



FY11 Project Description and Budget Summary

*(Cells will expand to accommodate content. Please limit total content to **four pages or fewer.**)*

Project Title:	Development of Online-ready Learning Objects Modules in Information Assurance
Who is involved in this project? <i>(names, role, organizations)</i>	Dr. Dennis Guster, St. Cloud State University Dr. Christophe Veltsos, Minnesota State University Mankato Mr. David Pickens, Inver Hills Community College
What will this project accomplish?	This project seeks to develop a set of 15-hour, online-ready, learning object modules that combine online lectures and online labs. While the participants agree to use the content developed for this project, the materials developed will be made available throughout MnSCU institutions for their own use or adaptation. The three 15-hour modules to be funded by this grant can be packaged together to provide a 3-credit semester-long class in information assurance.
Who from above will serve as the Project Leader(s)? <i>(Name, Phone, Email Address)</i>	Dr. Dennis Guster, 320-308-4961, dcguster@stcloudstate.edu Dr. Christophe Veltsos, 507-389-6560, veltsos@mnsu.edu

Narrative Description

(Please describe the overall project in terms of: A. What students will learn or gain from this effort B. Why and how you know outcomes are relevant to the IT workplace C. How students will become involved D. How students will acquire key competencies or outcomes E. How you will know to what extent this project is successful)

This project covers the development of three online-ready, learning object modules that combine online lectures and labs. Each of the 15-hour modules can be packaged together to provide a 3-credit semester-long class in Information Assurance (IA).

A. What students will learn or gain from this effort

The speed at which the field of Information Assurance moves often leaves students asking for more relevance than what is available in traditional textbooks. For faculty, simply finding an appropriate, up-to-date textbook can often be a challenge. By engaging faculty to collaborate and bring together their expertise towards the development of these learning modules, students will not only experience fresh, up-to-date content, delivered in a balanced mix of online lecture supplemented by lab-based practicals.

B. Why and how you know outcomes are relevant to the IT workplace

The field of IA demands a broad range of knowledge and skills. Successful students, those likely to be hired into the IT workforce, need a deep understanding of technological controls, theoretical foundations, and overall business and communication related skills. By combining online learning with virtual-machine-based labs, students will gain first-hand experience with many of the technologies and concepts that IT workers interact with on a daily basis. The learning modules will encompass topics such as Quantum Encryption, Advanced Persistent Threats, SANS 20 Critical Security Controls, and OWASP Top Ten Web Application Security Risks. By tapping into the many connections with industry partners available to the project leaders and the curriculum development teams, the content developed will bear significant input from industry & up-to-date relevant developments (e.g. input will be sought from industry groups such as ISSA, ISACA, OWASP, SANS).

C. How students will become involved

Students will be involved in two different aspects of this project. 1) Some students will be tasked with managing the

Business Computing Research Laboratory (housed at St. Cloud State University). 2) Students enrolled in classes using the curriculum materials developed here will provide their feedback to help fine-tune the curriculum for maximum educational benefit. This is a living project that will evolve to keep up with changes in the field and adapt to students' needs.

D. How students will acquire key competencies or outcomes

The research literature supports the use of demonstrations and meaningful hands on learning methodology. Two recent studies by one of the authors have shown that this methodology is far superior to the straight lecture/discussion method (see links below). Therefore, these modules will be tested using a similar methodology in which pretest/posttest logic was used against a control group which learns the material via lecture methodology versus the methodology to be employed in this project in which online material is supplemented with meaningful hands on exercises made possible by the extensive laboratory structure of the BCRL. This methodology is quite sophisticated and takes into account differences in learning achievement and attitude towards the learning method adjusted for differences in initial ability.

- http://www.sig-ed.org/jier/v8n3/JIERv8n3_article5.pdf
- http://www.sig-ed.org/jier/2008/JIER2008_article2.pdf

E. How you will know to what extent this project is successful

While only in its infancy, this project has already sparked further collaboration among the participants. Project success will be measured in terms of how many of the institutions will have used the modules in 2011 and in future years (i.e. 2012 and beyond); see the Targets section for more details. Once faculty, students, and academic institutions realize the value of the learning objects produced by this project, they will have a vested interest in maintaining or even growing the number of modules provided.

Deliverables <i>(What will be produced to accomplish objectives?)</i>	Schedule <i>(Summary of milestones and completion dates)</i>
<p>Phase I:</p> <ol style="list-style-type: none"> 1. Objectives for each learning object module 2. Roadmap for curriculum development of each module 3. Three 15-hour learning object modules <p>Phase II:</p> <ol style="list-style-type: none"> 4. Update plan for refining the content of each module 	<p>Phase I:</p> <ol style="list-style-type: none"> 1. Design course (module) objectives & create roadmap for curriculum development (July or August 2010). 2. Travel to St. Cloud State to tour the Business Computing Research Laboratory (Before Dec 1, 2010). 3. Finish initial curriculum development for each of three learning object modules (Before Dec 10, 2010). <p>Phase II:</p> <ol style="list-style-type: none"> 4. Update curriculum based on instructor & student feedback (Before June, 2011).
Metrics <i>(How will each major outcome be measured?)</i>	Targets <i>(What are the target metrics for each outcome?)</i>
<ol style="list-style-type: none"> 1. Initial acceptance of learning object modules 2. Improvement on student learning as measured by means similar to those pointed out in the PDF links above 3. Ongoing use of learning object module 	<ol style="list-style-type: none"> 1. In 2011, each of the participating institutions will use at least one of the modules developed. 2. Pre & post project testing will be administered to identify improvements in student understanding. 3. At least two institutions per year will continue using the learning modules through April 2012.

How will this effort be sustained after completion? Or, what are the residual benefits going forward?	What are the three greatest challenges to be managed in this project?
<p>The Business Computing Research Laboratory at SCSU has a proven track record of funding over a 20 year period and houses nearly \$2 million worth of computing equipment. So therefore, the in-kind value of this resource is calculated as: access to BCRL clusters (quantum equipped random number generators) at 1/5 of \$30,000 (useful life of 5 years in other words the depreciated cost for one year). After initial development, each module will continue to be made available to MnSCU institutions. Based on the rate of change in the field of information assurance, this content should continue to be relevant to 2014 or beyond.</p>	<ol style="list-style-type: none"> 1. Development of course (module) objectives & creation of curriculum development roadmap. 2. Development of information assurance focused online, self-paced content including lectures & labs. 3. Development of meaningful hands on lab experiences and delivering them remotely and securely.

Other considerations
<p>Each development team will receive a stipend to develop online-ready curriculum to cover a 15-hour set of topics in information assurance. Development teams will coordinate their efforts with the project leaders. During the Fall 2010 semester, development teams will be invited to visit the Business Computing Research Laboratory at SCSU to learn more about its capabilities and the various ways that students and faculty can interface remotely with it.</p> <p>With a minimal initial investment, the synergy developed by this project can provide many semesters' worth of quality curriculum to students throughout MnSCU institutions.</p>

Budget Summary (Cash and in-kind if applicable. We need this info to document leveraged value of allocations, supplemental budget worksheet is available as Excel document.)

Line Item Category	Center Funding	Other Cash		In-kind Contributions	
		Source	Amount	Source	Est. Value
Project Leadership	\$6,875				
Other faculty compensation	\$20,000				
Other salaried compensation	\$3,000				
Contracted Services	0				
Equipment and Software	\$1,760			BCRL (SCSU)	\$6,000
Supplies and Other Materials	0				
Other: Travel	\$307				
Totals	\$31,942				\$6,000

Project Costs

Personnel

	Personnel Type*	Number	Personnel Costs		Quantity	Total Amt
			Basis**	Rate		
Project Leadership						
<i>Project leaders will oversee planning, development, and overall quality of each learning object module</i>						
A: Christophe Veltsos (MSU Mankato)	IFO	1	duty days	\$ 550	5	\$2,750
B: Dennis Guster (St. Cloud)	IFO	1	duty days	\$ 550	5	\$2,750
Project Participants:						
<i>Each team will develop one 15-hour, online-ready, learning object module in information security/privacy</i>						
T1: Christophe Veltsos (MSU Mankato)	IFO	1	duty days	\$ 550	10	\$5,500
T2: Dennis Guster (St. Cloud)	IFO	1	duty days	\$ 550	4	\$2,200
T2: Physicist, Renat Sultanov (St. Cloud)	MAPE	1	duty days	\$ 550	6	\$3,300
T3: David Pickens (Inver Hills)	MSCF	1	credits	\$ 2,000	2.5	\$5,000
Student lab worker (St Cloud)	Grad. Student	1	hours	\$ 8	300	\$2,400
Fringe Costs (25% of total MnSCU salary)						\$ 5,975
Total Personnel Costs						\$ 29,875

NonPersonnel Costs	Description	Unit Cost	Quantity	Total Amount
Supplies				\$ -
Equipment	Studio quality mic for voice rec.	\$ 141	4	\$ 564
Software	Screen capture s/w (Camtasia Studio)	\$ 299	4	\$ 1,196
Travel costs				
Mankato - St. Cloud	travel to/from each university location	2	\$ 117	\$ 234
InverHills - St. Cloud	travel to/from each university location	1	\$ 73	\$ 73
Total NonPersonnel Costs				\$ 2,067

Total Project Costs **\$ 31,942**