GRADUATE

NEW/REVISED/DELETED GRADUATE PROGRAMS COVERSHEET
(Degree Programs, Sequences, Graduate-Level Certificates)
Graduate Curriculum Committee
2006-07

Deadlines for receipt by Graduate Curriculum Committee:
Revised Degree Program, Sequence, Graduate Certificates: **November 11**, 2005, for inclusion in 2006-07 catalog.
New Sequence, New Graduate Certificate: **October 14**, 2005, for inclusion in 2006-07 catalog.
New Degree Program: **February 10, 2006**, for inclusion in **2007-08** catalog.

DEPARTMENT/SCHOOL Information Technology **DATE** August 15, 2006
TITLE OF DEGREE, SEQUENCE, OR CERTIFICATE | Internet Application Development

Proposed Action: (Refer to Part I, Section C of *GCC Proposal Guidelines and Procedures*.)

☒ New*: (Check one.)
- ☐ Degree Program** (goes beyond Graduate Curriculum Committee)
- ☒ Sequence (goes beyond Graduate Curriculum Committee)
- ☐ Post-Master's Graduate Certificate (goes beyond Graduate Curriculum Committee)
- ☐ Post-Baccalaureate Graduate Certificate (goes beyond Graduate Curriculum Committee)
- ☐ Graduate Certificate

☐ Change in requirements for: (Check one.)
- ☐ Degree Program ☐ Sequence ☐ Certificate

☐ Other program revisions

☐ Deletion of: (Check one.)
- ☐ Degree Program (goes beyond Graduate Curriculum Committee)
- ☐ Sequence (goes beyond Graduate Curriculum Committee)
- ☐ Post-Master's Graduate Certificate (goes beyond Graduate Curriculum Committee)
- ☐ Post-Baccalaureate Graduate Certificate (goes beyond Graduate Curriculum Committee)
- ☐ Graduate Certificate

GRADUATE
NOV 8 2006
ILLINOIS STATE UNIVERSITY
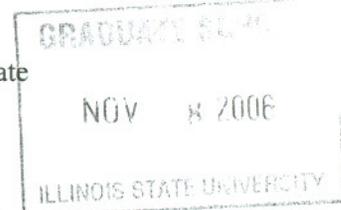
*Attach approved *Request for New Program Approval: Reporting of Financial Implications* form (available at www.academicsenate.ilstu.edu/documents.html).
**Obtain the New Program Request (NEPR) format from the Office of the Provost.

Attachment: Summary of proposed action. For all proposals, provide current title and current catalog copy. Provide new title and new catalog copy for new programs, and for revised programs if catalog copy/title is altered. For revised programs, provide a summary of the changes. (Refer to New/Revised/Deleted Programs checklist in *GCC Guidelines and Procedures*.)

SEE ATTACHED.

Routing and action summary:

1. _____	4. _____
Dept./School Curriculum Committee Chair Date Approved	College Dean Date Approved
2. _____	5. _____
Department Chair/School Director Date Approved	Teacher Education Council Chair Date Approved (28 copies to Dean of College of Education)
3. _____	6. _____
College Curriculum Committee Chair Date Approved	Graduate School Date Approved

*Submit **10** copies of proposal to the Graduate Curriculum Committee. In addition, for new and deleted degree programs, sequences, and Post-Baccalaureate and Post-Master's certificates, submit an electronic version (MS Word format). These proposals are routed by GCC to the Academic Senate. The Senate requires electronic submission of all materials for posting to the Senate Web site.*

1. **Institution:**   **Illinois State University**
2. **Responsible School:**   School of Information Technology
3. **Program Title:**   Internet Application Development in the Masters Degree in Information Systems
4. **Proposed Date of Initiation:** Fall 2007

5. **Summary of the Proposed Action:**

The Masters Degree will have four sequences – Systems Development (modification of current sequence), Telecommunications Management (modification of the current Telecommunications sequence), Information Assurance and Security (11.0103), and Internet Application Development (11.0103), the two new sequences.

In the Internet Application Development sequence:

- 3 new courses will be added

- Changes to be implemented with first catalog after approval, expected to be the 2007-2008 catalog.

New courses
- ITK 354.05 Advanced Web Application Development
- ITK 442 Electronic Commerce: Issues and Technologies
- ITK 484 Advanced Topics in Internet Application Development

6. **Description of Proposed Program Change:**

Description of the Proposed New Sequences

Information Assurance and Security (11.0103)

The Information Assurance and Security sequence is designed to give students the knowledge and tools necessary for protecting information and information systems. The sequence provides an in-depth study of protecting the confidentiality, availability, and integrity of information using technology, people, and policy.

Internet Application Development (11.0103)

The Internet Application Development sequence of the Master of Science program in Information Systems provides a broad and an in-depth understanding of Internet and web related technologies. Emphasis is given to the development of web application software using existing and emerging specifications and languages.

Summary of the Proposed Program by Option (Thesis, Project, Course)

Core Courses for All Options (Thesis, Project, and Course): 21 Hours

ITK 350.05: Fundamentals of Information Assurance and Security
ITK 377.05: Practical Telecommunications Networking
ITK 432: Systems Analysis and Design
ITK 463: Information Technology Project Management
ITK 478: Advanced Database Management
ITK 496: Information Technology Strategy and Policy
ITK 497: Research Methodology

Sequence Requirements for Each Option (Thesis, Project, and Course)

	Thesis Option (36 total hours)	Project Option (39 total hours)	Course Option (39 total hours)
Systems Development	467: Human Factors in Information Systems (3 hrs)	467: Human Factors in Information Systems (3 hrs)	467: Human Factors in Information Systems (3 hrs)
	2 of: (6 hrs) 341.05: Object Oriented Sys. Dev. 460: Software Development Practices 468: Software Quality Assurance and Testing 485: Topics in Sys. Dev. 495: Information Technology Capstone	3 of: (9 hrs) 341.05: Object Oriented Sys. Dev. 460: Software Development Practices 468: Software Quality Assurance and Testing 485: Topics in Sys. Dev. 495: Information Technology Capstone	TEC 349: Technical Writing (3 hrs) 3 of : (9 hrs) 341.05: Object Oriented Sys. Dev. 460: Software Development Practices 468: Software Quality Assurance and Testing 485: Topics in Sys. Dev.
(Culminating Experience)	499: Master's Thesis (6 hrs)	494: Graduate Directed Project (6 hrs)	495: Information Technology Capstone (3 hrs)

	Thesis Option (36 total hours)	**Project Option (39 total hours)**	**Course Option (39 total hours)**
Telecommunications Management	479: Enterprise Telecommunications (3 hrs)	479: Enterprise Telecommunications (3 hrs)	479: Enterprise Telecommunications (3 hrs)
	477: Converged Network Arch. (3 hrs) 1 of: (3 hrs) 371.05: Simulation and Analysis of Internet App. Performance 487: Topics in Telecommunications 495: Information Technology Capstone	3 of: (9 hrs) 371.05: Simulation and Analysis of Internet App. Performance 451: Tools and Applications in Information Assurance 477: Converged Network Architectures 487: Topics in Telecommunications 495: Information Technology Capstone	TEC 349: Technical Writing: (3 hrs) 3 of: (9 hrs) 371.05: Simulation and Analysis of Internet App. Performance 451: Tools and Applications in Information Assurance 477: Converged Network Architectures 487: Topics in Telecommunications
(Culminating Experience)	499: Master's Thesis (6 hrs)	494: Graduate Directed Project (6 hrs)	495: Information Technology Capstone (3 hrs)
Internet Application Development	353.05: Web Development Technologies (3 hrs)	353.05: Web Development Technologies (3 hrs)	353.05: Web Development Technologies (3 hrs)
	2 of: (6 hrs) 354.05: Advanced Web Application Development 467: Human Factors in Information Systems 442: Electronic Commerce: Issues and Technologies 484: Topics in Internet App. Dev. 495: Information Technology Capstone	3 of: (9 hrs) 354.05: Advanced Web Application Development 467: Human Factors in Information Systems 442: Electronic Commerce: Issues and Technologies 484: Topics in Internet App. Dev. 495: Information Technology Capstone	TEC 349: Technical Writing (3 hrs) 3 of : (9 hrs) 354.05: Advanced Web Application Development 467: Human Factors in Information Systems 442: Electronic Commerce: Issues and Technologies 484: Topics in Internet App. Dev.
(Culminating Experience)	499: Master's Thesis (6 hrs)	494: Graduate Directed Project (6 hrs)	495: Information Technology Capstone (3 hrs)

	Thesis Option (36 total hours)	Project Option (39 total hours)	Course Option (39 total hours)
Information Assurance and Security	351.05: Data Communications Security (3 hrs)	351.05: Data Communications Security (3 hrs)	351.05: Data Communications Security (3 hrs)
	2 of: (6 hrs) 450: Policy and Administration in IA and Security 451: Tools and Applications in IA and Security 486: Topics in IA and Security 495: Information Technology Capstone	3 of: (9 hrs) 450: Policy and Administration in IA and Security 451: Tools and Applications in IA and Security 486: Topics in IA and Security 495: Information Technology Capstone	TEC 349: Technical Writing: (3 hrs) 3 of: (9 hrs) 450: Policy and Administration in IA and Security 451: Tools and Applications in IA and Security 477: Converged Network Architectures 486: Topics in IA and Security
(Culminating Experience)	499: Master's Thesis (6 hrs)	494: Graduate Directed Project (6 hrs)	495: Information Technology Capstone (3 hrs)

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Revision of Catalog Copy

Master's Degree in Information Systems
School of Information Technology
Illinois State University

Catalog Copy (changes in bold)

Current	**Proposed**

Master's Degree in Information Systems

The Master of Science program in Information Systems emphasizes the application of computers to real-world problem solving, focusing principally on software and people-related issues in the development of computer applications. It is appropriate for a range of students, including industry practitioners seeking career advancement, students wishing to expand on their undergraduate computing work, and individuals wishing to make a career change. Students may pursue either a course or thesis option.

The Master of Science program in Information Systems emphasizes the application of computers to real-world problem solving, focusing principally on software and people-related issues in the development of computer applications. It is appropriate for a range of students, including industry practitioners seeking career advancement, students wishing to expand on their undergraduate computing work, and individuals wishing to make a career change. Students may **pursue a course, thesis, or project option.**

Admission Requirements

All University and Graduate School requirements for admission to a degree program of the Graduate School apply. Additional department requirements are listed below.

(no change)

Applicants must submit scores from the Graduate Record Examination (GRE) General Aptitude test. The GRE Verbal and Quantitative scores should each exceed 400, and the sum of these two scores is expected to exceed 1100.

(no change)

Applicants must have a bachelor's degree from an accredited university or college and must have a grade point average (GPA) of at least 3.0 (B) on a 4.0 scale, calculated over the last 60 hours taken (either graduate or undergraduate). The undergraduate degree need not be in computing. International students must present a TOEFL score of at least 570 (computer-based 230).

(no change)

Students may be admitted to the Information Systems program for fall or spring semesters with

(no change)

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preference given to student applications received by March 1 for fall (August) admission and by September 1 for spring (January) admission.

Full-time students in the Information Systems program should expect to spend at least two years to complete the master's program once foundation course work has been completed.

(no change)

All 400-level courses in the School of Information Technology have restricted enrollments and are not open to graduate students-at-large, with the exception of ITK 407 and 408. Opportunities for non-Information Systems majors, including GSALs and graduate students in other majors, to take undergraduate and 3xx.05-level computer courses are also limited, and permission to register must be obtained from the ITK graduate advisor (OU 302). Such students may be required to furnish official transcripts indicating the degree earned and the prerequisites for the course in which the student is seeking enrollment.

(no change)

Programs Offered

The School offers two sequence options to complete the Master of Science degree. The sequences are Systems Development and Telecommunications. Within each sequence the student may choose to complete either a 35 semester hour program thesis option or a 39 semester hour course option.

Programs Offered

The School offers four sequence options to complete the Master of Science degree. The sequences include Systems Development, Telecommunications Management, Information Assurance and Security, and Internet Application Development. Within each sequence the student may choose to complete a 36 semester hour thesis option, a 39 semester hour project option, or a 39 semester hour course option.

Curriculum Requirements

This degree assumes an undergraduate knowledge base in computing, which students with undergraduate degrees in computing will normally have acquired. Students lacking sufficient background may be admitted but will need to complete fundamental courses before enrolling in the Information Systems core courses. These students may wish to consider applying for fall admission due to the limited offering of foundation courses during the spring semester.

Curriculum Requirements

(No change)

Students lacking sufficient background should expect to complete some or all of the following courses with a grade of "B" or better:

- ITK 275 Java as a Second Language
        OR
ITK 177 Problem Solving for Information Technology *AND* ITK 178 Computer Application Programming

- ITK 407 Telecommunications Fundamentals
        OR
ITK 254 Hardware and Software Concepts *AND*
        ITK 375.05 Data Communications

- ITK 408 Information Systems Fundamentals
        OR
ITK 261 Systems Development I *AND*
        ITK 378.05 Database Processing

The ITK Graduate Advisor will determine specific requirements.

To provide a common background, each student is required to complete one course from each of the following Core areas:

System Analysis, Modeling, and Design
        ITK 432 Systems Analysis and Design
Data Communications and Networking
        ITK 475 Advanced Data Communications and Networks
        OR ITK 377.05 Practical Telecommunications Networking
Data Management
        ITK 478 Advanced Database Management
Project and Change Management
        ITK 463 Controlling Software Development
Project Implementation
        ITK 495 Information Technology Integration

To provide a common background, each student is required to complete the following Core courses:

IS Technology (12 hours):
        ITK 432 Systems Analysis and Design
        ITK 478 Database Management
        ITK 350.05 Fundamentals of Information Assurance and Security
        ITK 377.05 Practical Telecommunications Networking

IS Management (6 hours):
        ITK 463 Information Technology Project Management
        ITK 496 Information Technology Strategy and Policy

Additional Course (3 hours):
        ITK 497 Research Methodology

All students must take ITK 497 during their first year in the program.

There are two options available within this degree: the Thesis Option and the Course Option.

There are three options available within this degree: the Thesis Option, the Project Option,

and the Course Option.

The Thesis Option requires a minimum of 35 semester hours as follows:

Core Area courses	15 hours
Research methodology	3 hours
ITK 499 (Master's Thesis)	5 hours
Approved ITK electives	3 hours
Choose one of the following sequences:	9 hours

Systems Development
2 of : 440, 451, 460, 467, 468, 485

1 of: 341.05, 352.05, 353.05,
        365.05, 367.05
OR
Telecommunications
3 additional courses from: 351.05, 374.05,
377.05, 380.05, 451, 475, 476, 477, 485

Total	35 hours

Students pursuing the thesis option must take a course in research methodology no later than the first semester of thesis enrollment (earlier is recommended). A list of approved research courses is available from the ITK Graduate Advisor. Students in the thesis option must complete a minimum of 21 hours of 400-level course work, not counting thesis hours.

The Thesis Option requires a minimum of 36 semester hours as follows:

Core Area courses	21 hours
ITK 499 (Master's Thesis)	6 hours

Choose one of the following sequences:	9 hours

Systems Development
467
2 of: 341.05, 460, 468, 485, 495
OR
Telecommunications Management
479, 477
1 of 371.05, 487, 495
OR
Information Assurance and Security
351.05
2 of: 450, 451, 486, 495
OR
Internet Application Development
353.05
2 of: 354.05, 467, 442, 484, 495

Total	**36 hours**

Students in the thesis option must complete a minimum of 18 hours of 400-level course work, not counting thesis hours.

The Project Option requires a minimum of 39 semester hours as follows:

Core Area courses	**21 hours**
ITK 494 (Master's Project)	**6 hours**

Choose one of the following sequences:	**12 hours**

Systems Development
467
3 of: 341.05, 460, 468, 485, 495
OR
Telecommunications Management
479
3 of: 371.05, 451, 477, 487, 495
OR
Information Assurance and Security

351.05
3 of: 450, 451, 486, 495
OR
<u>Internet Application Development</u>
353.05
3 of: 354.05, 467, 442, 484, 495

Total	**39 hours**

Students in the project option must complete a minimum of 21 hours of 400-level course work, not including project hours.

The Course Option requires a minimum of 39 semester hours as follows:

Core Area courses	15 hours
Technical Communication: TEC 349, ENG 349, or MQM 416	3 hours
Approved ITK electives	9 hours
Choose one of the following sequences:	12 hours

Systems Development
    3 of: 440, 451, 460, 467, 468, 485

    1 of: 341.05, 352.05, 353.05,
        365.05, 367.05
OR
Telecommunications
4 additional courses from: 351.05, 374.05,
377.05, 380.05, 451, 475, 476, 477, 485

Total   39 hours

Students in the course option must complete a minimum of 24 hours of 400-level course work.

The Course Option requires a minimum of 39 semester hours as follows:

Core Area courses	**21 hours**
Technical Communication: TEC 349, ENG 349, or MQM 416	**3 hours**

Choose one of the following sequences: **15 hours**

<u>Systems Development</u>
467, 495
3 of: 341.05, 460, 468, 485
OR
<u>Telecommunications Management</u>
479, 495
3 of: 371.05, 451, 477, 487
OR
<u>Information Assurance and Security</u>
351.05, 495
3 of: 450, 451, 477, 486
OR
<u>Internet Application Development</u>
353.05
3 of: 354.05, 467, 442, 484

Total	**39 hours**

Students in the course option must complete a minimum of 21 hours of 400-level course work.

Courses

For a 300-level ITK course to be used toward the master's degree in Information Systems, students must enroll in a graduate section of the course (e.g., 375.05).

(no change)

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7. Rationale for Proposal:

Over the years the School of Information Technology has worked to improve the quality and rigor of the masters program. In Fall of 2002 revisions to the graduate curriculum were implemented. The degree name was changed to Master of Science in Information Systems, the core course requirements were modified, and two sequences, Systems Development and Telecommunications, were created. In addition the number of 400 level courses required was increased. The changes in curriculum followed the requirements of MSIS 2000, Model Curriculum and Guidelines for Graduate Degree Programs in Information Systems. The MSIS 2000 was a working document for the future guidelines for accreditation and has been widely adopted by IS departments throughout the world.

Since the implementation of the MSIS 2000 curriculum, a new curriculum, the MSIS 2006 Model curriculum, a revision to the original model has been proposed. The new MSIS 2006 Curriculum has incorporated feedback from many sources including feedback from the IS community and its professional organizations. It takes into account changes in technology and business over the last five years. After some review, this new MSIS 2006 Curriculum is the foundation which the School of Information Technology has chosen as the model for program goals. The current proposal follows the changes in the MSIS 2006 Model Curriculum. The MSIS 2006 Curriculum is separated into two levels of implementation. Our current masters program is very close to the Level 1 model. The Level 2 model provides a basis for longer term program improvement. As a result of the changes, 10 new courses need to be added, 6 existing courses need to be modified, the existing two sequences need to be modified, and two new sequences need to be added.

While we prefer to set our goals based on the MSIS 2006 Curriculum, we also reviewed similar programs offered by universities throughout the United States. One program identified as having some basic similarities to our proposed structure is the Master of Science in Information Systems program at DePaul University in Chicago, Illinois. As our program undergoes modifications, our goal is to emulate the course variety and tighter structure of the DePaul program while adhering to the MSIS 2006 Curriculum. This would provide students with greater focus in their degree program and exposure to the very latest topics and trends in the IS industry, while creating an accreditable program for the School of Information Technology.

The proposed establishment of four separate sequences in each option (Project, Thesis, and Course) of the degree program is a result of student requests and the faculty's desire to provide a more focused degree plan. The selection of the four sequences is a result of the requests from prospective and current students in the program and suggestions from the business advisory boards. The current program uses a menu approach to allow our graduate students to select the courses they desire outside of the core to constitute their plans of study. The more focused sequence approach should provide for better course schedule planning and provide a more qualified graduate. The focused sequence approach will also make it easier for employers to identify the strengths of the graduate.

8. Expected Impact of Proposal on Existing Campus Programs:

No impact on existing programs on campus is expected from the proposal. We already require students to take either TEC 349, ENG 349, or MQM 416. We do not expect a change in the number of students taking these classes.

No impact on existing programs within ITK is expected from the proposal The number of ITK masters students choosing the thesis option, the project option, and the number choosing the course option are expected to remain approximately the same.

There are also no additional funding needs or staffing anticipated as a result of this revision to the master's degree. Sufficient seats in graduate ITK classes are expected to be available to accommodate the proposed change.

9. Curricular Change Including New Courses:

10 new courses have been developed and 6 courses have been modified. Please see the details under item 6 above.

10. Anticipated Staffing Arrangements:

No new staff is required to implement the changes.

This proposed program provides a tighter structure for the sequences and utilizes existing resources more efficiently. Even though we will add two new sequences to the existing ones offering a total of four sequences in Information Systems we will not need new resources. The new program proposal does not include three existing 400 level courses, therefore these courses will eventually be dropped from the catalog. The core of the new program will increase from 15 to 24 hours, reducing the number of hours required in the individual sequences. Therefore the four sequences can be implemented without increasing the total number of courses offered or the number of faculty members teaching the courses annually. Seven 400 level courses will be offered each fall and spring semester, with one in the summer. This is in line with the number of 400 level courses currently being offered by the School. The additional new 300 level courses will also be offered in the undergraduate curriculum. The new 300 level course proposals are being submitted for approval.

11. Anticipated Funding Needs and Source of Funds:

No new funds are needed.