be complete by the date of the symposium. The presenters will also be prepared to share their fresh experiences gained through the accreditation process.

#### CORE CURRICULUM

NET students will pursue a wide variety of endeavors within the networking and digital telecommunications field upon graduation. The NET program breaks these responsibilities into the logical groups that include network design, administration, security, and management. The following list identifies the courses that compose the core of the NET curriculum:

- C&IT 330 – Local Area Networking and Systems Administration
- C&IT 343 – Advanced Systems Administration
- C&IT 346 – Wireless Networks
- ECET 374 – Digital Telecommunications
- C&IT 430 – Internetwork Design and Implementation
- C&IT 443 – Enterprise Network Management
- C&IT 455 – Network Security

#### C&IT 330: Local Area Networking and Systems Administration

C&IT 330 introduces students to local area networks, system and network administration. Emphasis is placed on fundamental concepts and best practices. This course also provides students with their first hands-on laboratory experience in the NET curriculum and emphasizes problem-solving and troubleshooting skills through network implementation.

#### C&IT 343: Advanced Systems Administration

C&IT 343 expands upon the administration concepts learned in C&IT 330 and introduces extended network services. C&IT 343 laboratories focus on solving given business scenarios. Students must research and implement various technologies to address the business cases given, and must support their work with

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