

2014-2015 LONG SIGNATURE SHEET



UNC CHARLOTTE

Proposal Number: SIS 02-05-2015

Proposal Title: **Change Core Courses and Culminating Experience of Master of Science in Information Technology**

Originating Department: **Department of Software and Information Systems (ITIS)**

TYPE OF PROPOSAL: UNDERGRADUATE GRADUATE X UNDERGRADUATE & GRADUATE
 (Separate proposals sent to UCCC and Grad. Council)

DATE RECEIVED	DATE CONSIDERED	DATE FORWARDED	ACTION	SIGNATURES
			Approved	<u>DEPARTMENT CHAIR</u> Mary Lou Maher
			Approved	<u>COLLEGE CURRICULUM COMMITTEE CHAIR</u> [print name here:]
			Approved	<u>COLLEGE FACULTY CHAIR (if applicable)</u> [print name here:] Yu Wang
			Approved	<u>COLLEGE DEAN</u> [print name here:]
			Approved	<u>GENERAL EDUCATION</u> (if applicable; for General Education courses) [print name here:]
			Approved	<u>HONORS COLLEGE</u> (if applicable; for Honors courses & programs)
			Approved	<u>UNDERGRADUATE COURSE & CURRICULUM COMMITTEE CHAIR</u> (for undergraduate content)
11/23/15	1/5/16	1/30/16	Approved	<u>GRADUATE COUNCIL CHAIR</u> (for graduate content) Dennis Livesey
				<u>FACULTY GOVERNANCE ASSISTANT</u> (Faculty Council approval on Consent Calendar)
				<u>FACULTY EXECUTIVE COMMITTEE</u> (if decision is appealed)



UNC CHARLOTTE

LONG FORM COURSE AND CURRICULUM PROPOSAL

*To: The Graduate Council

From: Department of Software and Information Systems

Date: 2/5/2015

Re: Change Core Courses of Master of Science in Information Technology

The Long Form is used for major curriculum changes. Examples of major changes can include:

Undergraduate: Major changes include new undergraduate degrees, minors, concentrations, certificates, and changes to more than 50% of an existing program (Note: changing the name of an academic department does not automatically change the name(s) of the degree(s). The requests must be approved separately by the Board of Governors.)

Graduate: Major changes include new graduate courses, major changes to an existing graduate course or major changes to an existing graduate program

Submission of this Long Form indicates review and assessment of the proposed curriculum changes at the department and collegiate level either separately or as part of ongoing assessment efforts.

*Proposals for undergraduate courses and programs should be sent to the Undergraduate Course and Curriculum Committee Chair. Proposals related to both undergraduate and graduate courses, (e.g., courses co-listed at both levels) must be sent to both the Undergraduate Course and Curriculum Committee and the Graduate Council.

I. HEADING AND PROPOSAL NUMBER

- A. HEADING.** Place a three line double-spaced heading containing the following information at the top of the first page of the proposal and beginning at the left margin:

University of North Carolina at Charlotte

Revised; Graduate

Course and Curriculum Proposal from: Department of Software and Information Systems

- B. PROPOSAL NUMBER.** Place the proposal number in the upper right corner of page one of the proposal. The proposal number will consist of the abbreviation of the originating unit and the date the proposal was approved by the unit, e.g., BIO 7-24-02. If more than one proposal is passed on a specific date, assign alpha suffixes to distinguish them (e.g., BIO 7-24-02a and BIO 7-24-02b). Submit multiple courses as a single proposal when possible.

- C. TITLE.** Change Core Courses of Master of Science in Information Technology

II. CONTENT OF PROPOSALS

A. PROPOSAL SUMMARY.

- 1. SUMMARY.** State clearly and concisely the actions proposed (e.g., “the Biology Department proposes to add four new elective courses to the undergraduate curriculum: BIO 2222, BIO 3456, BIO 2345, and BIO 3210).

A new core for the MSIT is being proposed for the following reasons:

- provide more flexibility in course selection
- increase enrollment in our MSIT courses that are not required and have low enrollments
- better accommodate the increased enrollment

The proposed new core will cover 5 topic areas:

1. Advanced programming
2. Databases (or Data Science)
3. Software Systems Design
4. Cyber security
5. HCI

Existing Core

1. ITIS 6120 Applied Databases (may be substituted with ITCS 6160 Database Systems)
2. ITIS 5166 Network-Based Application Development
3. ITIS 6112 Software System Design and Implementation
4. ITIS 6200 Principles of Information Security and Privacy
5. ITIS 6342 Information Technology Project Management
6. ITIS 6400 Principles of Human Computer Interaction

Proposed Core

1. Advanced Programming: Select one from the following 2 courses:
ITIS 5166 Network-Based Application Development
ITIS 5180 Mobile Application Development
2. Databases: Select one from the following 2 courses:
ITIS 6120 Applied Databases
ITIS 6162 Knowledge Discovery from Databases
3. Software Systems Design: Select one of the following 3 courses:
ITIS 6112 Software System Design and Implementation
ITIS 6342 Information Technology Project Management
ITIS 6177 System Integration
4. ITIS 6200 Principles of Information Security and Privacy
5. ITIS 6400 Principles of Human Computer Interaction

MSIT Culminating Experience

All students must successfully complete a culminating experience. This requirement is satisfied by completing any one of the following three:

- IT Project: 15 page written report on knowledge related to one or more courses or a programming experience (0 credit points)
- IT Internship (3 credit points)
- IT Master's Thesis (total 6 credit points: 3 credit points each semester over 2 semesters)

Project

Students choosing a project as their culminating experience will write a 15 page report on a topic related to their selection of courses or about a specific programming experience. This report will be formatted according guidelines and will be reviewed by the SIS Graduate Committee.

Internship

Complete a team-based project that is originated from an IT organization and approved by the department (3 credit points).

Master's thesis research

MS thesis research leading to a thesis defense (6 credit points).

B. JUSTIFICATION.

1. Identify the need addressed by the proposal and explain how the proposed action meets the need.

The field of Information Technology has undergone tremendous changes since the establishment of the Master of Science in Information Technology (MSIT) over a decade ago. To respond to these changes, it is important to review the curriculum for the Master's degree on a regular basis. These proposed revisions to the decade-old core requirements of MSIT reflect the Department's strategic vision to ensure the degree program to be in alignment with the current state of art in Information Technology. The changes in the curriculum provide more flexibility for students and provide a more meaningful culminating experience that accommodates two career options: industry and research professionals.

2. Discuss prerequisites/corequisites for course(s) including class-standing, admission to the major, GPA, or other factors that would affect a student's ability to register.

No new courses are added.

3. Demonstrate that course numbering is consistent with the level of academic advancement of students for whom it is intended.

No new courses are added.

4. In general, how will this proposal improve the scope, quality and/or efficiency of programs and/or instruction?

The proposed changes will introduce greater flexibility for students to choose courses that expose them to a wider range of emerging technologies, while ensuring students to have a firm grasp of the most essential knowledge in Information Technology. The proposed new curriculum for MSIT will also pave the way for the degree to be "modularized" whereby students may fulfill the requirements of MSIT by completing 2 graduate certificates offered by the Department.

5. If course(s) has been offered previously under special topics numbers, give details of experience including number of times taught and enrollment figures.

N/A

- C. **IMPACT.** Changes to courses and curricula often have impacts both within the proposing department as well as campus-wide. What effect will this proposal have on existing courses and curricula, students, and other departments/units? Submit an Impact Statement that fully addresses how you have assessed potential impacts and what the impacts of this proposal might be. Consider the following:

1. What group(s) of students will be served by this proposal? (Undergraduate and/or graduate; majors and/or non-majors, others? Explain). Describe how you determine which students will be served.

Students in the MSIT program alone will be served by this proposal.

2. What effect will this proposal have on existing courses and curricula?
 - a. When and how often will added course(s) be taught?
 - b. How will the content and/or frequency of offering of other courses be affected?
 - c. What is the anticipated enrollment in course(s) added (for credit and auditors)?
 - d. How will enrollment in other courses be affected? How did you determine this?
 - e. Identify other areas of catalog copy that would be affected, including within other departments and colleges (e.g., curriculum outlines, requirements for the degree, prerequisites, articulation agreements, etc.)

N/A

III. RESOURCES REQUIRED TO SUPPORT PROPOSAL.

When added resources are not required, indicate “none”. For items which require “none” explain how this determination was made.

- A. **PERSONNEL.** Specify requirements for new faculty, part-time teaching, student assistants and/or increased load on present faculty. List by name qualified faculty members interested in teaching the course(s).

None.

- B. **PHYSICAL FACILITY.** Is adequate space available for this course?

Yes.

- C. **EQUIPMENT AND SUPPLIES:** Has funding been allocated for any special equipment or supplies needed?
No.
- D. **COMPUTER.** Specify any computer usage (beyond Moodle) required by students and/or faculty, and include an assessment of the adequacy of software/computing resources by available for the course(s).
N/A.
- E. **AUDIO-VISUAL.** If there are requirements for audio-visual facilities beyond the standard classroom podiums, please list those here.
None.
- F. **OTHER RESOURCES.** Specify and estimate cost of other new/added resources required, e.g., travel, communication, printing and binding.
None.
- G. **SOURCE OF FUNDING.** Indicate source(s) of funding for new/additional resources required to support this proposal.
No required.

IV. CONSULTATION WITH THE LIBRARY AND OTHER DEPARTMENTS OR UNITS

- A. **LIBRARY CONSULTATION.** Indicate written consultation with the Library Reference Staff at the departmental level to ensure that library holdings are adequate to support the proposal prior to its leaving the department. (Attach copy of [*Consultation on Library Holdings*](#)).

N/A. (no new courses are proposed.)

- B. **CONSULTATION WITH OTHER DEPARTMENTS OR UNITS.** List departments/units consulted in writing regarding all elements outlined in IIC: Impact Statement, including dates consulted. Summarize results of consultation and attach correspondence. Provide information on voting and dissenting opinions (if applicable).

See Attachment.

- C. **HONORS COUNCIL CONSULTATION.** In the case of Honors courses or Honors programs indicate written consultation with the Honors Council (if applicable).

V. INITIATION, ATTACHMENTS AND CONSIDERATION OF THE PROPOSAL

- A. **ORIGINATING UNIT.** Briefly summarize action on the proposal in the

originating unit including information on voting and dissenting opinions.

Approved unanimously.

B. CREDIT HOUR. (Mandatory if new and/or revised course in proposal)

Review statement and check box once completed:

- The appropriate faculty committee has reviewed the course outline/syllabus and has determined that the assignments are sufficient to meet the University definition of a [credit hour](#).

C. ATTACHMENTS.

1. CONSULTATION: Attach relevant documentation of consultations with other units.
2. COURSE OUTLINE/SYLLABUS: For undergraduate courses attach course outline(s) including basic topics to be covered and suggested textbooks and reference materials with dates of publication. For Graduate Courses attach a course syllabus. Please see [Boiler Plate for Syllabi for New/Revised Graduate Courses](#).
3. PROPOSED CATALOG COPY: Copy should be provided for all courses in the proposal. Include current subject prefixes and course numbers, full titles, credit hours, prerequisites and/or corequisites, concise descriptions, and an indication of when the courses are to be offered as to semesters and day/evening/weekend. Copy and paste the [current catalog copy](#) and use the Microsoft Word “track changes” feature (or use **red text with “~~strikethrough~~”** formatting for text to be deleted, and adding **blue text with “underline”** formatting for text to be added).
 - a. For a new course or revisions to an existing course, check all the statements that apply:
 - ____ This course will be cross listed with another course.
 - ____ There are prerequisites for this course.
 - ____ There are corequisites for this course.
 - ____ This course is repeatable for credit.
 - ____ This course will increase/decrease the number of credits hours currently offered by its program.
 - ____ This proposal results in the deletion of an existing course(s) from the degree program and/or catalog.

For all items checked above, applicable statements and content must be reflected in the proposed catalog copy.
 - b. If overall proposal is for a new degree program that requires approval from General Administration, please

contact the facultygovernance@uncc.edu for consultation on catalog copy.

4. ACADEMIC PLAN OF STUDY (UNDERGRADUATE ONLY): Does the proposed change impact an [existing Academic Plan of Study](#)?
 Yes. If yes, please provide updated Academic Plan of Study in template format.
 No.
5. STUDENT LEARNING OUTCOMES (UNDERGRADUATE & GRADUATE): Does this course or curricular change require a change in Student Learning Outcomes (SLOs) or assessment for the degree program?
 Yes. If yes, please provide updated SLOs in template format.
 No.
6. TEXTBOOK COSTS: It is the policy of the Board of Governors to reduce textbook costs for students whenever possible. Have electronic textbooks, textbook rentals, or the buyback program been considered and adopted?
 Yes. Briefly explain below.
 No. Briefly explain below.

No new courses are proposed. No changes to existing courses.

IMPORTANT NOTE: A Microsoft Word version of the final course and curriculum proposal should be sent to facultygovernance@uncc.edu upon approval by the Undergraduate Course and Curriculum Committee and/or Graduate Council chair.

Attachment 1: Inter-Departmental Consultation



Lipford, Heather <richter@uncc.edu>

Consultation on changes to MSIT

Mary Maher <M.Maher@uncc.edu>

Wed, Oct 14, 2015 at 5:01 PM

To: Sandra Krause <Sandra.Krause@uncc.edu>, Heather Lipford <richter@uncc.edu>

Professor Mary Lou Maher
Chair, Software Information Systems
Director, Center for Education Innovation
Woodward 310A, UNC Charlotte
9201 University City Blvd. | Charlotte, NC 28223
Phone: 704-687-1940 | Fax: 704-687-6065
<http://sis.uncc.edu/maher-marylou>

----- Forwarded message -----

From: Mays, Larry <lemays@uncc.edu>
Date: Wed, Oct 14, 2015 at 4:04 PM
Subject: Re: Consultation on changes to MSIT
To: Mary Maher <M.Maher@uncc.edu>

I approve. These are good ideas.
Larry
[Quoted text hidden]

11/13/2015 UNC Charlotte Mail - URGENT: Change Core Courses and Culminating Experience of Master of Science in Information Technology



Lipford, Heather <richter@uncc.edu>

URGENT: Change Core Courses and Culminating Experience of Master of Science in Information Technology

Mary Maher <M.Maher@uncc.edu>

Mon, Nov 9, 2015 at 5:18 PM

To: Heather Lipford <heather.lipford@uncc.edu>, Sandra Krause <Sandra.Krause@uncc.edu>

----- Forwarded message -----

From: Cukic, Bojan <bcukic@uncc.edu>
Date: Monday, November 9, 2015
Subject: URGENT: Change Core Courses and Culminating Experience of Master of Science in Information Technology
To: Mary Maher <M.Maher@uncc.edu>

Hi Mary Lou,

On behalf of the Department of Computer Science, I concur with the proposed changes in MSIT. Please let me know how CS department can assist with MSIT curriculum implementation.

Best regards,

Bojan

[Quoted text hidden]

Bojan Cukic
Professor and Chair
Department of Computer Science
University of North Carolina Charlotte

Attachment 2: Library Consultation



UNC CHARLOTTE
J. Murrey Atkins Library

Consultation on Library Holdings

To: Yuliang Zheng, Professor, Department of Software and Information Systems

From: Mendy Ozan, Health & Human Services Librarian, Atkins Library

Date: 2/2/15

Subject: Curriculum revision proposal for MS in Information Technology

Summary of Librarian's Evaluation of Holdings:

Evaluator: Mendy Ozan Date: 2/2/15

Please Check One:

- Holdings are superior
- Holdings are adequate
- Holdings are adequate only if Dept. purchases additional items.
- Holdings are inadequate

Comments:

No new courses are being proposed, therefore holdings remain adequate. Should new courses be proposed, Melanie Sorrell, Science Librarian, will complete a holdings evaluation to determine if resources are adequate.

Mendy Ozan
Evaluator's Signature

2/2/15
Date

Revised 10/29/08
OAA jdp

Attachment 3: Catalog Copy

Catalog Copy Part 1

Degree Requirements

The Master of Science in Information Technology degree requires a total of 30 graduate credit hours with a minimum GPA of 3.0, **together with a capstone or culminating experience**. Additionally, the following requirements must be met:

- No more than 12 credit hours of coursework may be taken from outside of the courses offered by the Department of Software and Information Systems
- At least 15 credit hours must be taken from 6000 level or above courses
- No more than 3 credit hours may be taken for Individual Study
- A maximum of 6 graduate credit hours may be transferred from other institutions

The ~~requirement of~~ 30 credit hours **of course work comprises** the following 3 parts: a core component worth 15 credit hours, a concentration component worth 9 credit hours, and an elective component worth 6 credit hours.

~~Core Component (18 credit hours)~~

~~ITIS 5160 Applied Databases (3)~~

~~ITIS 5166 Network-Based Application Development (3)~~

~~ITIS 6112 Software System Design and Implementation (3)~~

~~ITIS 6200 Principles of Information Security and Privacy (3)~~

~~ITIS 6342 Information Technology Project Management (3)~~

~~ITIS 6400 Principles of Human-Computer Interaction (3)~~

*~~*ITIS 5160 may be substituted with ITCS 6160.~~*

Core Component (15 credit hours)

1. Advanced programming: Either one of
ITIS 5166 Network-Based Application Development (3) or
ITIS 5180 Mobile Application Development (3)
2. Software Systems: Any one of
ITIS 6112 Software System Design and Implementation (3),
ITIS 6177 System Integration (3), or
ITIS 6342 Information Technology Project Management (3)
3. Databases and Data Science: Either one of
ITIS 6120 Applied Databases (3), or
ITIS 6162 Knowledge Discovery from Databases (3)
4. ITIS 6200 Principles of Information Security and Privacy (3)
5. ITIS 6400 Principles of Human Computer Interaction (3)

Concentration Component (9 credit hours)

The MSIT program offers the following concentrations:

- 1) Advanced Data and Knowledge Discovery
- 2) Design
- 3) Emerging Technologies
- 4) Human-Computer Interaction
- 5) Information Security and Privacy
- 6) Information Technology Management
- 7) Software Systems Design and Engineering
- 8) Web Development

Each student is required to select one concentration and complete 3 courses selected from the list of approved courses for the specific concentration.

Among the 9 credit hours for a concentration, 6 may be substituted with a master's research thesis. The topic for the research thesis must fall within the area of concentration.

Subject to the approval of the MSIT Program Coordinator, a course from outside of the approved list for a concentration may be taken as a substitute for a course for the concentration.

Elective Component (3 6 credit hours)

Students fulfill the remaining requirements for ~~a MSIT degree~~ **course work** by completing ~~an~~ **2** approved elective ~~course~~ **courses** in the area of information technology.

~~Part of The~~ **the** elective requirements may also be met by taking up an internship worth 3 credit hours as defined in ITIS 6198 (IT Internship Project).

MSIT Culminating Experience

All students must successfully complete a culminating experience. This requirement is satisfied by completing any one of the following three:

- IT Project: 15 page written report on knowledge related to one or more courses or a programming experience (0 credit points)
- IT Internship (3 credit points of ITIS 6198 IT Internship Project)
- IT Master's Thesis (total 6 credit points: 3 credit points each semester over 2 semesters of ITIS 6991 Information Technology Thesis)

Clean version of catalog copy:

Degree Requirements

The Master of Science in Information Technology degree requires a total of 30 graduate credit hours with a minimum GPA of 3.0, together with a capstone or culminating experience. Additionally, the following requirements must be met:

- No more than 12 credit hours of coursework may be taken from outside of the courses offered by the Department of Software and Information Systems
- At least 15 credit hours must be taken from 6000 level or above courses
- No more than 3 credit hours may be taken for Individual Study
- A maximum of 6 graduate credit hours may be transferred from other institutions

The 30 credit hours of course work comprise the following 3 parts: a core component worth 15 credit hours, a concentration component worth 9 credit hours, and an elective component worth 6 credit hours.

Core Component (15 credit hours)

6. Advanced programming: Either one of
ITIS 5166 Network-Based Application Development (3) or
ITIS 5180 Mobile Application Development (3)
7. Software Systems: Any one of
ITIS 6112 Software System Design and Implementation (3),
ITIS 6177 System Integration (3), or
ITIS 6342 Information Technology Project Management (3)
8. Databases and Data Science: Either one of
ITIS 6120 Applied Databases (3), or
ITIS 6162 Knowledge Discovery from Databases (3)
9. ITIS 6200 Principles of Information Security and Privacy (3)
10. ITIS 6400 Principles of Human Computer Interaction (3)

Concentration Component (9 credit hours)

The MSIT program offers the following concentrations:

- 1) Advanced Data and Knowledge Discovery
- 2) Design
- 3) Emerging Technologies
- 4) Human-Computer Interaction
- 5) Information Security and Privacy
- 6) Information Technology Management
- 7) Software Systems Design and Engineering
- 8) Web Development

Each student is required to select one concentration and complete 3 courses selected from the list of approved courses for the specific concentration.

Among the 9 credit hours for a concentration, 6 may be substituted with a master's research thesis. The topic for the research thesis must fall within the area of concentration.

Subject to the approval of the MSIT Program Coordinator, a course from outside of the approved list for a concentration may be taken as a substitute for a course for the concentration.

Elective Component (6 credit hours)

Students fulfill the remaining requirements for course work by completing 2 approved elective courses in the area of information technology.

Part of the elective requirements may also be met by taking up an internship worth 3 credit hours as defined in ITIS 6198 (IT Internship Project).

MSIT Culminating Experience

All students must successfully complete a culminating experience. This requirement is satisfied by completing any one of the following three:

- IT Project: 15 page written report on knowledge related to one or more courses or a programming experience (0 credit points)
- IT Internship (3 credit points of ITIS 6198 IT Internship Project)
- IT Master's Thesis (total 6 credit points: 3 credit points each semester over 2 semesters of ITIS 6991 Information Technology Thesis)

Catalog Copy Part 2

ITIS 6112. Software System Design and Implementation. (3) Cross-listed as HCIP 6112 and ITCS 6112. Prerequisite: ~~18 or more credit hours of course work from ITIS 5000-7999 or ITCS 5000-7999~~, CCI graduate standing or permission of department. Introduction to the techniques involved in the planning and implementation of large software systems. Emphasis on human interface aspects of systems. Planning software projects; software design process; top-down design; modular and structured design; management of software projects; testing of software; software documentation; choosing a language for software system. *(Fall) (Spring) (Evenings)*

Clean version:

ITIS 6112. Software System Design and Implementation. (3) Cross-listed as HCIP 6112 and ITCS 6112. Prerequisite: CCI graduate standing or permission of department. Introduction to the techniques involved in the planning and implementation of large software systems. Emphasis on human interface aspects of systems. Planning software projects; software design process; top-down design; modular and structured design; management of software projects; testing of software; software documentation; choosing a language for software system. *(Fall) (Spring) (Evenings)*



Fall 2016
Student Learning Outcomes Assessment Plan

(Document student learning outcomes assessment plans and assessment data for each undergraduate and graduate degree program and certificate program, stand alone minor, and distance education program offered online only.)

College: Computing and Informatics

Department: Software and Information Systems

Name of Degree or Certificate Program/Stand Alone Minor/Online Distance Education Program: Master of Science in Information Technology (MSIT)

Reflection on the Continuous Improvement of Student Learning

1. List the changes and improvements your program planned to implement as a result of last year's student learning outcomes assessment data.
2. Were all of the changes implemented? If not, please explain.
3. What impact did the changes have on student learning?

Changes or improvements were planned, due to revision of the core courses required for the degree. Learning goals have been satisfactorily accomplished in prior years, but the program curriculum committee reviewed, discussed and moved to approve changes in the program of study to reflect current technology and workforce needs. These new SLOs are outlined below with updated measures and methodology.

Student Learning Outcome 1

(knowledge, skill or ability to be assessed)

MSIT students will demonstrate a graduate-level ability to analyze an application problem, identify the requirements, and implement a computing solution.

Changes to the Student Learning Outcomes Assessment Plan: If any changes were made to the assessment plan (which includes the Student Learning Outcome, Effectiveness Measure, Methodology and Performance Outcome) for this student learning outcome since your last report was submitted, briefly summarize the changes made and the rationale for the changes.

Effectiveness Measure: Identify the data collection instrument, e.g., exam, project, paper, etc. that will be used to gauge acquisition of this student learning outcome and explain how it assesses the desired knowledge, skill or ability. A copy of the data collection instrument and any scoring rubrics associated with this student learning outcome are to be submitted electronically to the designated folder on the designated shared drive.

In ITIS 5166 Network-Based Application Development and ITIS 5180 Mobile Application Development (both fulfill a course requirement for the program), students solve an advanced application problem as part of a semester-long development project. The projects require students to analyze a problem to be addressed by a network-based application or mobile application solution, and to identify the computing requirements appropriate to that solution, and finally implement a working solution. Project guidelines are given to the students, and then student project proposals are reviewed and approved by the instructor before students begin work. Course instructors provide details and interactive feedback on project development verbally throughout the semester, both in class and at project group meetings.

Methodology: Describe when, where and how the assessment of this student learning outcome will be administered and evaluated. Describe the process the department will use to collect, analyze and disseminate the assessment data to program faculty and to decide the changes/improvements to make on the basis of the assessment data.

The projects are graded by the course instructor each semester ITIS 5166 and ITIS 5180 are taught. Typically, several sections of ITIS 5166 and ITIS 5180 are offered both in Fall and Spring semesters. The instructor specifies a set of assignments to develop a network-based application or mobile application as a primary component of the overall software development project. A rubric will be used to score student performance on a scale of 1 to 5 across the multiple skill areas described above in the Effectiveness Measure. After collecting data, the instructors will report results, comments and suggestions for improvements to the Program Director. The Program Director will provide additional analysis and comments as needed and will forward all results and suggestions to the Departmental Graduate Committee for discussion and analysis. The Committee will evaluate results, identify areas for improvement, and suggest changes to achieve minimum performance targets by submitting a report to the Department Chair, the Program Director, and the College's Associate Dean for Administration, copying each affected instructor. The Program Director will coordinate with instructors to ensure that deficient areas are corrected and suggested changes are implemented. The Program Director will be responsible for generating the Final Assessment Report and gaining approval for the Report from the Department Chair and the College's Associate Dean for Administration.

Performance Outcome: Identify the percentage of students assessed that should be able to demonstrate proficiency in this student learning outcome and the level of proficiency expected. *Example: 80% of the students assessed will achieve a score of “acceptable” or higher on the Oral Presentation Scoring Rubric.* (Note: a copy of the scoring rubric, complete with cell descriptors for each level of performance, is to be submitted electronically to the designated folder on the designated shared drive.)

At least 80% of students will score 3 or better (on a 5 point scale) on the project evaluation.

Student Learning Outcome 2

(knowledge, skill or ability to be assessed)

MSIT students will demonstrate graduate-level knowledge and skills in applying databases to solve practical problems.

Changes to the Student Learning Outcomes Assessment Plan: If any changes were made to the assessment plan (which includes the Student Learning Outcome, Effectiveness Measure, Methodology and Performance Outcome) for this student learning outcome since your last report was submitted, briefly summarize the changes made and the rationale for the changes.

None.

Effectiveness Measure: Identify the data collection instrument, e.g., exam, project, paper, etc. that will be used to gauge acquisition of this student learning outcome and explain how it assesses the desired knowledge, skill or ability. A copy of the data collection instrument and any scoring rubrics associated with this student learning outcome are to be submitted electronically to the designated folder on the designated shared drive.

In **ITIS 6120 Applied Databases and ITIS 6162 Knowledge Discovery of Databases** (required courses), students develop an advanced database application as part of a semester-long development project. The database development requires students to analyze a problem to be addressed by a database solution, and to identify and define the computing requirements appropriate to implement that solution. Project guidelines are given to the students, and then student project proposals are reviewed and approved by the instructor before students begin work. Course instructors provide details and interactive feedback on project development verbally throughout the semester, both in class and at project group meetings.

Methodology: Describe when, where and how the assessment of this student learning outcome will be administered and evaluated. Describe the process the department will use to collect, analyze and disseminate the assessment data to program faculty and to decide the changes/improvements to make on the basis of the assessment data.

The project is graded by the course instructor each semester when ITIS 6120 and ITIS 6162 is taught. Typically, several sections of ITIS 6120 and 6162 are offered both in Fall and Spring semesters. The instructor specifies a set of assignments to develop a full database application as a primary component of the overall software development project. A rubric will be used to score student performance on a scale of 1 to 5 across the multiple skill areas described above in the Effectiveness Measure. After collecting data, the instructors will report results, comments and suggestions for improvements to the Program Director. The Program Director will provide additional analysis and comments as needed and will forward all results and suggestions to the Departmental Graduate Committee for discussion and analysis. The Committee will evaluate results, identify areas for improvement, and suggest changes to achieve minimum performance targets by submitting a report to the Department Chair, the Program Director, and the College's Associate Dean for Administration, copying each affected instructor. The Program Director will coordinate with instructors to ensure that deficient areas are corrected and suggested changes are implemented. The Program Director will be responsible for generating the Final Assessment Report and gaining approval for the Report from the Department Chair and the College's Associate Dean for Administration.

Performance Outcome: Identify the percentage of students assessed that should be able to demonstrate proficiency in this student learning outcome and the level of proficiency expected. *Example: 80% of the students assessed will achieve a score of "acceptable" or higher on the Oral Presentation Scoring Rubric.* (Note: a copy of the scoring rubric, complete with cell descriptors for each level of performance, is to be submitted electronically to the designated folder on the designated shared drive.)

At least 80% of students will score 3 or better (on a 5 point scale) on the SDS evaluation.

Student Learning Outcome 3

(knowledge, skill or ability to be assessed)

MSIT students will demonstrate a graduate-level ability to design a computer-based system, process, component, or program to meet desired needs.

Changes to the Student Learning Outcomes Assessment Plan: If any changes were made to the assessment plan (which includes the Student Learning Outcome, Effectiveness Measure, Methodology and Performance Outcome) for this student learning outcome since your last report was submitted, briefly summarize the changes made and the rationale for the changes.

None.

Effectiveness Measure: Identify the data collection instrument, e.g., exam, project, paper, etc. that will be used to gauge acquisition of this student learning outcome and explain how it assesses the desired knowledge, skill or ability. A copy of the data collection instrument and any scoring rubrics associated with this student learning outcome are to be submitted electronically to the designated folder on the designated shared drive.

In **ITIS 6112 (Software System Design and Implementation), 6177 (Systems Integration), and 6342 (Information Technology Project Management)** (required program courses), students work on projects to design a software system, with emphasis on different aspects of systems design. Students are required to analyze a problem to be addressed by software solutions, and to identify and define the computing, system, and people requirements appropriate for that solution. Students are required to produce documents describing the required elements, and will be judged based on organization, clarity of expression, presence of required elements, extent to which they justify and support the required elements. Project guidelines are given to the students, and then student project proposals are reviewed and approved by the instructor before students begin work. Course instructors provide details and interactive feedback on projects and documentation verbally throughout the semester, both in class and at project group meetings.

Methodology: Describe when, where and how the assessment of this student learning outcome will be administered and evaluated. Describe the process the department will use to collect, analyze and disseminate the assessment data to program faculty and to decide the changes/improvements to make on the basis of the assessment data.

Documentation is graded by the course instructor each semester when ITIS 6112 and ITIS 6177 and 6342 are taught. Typically, several sections of ITIS 6112, 6177 and 6342 are offered each Fall and Spring semester, and a single section of ITIS 6342 is occasionally offered in a Summer term. A rubric will be used to score student performance on a scale of 1 to 5 across the multiple skill areas described above in the Effectiveness Measure. A rubric will be used to score student performance on a scale of 1 to 5 across the multiple skill areas described above in the Effectiveness Measure. After collecting data, the instructors will report results, comments and suggestions for improvements to the Program Director. The Program Director will provide additional analysis and comments as needed and will forward all results and suggestions to the Departmental Graduate Committee for discussion and analysis. The Committee will evaluate results, identify areas for improvement, and suggest changes to achieve minimum performance targets by submitting a report to the Department Chair, the Program Director, and the College's Associate Dean for Administration, copying each affected instructor. The Program Director will coordinate with instructors to ensure that deficient areas are corrected and suggested changes are implemented. The Program Director will be responsible for generating the Final Assessment Report and gaining approval for the Report from the Department Chair and the College's Associate Dean for Administration.

Performance Outcome: Identify the percentage of students assessed that should be able to demonstrate proficiency in this student learning outcome and the level of proficiency expected. *Example: 80% of the students assessed will achieve a score of “acceptable” or higher on the Oral Presentation Scoring Rubric.* (Note: a copy of the scoring rubric, complete with cell descriptors for each level of performance, is to be submitted electronically to the designated folder on the designated shared drive.)

At least 80% of students will score 3 or better (on a 5 point scale) on the design evaluation.

Student Learning Outcome 4
(knowledge, skill or ability to be assessed)

MSIT students will demonstrate an ability to work effectively on team based projects.

Changes to the Student Learning Outcomes Assessment Plan: If any changes were made to the assessment plan (which includes the Student Learning Outcome, Effectiveness Measure, Methodology and Performance Outcome) for this student learning outcome since your last report was submitted, briefly summarize the changes made and the rationale for the changes.

None.

Effectiveness Measure: Identify the data collection instrument, e.g., exam, project, paper, etc. that will be used to gauge acquisition of this student learning outcome and explain how it assesses the desired knowledge, skill or ability. A copy of the data collection instrument and any scoring rubrics associated with this student learning outcome are to be submitted electronically to the designated folder on the designated shared drive.

In **ITIS 6112 (Software System Design and Implementation), 6177 (Systems Integration), and 6342 (Information Technology Project Management)** (required program courses), students work together in team based projects. Each group project requires students to work together as a team to accomplish a common Information Technology project goal. Teamwork will be judged in the areas of punctuality, cooperation, preparedness, respectfulness, contribution to discussions and deliverables, and timeliness and quality of task contributions. Project guidelines are given to the students, and then student project proposals are reviewed and approved by the instructor before the students begin work. Evaluation of the teamwork aspect of the project includes both peer evaluations and instructor observations. Course instructors provide details and interactive feedback on project development (and the teamwork aspects thereof) verbally throughout the semester, both in class and in project group meetings.

Methodology: Describe when, where and how the assessment of this student learning outcome will be administered and evaluated. Describe the process the department will use to collect, analyze and disseminate the assessment data to program faculty and to decide the changes/improvements to make on the basis of the assessment data.

Teamwork is graded by the course instructor each semester when ITIS 6112 and ITIS 6177 and 6342 are taught. Typically, several sections of ITIS 6112, 6177 and 6342 are offered each Fall and Spring semester, and a single section of ITIS 6342 is occasionally offered in a Summer term. The instructor will set a substantial team project that involves students working together as a group to complete the project. How well the students work together to accomplish the project goals will be specifically evaluated as a component of the project grade over a set of group assignments and deliverables. A rubric will be used to score student performance on a scale of 1 to 5 across the multiple skill areas described above in the Effectiveness Measure. After collecting data, the instructors will report results, comments and suggestions for improvements to the Program Director. The Program Director will provide additional analysis and comments as needed and will forward all results and suggestions to the Departmental Graduate Committee for discussion and analysis. The Committee will evaluate results, identify areas for improvement, and suggest changes to achieve minimum performance targets by submitting a report to the Department Chair, the Program Director, and the College's Associate Dean for Administration, copying each affected instructor. The Program Director will coordinate with instructors to ensure that deficient areas are corrected and suggested changes are implemented. The Program Director will be responsible for generating the Final Assessment Report and gaining approval for the Report from the Department Chair and the College's Associate Dean for Administration.

Performance Outcome: Identify the percentage of students assessed that should be able to demonstrate proficiency in this student learning outcome and the level of proficiency expected. *Example: 80% of the students assessed will achieve a score of "acceptable" or higher on the Oral Presentation Scoring Rubric. (Note: a copy of the scoring rubric, complete with cell descriptors for each level of performance, is to be submitted electronically to the designated folder on the designated shared drive.)*

At least 80% of students will score 3 or better (on a 5 point scale) on the team work evaluation.

Student Learning Outcome 5

(knowledge, skill or ability to be assessed)

MSIT students will demonstrate use effective oral communication in the domain of Information Technology.

Changes to the Student Learning Outcomes Assessment Plan: If any changes were made to the assessment plan (which includes the Student Learning Outcome, Effectiveness Measure, Methodology and Performance Outcome) for this student learning outcome since your last report was submitted, briefly summarize the changes made and the rationale for the changes.

None.

Effectiveness Measure: Identify the data collection instrument, e.g., exam, project, paper, etc. that will be used to gauge acquisition of this student learning outcome and explain how it assesses the desired knowledge, skill or ability. A copy of the data collection instrument and any scoring rubrics associated with this student learning outcome are to be submitted electronically to the designated folder on the designated shared drive.

In ITIS 6112 Software System Design and Implementation, and IT IS 6177 System Integration, and in ITIS 6342 Information Technology Project Management (required program courses) students work on group projects and deliver at least one oral presentation as part of the project in each course. Each team member is required to present an aspect of the project at least once during each course. The presentation(s) require students to demonstrate an ability to use effective oral communication in the domain of Information Technology. Oral communication will be judged in the areas of body language, eye contact, pacing, poise, vocalization, use of visual aids, technical content, and answering questions. Project guidelines are given to the students, and then student project proposals are reviewed and approved by the instructor before the students begin work. Course instructors provide details and interactive feedback on project development (and the oral communication aspects thereof) verbally throughout the semester, both in class and in project group meetings.

Methodology: Describe when, where and how the assessment of this student learning outcome will be administered and evaluated. Describe the process the department will use to collect, analyze and disseminate the assessment data to program faculty and to decide the changes/improvements to make on the basis of the assessment data.

Oral communication is graded by the course instructor each semester that ITIS 6112 and ITIS 6177 and 6342 are taught. Typically, several sections of ITIS 6112, 6177 and 6342 are offered each Fall and Spring semester, and a single section of ITIS 6342 is occasionally offered in a Summer term. The instructor will set a substantial team project that involves one or more oral presentations, involving each team member as a presenter. How well the students construct and deliver the oral presentation(s) will be specifically evaluated as a component of the project grade. A rubric will be used to score student performance on a scale of 1 to 5 across the multiple skill areas described above in the Effectiveness Measure. After collecting data, the instructors will report results, comments and suggestions for improvements to the Program Director. The Program Director will provide additional analysis and comments as needed and will forward all results and suggestions to the Departmental Graduate Committee for discussion and analysis. The Committee will evaluate results, identify areas for improvement, and suggest changes to achieve minimum performance targets by submitting a report to the Department Chair, the Program Director, and the College's Associate Dean for Administration, copying each affected instructor. The Program Director will coordinate with instructors to ensure that deficient areas are corrected and suggested changes are implemented. The Program Director will be responsible for generating the Final Assessment Report and gaining approval for the Report from the Department Chair and the College's Associate Dean for Administration.

Performance Outcome: Identify the percentage of students assessed that should be able to demonstrate proficiency in this student learning outcome and the level of proficiency expected. *Example: 80% of the students assessed will achieve a score of "acceptable" or higher on the Oral Presentation Scoring Rubric. (Note: a copy of the scoring rubric, complete with cell descriptors for each level of performance, is to be submitted electronically to the designated folder on the designated shared drive.)*

At least 80% of students will score 3 or better (on a 5 point scale) on the oral communication evaluation.

Copy and paste the format above for additional student learning outcomes as needed.