

# **MSIS GRADUATE PROGRAM ASSESSMENT PLAN**

## **School of Information Technology**

### **Program Educational Objectives:**

The program educational objectives (PEO) of the MSIS Graduate Program are as follows:

1. Be a successful practitioner in a computer science related field or accepted into a graduate program.
2. Design and develop creative and effective solutions to practical computing problems.
3. Exhibit teamwork and effective communication skills.
4. Be characterized by effective leadership skills and high standards of ethics.
5. Engage in lifelong learning to adapt to an ever-changing professional environment.

### **Student Outcomes:**

At the time of graduation, a student in our MSIS graduate program must attain the following outcomes:

- a. An ability to analyze the impact of information technology in an organization
- b. An ability to analyze a problem, and apply various systems development methodologies to design an information technology solution
- c. An ability to evaluate and implement an information technology solution, along with applications and tools necessary to support organizational needs
- d. An ability to function effectively on teams to accomplish IT project goals
- e. Recognition of the need for and an ability to engage in continuing professional development

### Relationship of Student Outcomes to Program Educational Objectives

The table below summarizes the relationship between student outcomes and program educational objectives:

Student Outcomes	Program Educational Objectives					
	1	2	3	4	5	6
(a)						
(b)						
(c)						
(d)						
(e)						

**(a) An ability to analyze the impact of information technology in an organization**

<b>Performance Indicator</b>	<b>Delivery Methods</b>	<b>Courses used for Assessment</b>	<b>Assessment Methods</b>	<b>Data Needed</b>	<b>Assessed Groups</b>	<b>Expected level of attainment *</b>	<b>Timeline</b>
Align Information Technology strategy with a business level strategy	IT 496	IT 496	row of rubric (a)(i)	Case study or in-class assignment	IT 496 Students	70%	Even spring semesters, starting Spring 2014
Assess information security and recommend controls for organizations	IT 350	IT 350	Use rubric (a)(ii)	Exams or final project	IT 350.05 Students	70%	Even spring semesters starting Spring 2014
Assess various contemporary networking technologies for a networked organization	IT 377	IT 377	Use rubric (a)(iii)	Exams or lab project	IT 377.05 Students	70%	Even spring semesters starting Spring 2014

\* The expected level of attainment is measured by the minimum percentage of the assessed sample that is scored in the two maximum (Developed/Exemplary) categories of the relevant rubric.

<b>Rubric (a)(i)</b>				
	Poor or Non-Existent	Developing	Developed	Exemplary
Align Information Technology strategy with a business level strategy	<p>Writing of case solution lacks substance, disorganized.</p> <p>No clear relationship between a business level strategy and an information technology strategy.</p> <p>Many spelling and grammar errors</p>	<p>Writing of case solution is poorly organized, demonstrates only basic linkages between a business level strategy and an information technology strategy.</p> <p>Multiple spelling or grammar errors and awkward wording</p>	<p>Writing of case solution, demonstrates most linkages between a business level strategy and an information technology strategy; does not provide alternative strategies</p> <p>Occasional spelling errors and awkward wording, but overall good</p>	<p>Writing of case solution is clear and organized, demonstrates linkage between a business level strategy and an information technology strategy; provides alternative strategies</p> <p>Few or no spelling or grammar errors. Flowing language.</p>

<b>Rubric (a)(ii)</b>				
	Poor or Non-Existent	Developing	Developed	Exemplary
Assess information security and recommend controls for organizations	<p>Cannot explain any of:</p> <p>Concepts of information assurance and security</p> <p>Risk management concepts</p> <p>Information security and assurance models</p>	<p>Does one of:</p> <p>Explains the most basic concepts of information assurance and security</p> <p>Demonstrates basic understanding of risk management</p> <p>Describes only a few (or at basic levels) information security and assurance models</p>	<p>Does two of:</p> <p>Explains the concepts of information assurance and security</p> <p>Demonstrates understanding of risk management and its implications</p> <p>Describes appropriate information security and assurance models for some types of assets</p>	<p>Does all of:</p> <p>Explains the concepts of information assurance and security, and can apply to real world scenarios</p> <p>Demonstrates risk management and its implications, and can apply to real world scenarios</p> <p>Describes appropriate information security and assurance models to protect critical informational assets</p>

<b>Rubric (a)(iii)</b>				
	Poor or Non-Existent	Developing	Developed	Exemplary
Assess various contemporary networking technologies for a networked organization	<p>Unable to describe current networking technologies</p> <p>Designs a computer network that does not match the telecommunication requirements of an organization</p>	<p>Can only describe basic networking technologies</p> <p>Designs a computer network that meets only some of the requirements of the organization</p>	<p>Clearly articulates current networking technologies</p> <p>Designs a computer network that matches the telecommunication requirements of an organization</p>	<p>Clearly articulates current and emerging networking technologies that can be leveraged by an organization</p> <p>Accurately designs a computer network that matches the telecommunication requirements of an organization</p> <p>Able to simulate network performance and throughput</p>



**(b) An ability to analyze a problem, and apply various systems development methodologies to design an information technology solution**

Performance Indicator	Delivery Methods	Courses used for Assessment	Assessment Methods	Data Needed	Assessed Groups	Expected level of attainment *	Timeline
Use common modeling tools to analyze organizational problems and needs	IT 432	IT 432	Use rubric (b)(i)	Project documentation for analysis phase	IT 432 Students	70%	Odd fall semesters starting fall 2013
Recognize different systems development methodologies	IT 432	IT 432	Use rubric (b)(ii)	Exam questions	IT 432 Students	70%	Odd fall semesters starting fall 2013
Use project management tools to manage an information technology project	IT 463	IT 463	Use rubric (b)(iii)	Class assignment	IT 463 Students	70%	Even spring semesters starting Spring 2014
Perform project feasibility analysis	IT 463	IT 463	Use rubric (b)(iv)	Class assignment	IT 463 Students	70%	Even spring semesters starting Spring 2014

\* The expected level of attainment is measured by the minimum percentage of the assessed sample that is scored in the two maximum (Developed/Exemplary) categories of the relevant rubric.

<b>Rubric (b)</b>				
	Poor or Non-Existent	Developing	Developed	Exemplary
(i) Use common modeling tools to analyze organizational problems and needs	Unable to use modeling tools or unable to produce standard diagrams or unable to recognize organizational issues	Able to recognize only a few organizational needs  Can create a standard visual model, but model does not fit problem	Able to recognize most organizational problems and needs  Creates visual model that fits problem description	Recognizes all organizational needs and problems  Creates a well-formed and parsimonious model of problem
(ii) Recognize different systems development methodologies	Test score <70	Test score between 70 and 80	Test score between 80 and 90	Test score above 90

<p>(iii) Use project management tools to manage an information technology project</p>	<p>Unable to produce usable PERT/CPM and Gantt charts</p>	<p>Produces PERT/CPM and Gantt charts that do not reflect project schedule</p>	<p>Produces adequate quality PERT/CPM and Gantt charts, closely reflecting project schedule</p>	<p>Good quality, concise, and correctly drawn PERT/CPM and Gantt charts, depicting actual project schedule</p>
<p>(iv) Perform project feasibility analysis</p>	<p>Project cost/benefit analysis does not reflect real-world data for development cost, operational cost, and benefits  Project does not reflect actual technical, political and schedule feasibility</p>	<p>Project cost/benefit analysis reflects some dimensions of real-world data for development cost and benefits, but misses several dimensions  Project misses one or more of actual technical, political, or schedule flexibility</p>	<p>Project cost/benefit analysis closely reflect real-world data for development cost, operational cost, and benefits  Project closely reflects other technical, political and schedule feasibility</p>	<p>Project estimates reflect real-world data for development cost, operational cost, and benefits  Project reflects actual technical, political and schedule feasibility</p>



**(c) An ability to evaluate and implement an information technology solution, along with applications and tools necessary to support organizational needs**

Performance Indicator	Delivery Methods	Courses used for Assessment	Assessment Methods	Data Needed	Assessed Groups	Expected level of attainment *	Timeline
Use common modeling tools to design an IT solution	IT 432	IT 432	Use rubric (c)(i)	Project documentation for design phase	IT 432 Students	70%	Odd fall semesters starting fall 2013
Implement a business application using a database system	IT 478	IT 478	Use rubric (c)(ii)	Project documentation for database design	IT 478 Students	70%	Even fall semesters starting fall 2014
Implement a business application using a programming language	IT 494, IT 495	IT 494, IT 495	Use rubric (c)(iii)	Final deliverable — prototype/working system	IT 494 Students, IT 495 Students	70%	Even spring semesters starting spring 2014
Evaluate alternative design solutions	IT 494, IT 495	IT 494, IT 495	Use rubric (c)(iv)	Final deliverable	IT 494 Students, IT 495 Students	70%	Even spring semesters starting spring 2014

\* The expected level of attainment is measured by the minimum percentage of the assessed sample that is scored in the two maximum (Developed/Exemplary) categories of the relevant rubric.

Outcome (c): An ability to design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs				
	Poor or Non-Existent	Developing	Developed	Exemplary
(i) Use common modeling techniques to design a solution	Unable to create a recognizable model	Create models but models do not fully represent the problem domain or are not consistent with the specified modeling language	Create models that represent the problem domain and are consistent with the specified modeling language	Creates a well-formed and parsimonious design model that can be used by an external coder for developing a computer application
(ii) Implement a business application using a database system	Cannot write SQL statements to perform a simple database query	Use SQL statements to perform simple database queries	Use SQL statements to perform moderately complex database queries	Use SQL statements to perform complex database queries, or optimizes SQL statements
(iii) Write a computer program that solves a business problem	Program has major syntactical errors or does not run with normal inputs without crashing, code does not solve the given problem	Program produces correct results in only some cases, program crashes with some valid inputs	Program works correctly for all sample data and typical cases, solves the correct problem	Program works correctly for all relevant cases, and addresses at least one unspecified case or implements an extra feature
(iv) Evaluates alternative solutions	Student does not correctly identify at least two correct solutions for the given problem, does not use correct methods to evaluate them	Student identifies correct alternatives but evaluates them incorrectly	Student identifies correct alternatives, uses correct evaluation methods and reaches correct conclusions	Student goes beyond requirements, presents detailed and correct evaluation of each alternative solution

**(d) An ability to function effectively on teams to accomplish IT project goals**

<b>Performance Indicator</b>	<b>Delivery Methods</b>	<b>Courses used for Assessment</b>	<b>Assessment Methods</b>	<b>Data Needed</b>	<b>Assessed Groups</b>	<b>Expected level of attainment *</b>	<b>Timeline</b>
Participates in team activities	IT 495	IT 495	Use rubric (d)(i)	Peer evaluation	IT 495 Students	70%	Odd spring semesters starting spring 2015
Completes team project on time	IT 463	IT 463	Use rubric (d)(ii)	Project deliverables	IT 463 Students	70%	Odd spring semesters starting spring 2015
Leads team activities	IT 463	IT 463	Use rubric (d)(iii)	Peer evaluation	IT 463 Students	70%	Odd spring semesters starting spring 2015
Communicates effectively	IT 495 IT 496	IT 495	Use rubric (d)(iv)	Class presentation	IT 495 Students	70%	Odd spring semesters starting spring 2015

\* The expected level of attainment is measured by the minimum percentage of the assessed sample that is scored in the two maximum (Developed/Exemplary) categories of the relevant rubric.

Outcome (d): An ability to function effectively on teams to accomplish a common goal				
	Poor or Non-Existent	Developing	Developed	Exemplary
Participates in team activities	Does not contribute to discussions, does not let others express opinions	Contributes occasionally to team activities	Contributes equally in team activities	Contributes a higher share to team activities without taking over the team
Completes team assignments on time	Does not contribute to final deliverable	Completes assigned tasks only partially	Satisfactorily completes assigned parts	Completes assigned parts and helps other team members with their assigned work, initiates and participates in team meetings
Leads team activities	Does not know what any other team member is doing	Knows only what some team members are doing, and not others	Describes clearly the role and responsibility of each team member	Motivates others to fulfill their responsibilities

Rubric (d)(iv)				
	Poor or Non-Existent	Developing	Developed	Exemplary
Clarity	Not assertive or clear overall	Assertive but inconsistent, occasionally trying to sound too technical or intentionally vague	Mostly clear and easy to understand	Clear and assertive, very easy to understand
Organization	Not well organized, no logical flow	Inconsistent flow, lacking macro or micro organization	Logically organized at micro and macro level	Entire communication has logical flow, flow is reinforced throughout
Audience	Not aimed at the intended audience	Reflects own knowledge rather than targeting audience, could have taken more efforts to direct talk at audience	Directed at appropriate audience	Targeting audience well enough to enhance communication
Engaging the audience	Not captivating, could not engage audience, little to no interaction with audience	Good beginning and end but not as engaging in between, not enough interaction with audience	Keeps the audience interested and facilitates some interaction	Keeps the audience awake and involved, occasionally adapting to audience's feedback
Delivery	Two or more of: Spoke too fast/too slow, did not address intended questions, inappropriate attire, took	One of: Spoke too fast/too slow, too many pauses, awkward body language	Spoke at appropriate pace, comfortable and appropriate body language	Calm. Clear diction. Good tone. Good pacing. Appropriate attire and personal grooming.

	significantly longer or shorter than allotted time			
--	--	--	--	--

**Rubric (d)(v)**

## Written Communication

	Poor or Non-Existent	Developing	Developed	Exemplary
Clarity/ Precision	Too vague or too detailed, significant amount of information may be inaccurate.	Detailed but losing overall picture, or clear at a high level but missing details, attention to length rather than substance. Some information may be inaccurate.	Appropriately detailed and focused at a higher level. Writing is precise and concise.	Completely clear and precise
Organization	Not well-organized, no consistent flow	Micro-structure well defined but lacking macro-structure, or vice versa	Good and appropriate organization	Logically organized
Audience	Not catered to intended audience (wrong assumptions about audience, trying to target all types of audiences)	Not consistently aimed at the audience, occasionally too detailed or too vague	Mostly aimed at the appropriate audience	Aimed exactly at the appropriate audience
Mechanics and Style	Many spelling and grammar errors, no logical flow or document structure	Logical flow but with many spelling and grammar errors, or vice versa, crude document structure	No spelling or grammar errors. Reasonably good logical flow and appropriate document structure	No spelling or grammar errors. Good use of language and good logical flow
Visual aids	No visual aids/too many visual aids. Very poor visual aids.	Few visual aids, some incompletely made, not referred in the text. Some visual aids poorly designed	Appropriate number and kind of visual aids referred by the text at the proper places parts	Appropriate number of well-chosen visual aids that enhance communication

**(e) Recognition of the need for and an ability to engage in continuing professional development**

Performance Indicator	Delivery Methods	Courses used for Assessment	Assessment Methods	Data Needed	Assessed Groups	Expected level of attainment *	Timeline
(i) Research and report on emerging information technology	IT 497 IT 377	IT 377	Use rubric (e)(i)	Term paper	IT 377 Students	70%	Odd fall semesters, starting fall 2013
(ii) Learns and uses technical skills not taught in class	IT 4XX based on MSIS Concentration	Thesis/project IT 495	Use rubric (e)(ii)	Thesis, project, or IT 495	IT 495 and all students doing a project or thesis	70%	Each semester, starting fall 2014

\* The expected level of attainment is measured by the minimum percentage of the assessed sample that is scored in the two maximum (Developed/Exemplary) categories of the relevant rubric.

<b>Rubric (e)(i)</b>				
	Poor or non-existent	Developing	Developed	Exemplary
Research and report on emerging information technology	Topic is out-of-date  Writing lacks substance, not well-organized  Many spelling and grammar errors	Topic is current  Writing is clear at a high level, organized, but lacks detail  Occasional spelling errors and awkward wording, but overall good	Topic is current  Writing is clear at a high level, organized, but lacks detail  Occasional spelling errors and awkward wording, but overall good	Topic is current  Writing is clear, with good detail  Few or no spelling or grammatical errors

<b>Rubric (e)(ii)</b>				
	Poor or non-existent	Developing	Developed	Exemplary
Learns and uses technical skills not taught in class	Little or nothing achieved in work product pertaining to skills that	Meets some requirements in work product pertaining to skills that were expected to be learned outside class	Creates a successful work product based on skills that were expected to be learned	Creates a successful work product that incorporates at least one aspect that was not expected, that uses the

	were expected to be learned outside class		outside class	skills that were expected to be learned outside class
--	---	--	---------------	---

2-year assessment cycle (Quick overview for implementation)			
Semester	Course to be Assessed	What is assessed	Complete Assessment By
Even Fall	478	c(ii)	Week 5 of Odd Spring semester
	377	a(iii)	Week 5 of Odd Spring semester
	494*	c(iii)	End of Odd Spring semester
Odd Spring	495	c(iv), d(i),d(iv)	Week 5 of Odd Fall semester
	463	b(iii), b(iv), d(ii), d(iii)	Week 5 of Odd Fall semester
	494*	c(iii)	End of Odd Fall semester
Odd Fall	432	b(i), b(ii), c(i)	Week 5 of Even Spring semester
	496	a(i)	Week 5 of Even Fall semester
	377	e(i)	End of Even Fall semester
	494*	c(iii)	
Even Spring			
	350	a(ii)	Week 5 of Even Fall semester
	495	e(ii)	Week 5 of Even Spring semester
	494*	c(iii)	End of Even Spring semester

\* IT 494 is the MSIS project class—data will be collected every semester, however, summative evaluation (combining results from fall and spring) will be done in spring semesters.

Review of Program Educational Objectives	
When	Procedure
Odd spring semesters	<ol style="list-style-type: none"> <li>1. Assessment committee reviews and makes suggestions if any.</li> <li>2. Updates are presented and discussed in faculty meeting in April of the year.</li> <li>3. Approved PEOs are presented to BIAC in October meeting of the year.</li> <li>4. Approved PEOs are made available to other stakeholders such as selected student groups for</li> </ol>

	feedback.
--	-----------

<b>Review of Student Outcomes</b>	
When	Procedure
Odd spring semesters	<ol style="list-style-type: none"> <li>1. Assessment committee reviews and makes suggestions if any.</li> <li>2. Assessment committee sends report to curriculum committee and Director by end of March of the year.</li> <li>3. At Director's discretion, the updated student outcomes are tabled in faculty meeting.</li> <li>4. Updated student outcomes are made available to other stakeholders such as selected student groups for feedback.</li> </ol>