# Curriculum Proposal

Please type or select the requested information. Print completed forms, add appropriate paper attachments, and route through MSU’s curricular process for recommendations and decisions.

<table>
<thead>
<tr>
<th>College: Science, Engineering and Technology</th>
<th>Proposals</th>
<th>194</th>
<th>Effective Date of Change:</th>
<th>06-07</th>
</tr>
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<tbody>
<tr>
<td>Department: Computer and Information Sciences</td>
<td>Undergraduate</td>
<td></td>
<td>Academic Year:</td>
<td>06-07</td>
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<tr>
<td>Program: Information Systems (ISYS)</td>
<td>Graduate</td>
<td></td>
<td>(For Office Use Only)</td>
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<tr>
<td>Proposed Type of Change: PROGRAM PROPOSALS</td>
<td>CIP # 11.040100</td>
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<td>Course Designator and Number</td>
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<tr>
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<td></td>
<td></td>
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<tr>
<td>Proposed Title: Information Systems</td>
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<td>(if applicable)</td>
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</table>

**Include a course or program description for the Bulletin (30-40 words maximum for courses, 100 for programs):**

The field of Information Systems (IS) includes two areas; the first is the acquisition, coordination, and management of computer-based information resources and services. These resources and services must be integrated into the organization's strategy, planning, and practices. The second area is the development of new enterprise systems that enhance and expand existing organizational processes. These systems combine human and technological resources to store and process data for transaction processing, data acquisition, communication, coordination, analysis, and decision support. IS professionals employ a variety of innovative tools and techniques, including business process design, quality assurance, human-computer interfaces, e-business design, and change management.

**Rationale or Justification for change:**

Change in department designation and program name. This is the current COMS Management Information Systems (MIS) program transferred to the proposed Department of Information Systems & Technology. The shorter program name is the generic name for the field, is widely used academically, and is recommended by ABET and ACM. Program designator: ISYS.

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### For General Education or Cultural Diversity Courses Only

<table>
<thead>
<tr>
<th>General Education Course:</th>
<th>Cultural Diversity Course:</th>
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</table>

- For Writing Intensive Courses, attach a description of the kind and quantity of writing.
- For Upper Division Courses, include a description of the respects in which it is broad and general rather than narrow and specific, and so suitable as GE.

Attach paper copies of the following:
- Syllabus or course outline.
- Course's student learning outcomes associated with each GE competency or CD designation.
- List of strategies to be used to assess students' achievement of each GE competency or CD designation.

---

### For New Courses

<table>
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<tr>
<th>Check all that apply:</th>
<th>Instructional Type:</th>
<th>Course will be offered:</th>
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<tbody>
<tr>
<td>Course is an elective.</td>
<td>Lecture</td>
<td>Fail Semester</td>
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<tr>
<td>Course is required for program</td>
<td></td>
<td>Spring Semester</td>
</tr>
<tr>
<td>Pre- or Co-requisites:</td>
<td></td>
<td>Summer Session</td>
</tr>
</tbody>
</table>

- Other courses are being changed or eliminated. (Explain.)

- Course content or title is similar to courses in other departments. (Attach copy of letter of agreement with other program(s) contacted. Indicate the nature of the discussions and/or resolution of differences or potential conflicts.)

Attach paper copies of the following:
- Syllabus or course outline.
- Course's student learning outcomes.
- A list of resources required to offer and support this course.
- A description of how teaching this course will affect department staffing.
- If 400/500 level course, an explanation of added expectations of graduate students.
### Signature Page

**Department**

- **Recommended**
  - Category/ies: __________ 
- **Not Recommended**
  - Category/ies: __________ 

Comments: 

Signed by Department Chair: __________ 
Date: __________

**College Curriculum Committee**

- **Recommended**
  - Category/ies: __________ 
- **Not Recommended**
  - Category/ies: __________ 

Comments: 

Signed by Committee Chair: __________ 
Date: __________

**College Dean**

- **Recommended**
  - Category/ies: __________ 
- **Not Recommended**
  - Category/ies: __________ 

Comments: 

Signed by Dean: __________ 
Date: __________

**General Education Subcommittee**

- **Recommended**
  - Category/ies: __________ 
- **Not Recommended**
  - Category/ies: __________ 

Comments: 

Signed by General Education Subcommittee Chair: __________ 
Date: __________

**Undergraduate Curriculum and Academic Policy Committee**

- **Recommended**
  - Category/ies: __________ 
- **Not Recommended**
  - Category/ies: __________ 

Comments: 

Signed by UCAP Faculty Chair: __________ 
Date: __________

**Faculty Association Graduate Committee**

- **Recommended**
- **Not Recommended**

Comments: 

Signed by Faculty Association Graduate Chair: __________ 
Date: __________

**Graduate Dean**

- **Recommended**
- **Not Recommended**

Comments: 

Signed by Graduate Dean: __________ 
Date: __________

**Academic Affairs Council**

- **Recommended**
  - Category/ies: __________ 
- **Not Recommended**
  - Category/ies: __________ 

Comments: 

Signed by Assistant Vice President: __________ 
Date: __________

**Senior Vice President and Vice President for Academic Affairs**

- **Approved**
  - Category/ies: __________ 
- **Not Approved**
  - Category/ies: __________ 

Comments: 

Signed by Sr. Vice President / Vice Pres. Academic Affairs: __________ 
Date: __________

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*Revised September 2002*
### MIS Existing Curriculum

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<td>Data Structures and Algorithm</td>
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<td>COMS362</td>
<td>Intro. to Data Comm. &amp; Networking</td>
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<td>COMS371</td>
<td>Application Programming</td>
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<td>COMS380</td>
<td>Database Management Systems I</td>
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<td>MGMT346</td>
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<td>MGMT458</td>
<td>Corporate Information Systems</td>
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**REQUIRED GEN. ED. & SUPPORT (33 Cr.)**

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<td>SPEE100</td>
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<td>MATH180</td>
<td>Mathematics for Computer Science</td>
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<td>MATH121</td>
<td>Calculus</td>
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<td>STAT154</td>
<td>Elementary Statistics</td>
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<td>COMS110</td>
<td>Found. of Computer Science (4cr counts as 2)</td>
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<td>SPEE</td>
<td>One of 101,102,202,203,315,325,333, or 403</td>
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<td>COMS202</td>
<td>Computers in Society</td>
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**ADDITIONAL GEN. ED. (19 Cr.)**

### ISYS Proposed Curriculum 2006

<table>
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<td>ACCT 210</td>
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<td>ISYS 380</td>
<td>Systems Analysis and Design</td>
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<td>ISYS 441</td>
<td>Database Modeling for Applications</td>
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<td>ISYS 450</td>
<td>Information Warfare</td>
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<td>ISYS 480</td>
<td>Software Quality Testing and Assurance</td>
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<td>ISYS 482</td>
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<td>ISYS 484</td>
<td>Software Engineering</td>
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<td>ISYS 497</td>
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<td>MGMT 330</td>
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**REQUIRED GENERAL ED. & SUPPORT**

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<td>Global Perspectives: 1C, 6, 8, CD-rel</td>
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**ADDITIONAL GENERAL EDUCATION REQUIRED**

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# MIS Existing Curriculum

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<td>COMS320</td>
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<td>COMS360</td>
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<td>COMS370</td>
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<td>Graphics</td>
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<td>COMS430</td>
<td>Artificial intelligence</td>
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<td>COMS432</td>
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<td>COMS440</td>
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<td>COMS450</td>
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<td>Parallel and Distributed Processing</td>
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<td>COMS499</td>
<td>Individual Study</td>
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**TOTAL OF CREDITS**: 128

# ISYS Proposed Curriculum 2006

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**TOTAL OF CREDITS**: 128

Change Summary (Num/Name/New): 9 10 6

Version 7.14 last modified by Jim on 10/31/2006
To: Whom it may concern

From: David Haggin

Representing the proposed Computer Science program

Mahbubur Syed

Representing the proposed Information Technology Program

James Slack

Representing the proposed Information Systems Program

Date: 10/11/2006

Re: Mutual agreement concerning courses related to introductory programming, software engineering, networking and database systems

The Department of Computer and Information Sciences currently has three programs proposing to redesign and evolve as follows:

- Computer Science redesigned but the name remains, designator will be CS
- CIS redesigned but uses the name Information Technology, designator will be IT
- CMIS redesigned but uses the name Information Systems, designator will be ISYS

We have formed three groups of faculty and have worked to separate the curricula much more than the current COMS curriculum. This memo addresses the areas that remain closest among the programs after the separation.

We have divided most courses and topics between the redesigned programs in an obvious way. However, the fields of study of these programs intersect in a few places: introductory programming, software engineering, networking, and database systems.

The introductory programming courses in CS will use the C++ programming language to explore machine-level and operating-system-level concepts, such as register allocation and memory management. The introductory courses in ISYS and IT will use the Python and Java programming languages to focus on practical computer applications. The respective faculty groups agree that although there are some topics in common, the set of knowledge objectives of the respective courses is markedly dissimilar.

The other three intersection areas --- software engineering, networking and database systems --- are upper-level courses in all three programs. The faculty groups have agreed that theoretical and conceptual aspects of these
topics should belong to courses in the CS program, while the practical and applied aspects belong to courses in the ISYS and/or IT. In other words, the CS curriculum will focus on development of software engineering tools and techniques, while ISYS and IT will focus on how to use existing tools and techniques, possibly in new and better ways. The CS networking courses will focus on the algorithms and concepts behind network implementations whereas the IT program will focus on applications of these technologies to areas such as security, organizational support of information services such as web applications, and applications of state of the art networking technologies. Similarly, for database systems, CS will focus on the theory and concepts of database system software, and IYS and IT will focus on how to use database system software to solve organizational problems.

We feel that this separation of course focus and content is reflective of our respective fields of study.
From: Bailey, Cathryn
Sent: Wednesday, August 30, 2006 11:21 AM
To: Haglin, David
Cc: Asher, Mary L
Subject: ISYS Proposal

Hello,
It has come to my attention that your department is advancing a curriculum proposal (ISYS) that includes Philosophy 224W, Business Ethics, as part of the general education requirement. Please know that we are aware of and approve of the inclusion of this course in your proposal. Best, Cathryn Bailey

Professor C. Bailey, Chair
Department of Philosophy
Minnesota State University Mankato
Mike,

After discussing this matter with the MIS faculty, within the College of Business, your proposal seems reasonable. We have no objections to your inclusion of Management 473 in your new curriculum.

Miles Smayling

From: Wells, Michael G
Sent: Thursday, October 05, 2006 11:42 AM
To: Smayling, Miles
Subject: RE: New Course Requirement

Miles

Our Information Systems major proposal is going to the college curriculum committee on Tuesday. Could you send me your confirmatory email for the inclusion of MGMT 473, ERP, before then?

Thanks and hope you are feeling better.

Mike Wells
Hello,
It has come to my attention that your department is advancing a curriculum proposal (ISYS) that includes Philosophy 224W, Business Ethics, as part of the general education requirement. Please know that we are aware of and approve of the inclusion of this course in your proposal. Best, Cathryn Bailey

Professor C. Easley, Chair
Department of Philosophy
Minnesota State University Mankato
From: Cronn-Mills, Daniel  
Sent: Tuesday, August 29, 2006 2:06 PM  
To: Asher, Gregg  
Subject: Speech Comm Approves

To: Gregg Asher  
From: Dan Cronn-Mills, Chair, Speech Communication  

RE: MIS curriculum to ISYS Curriculum proposal  

The Speech Communication Department supports the MIS program proposal that requires SPEE 100 and SPEE 212 for the new ISYS proposed curriculum. We look forward to serving the needs of the new ISYS curriculum.
Mike:

The change in the MIS major that will no longer require MRKT 310 and IBUS 380 is fine as far as the Department of Marketing & International Business is concerned. I wish you well with your revised major.

Sincerely,

Kevin M. Elliott, Ph.D.
Professor of Marketing
Chair, Dept. of Marketing & International Business
Co-Director of MBA Program
Minnesota State University, Mankato
(507) 389-5404

---

From: Wells, Michael G
Sent: Tue 8/29/2006 11:50 AM
To: Elliott, Kevin N
Subject: MIS Curriculum Changes

Dr. Elliott

Due to a departmental split next year, we are changing our MIS major for the 2007-08 academic year. The new curriculum will no longer require IBUS380, Principles of International Business or MKTG310, Principles of Marketing. The CSET Curriculum Committee requires some documentation from departments affected by the change. We will likely not have more than 20 students starting in the major next year, and we currently have less than 60 declared majors.

Could you send me a letter or email stating this change is acceptable to the Department of Marketing and International Business?

Thanks,

Mike Wells
Assessment Plan

This section outlines our plan for determining the efficacy of the ISYS program. To ensure accomplishment of our mission and full realization of our program goals, we must assess the program. The first step in assessment is to make our mission, goals, and objectives open and clear.

The mission of the proposed ISYS program is to ensure that each of our graduates is exceptionally well-qualified to undertake a successful information systems career in business, industry, education, or government. In support of this mission, we have defined the following program goals:

1. Each student will gain a sound foundation in computing basics: analysis and design, programming, testing, software development, security, database, and human-computer interaction.

2. Each student will assimilate a solid base of business enterprise concepts, including principles of accounting, finance, business law, management, operations, and enterprise resource planning (ERP).

3. Each student will learn the theory and practice of information technology, and develop skills to apply this knowledge to analyze and solve business problems.

4. Each student will develop analytical, critical thinking, and interpersonal skills applicable to real-world problems.

5. Each student will develop effective oral and written communication skills.

6. Each student will appreciate the social and ethical issues in information systems.

To continually improve our program, we must determine how well we are meeting these goals; this determination requires methodical collection of operational information and evaluation of that information. The remainder of this section specifies how we will collect and evaluate information to find out whether our program’s goals are being met.

(Note: This section is still under development.)

8. Program Goal 1

Each student will gain a sound foundation in computing basics: analysis and design, programming, testing, software development, security, database, and human-computer interaction.

A sound foundation in these computing fundamentals is necessary for successful completion of higher-level courses. Program goal 1 is supported by the following related knowledge unit subcategories and courses:

- **Application development fundamentals (subcategory of application development), in courses ISYS 210 (comprehension), ISYS 215 (application), ISYS 311 (application), ISYS 380 (application) and ISYS 4584 (analysis)**

- **Data structures and algorithms (subcategory of application development), in courses ISYS 110 (knowledge), ISYS 210 (application), ISYS 215 (analysis), ISYS 311 (analysis) and ISYS 4584 (synthesis)**

- **Database fundamentals (subcategory of database management systems), in courses ISYS 101 (knowledge) and ISYS 340 (application)**

- **Information system development fundamentals (subcategory of information systems development process), in courses ISYS 101 (application) and ISYS 110 (comprehension)**

- **Infrastructure and integration (subcategory of application development), in courses ISYS 110 (knowledge) and ISYS 311 (application)**

- **Object oriented development (subcategory of application development), in courses ISYS 210 (knowledge), ISYS 215 (application), ISYS 380 (application) and ISYS 4584 (evaluation)**

- **Quality assurance fundamentals (subcategory of quality assurance and testing), in courses ISYS 311 (comprehension), ISYS 4580 (application), ISYS 4584 (application) and MGMT 346 (application)**

- **Security fundamentals (subcategory of information security), in courses ISYS 350 (application) and ISYS 4550 (application)**

- **Structured development (subcategory of application development), in courses ISYS 210 (comprehension), ISYS 311 (analysis), ISYS 380 (application) and ISYS 4584 (analysis)**

- **User interface design and development (subcategory of human-computer interaction), in course ISYS 4/582 (application)**

Related College and University Goals

- **College goal 1**: Providing strong, discipline-based and interdisciplinary undergraduate and graduate degree programs that are recognized and respected for their high quality by the many publics.
• College goal 2: Providing degree programs that give students in-depth knowledge, inspire critical thinking skills, problem solving skills, oral and written communication skills and laboratory skills.

• University goal 2: The University will prepare students for careers and for life-long learning by providing a clearly defined general education program and focused undergraduate pre-professional, professional, and liberal arts programs.

Method of Assessment

• At least 80% of students in ISYS 484 successfully design and implement a database, then use a code generator to generate a skeleton application that allows a user to manipulate the contents of the database. (This assesses the knowledge unit subcategory application development fundamentals.)

• At least 80% of students in ISYS 215 successfully write a program that uses a list: add to the beginning, end, and middle; delete from the beginning, end, and middle; search the list; sort the list; update the list contents. (This assesses the knowledge unit subcategory data structures and algorithms.)

• At least 70% of students in ISYS 340 successfully write a SELECT statement involving a join of two tables, a GROUP BY clause, a WHERE clause (in addition to the join condition), and an aggregate function on an exam. (This assesses the knowledge unit subcategory database fundamentals.)

• At least 80% of students in ISYS 454 can successfully contrast and critique (on an exam question) the object-oriented paradigm with other paradigms, including structured, functional, and logical. (This assesses the knowledge unit subcategory object oriented development.)

• At least 90% of groups in ISYS 480 design and write a practical and workable quality assurance and quality control plan for their group projects. (This assesses the knowledge unit subcategory quality assurance fundamentals.)

• At least 70% of students in ISYS 350 can (on an exam question) justify the need for confidentiality, integrity and availability, explain the benefits, assumptions, and weaknesses of cryptography, and list five security task performed by operating systems. (This assesses the knowledge unit subcategory security fundamentals.)

• At least 80% of students in ISYS 311 using a top-down, bottom-up, or meet-in-the-middle strategy to successfully create a structure chart to solve a programming problem on an exam. (This assesses the knowledge unit subcategory structured development.)

• At least 70% of students in ISYS 458/4 successfully explain the importance of user interface design on an exam. (This assesses the knowledge unit subcategory user interface design and development.)

ISYS Program Redesign Proposal 8. Assessment Plan

• We are still developing an assessment mechanism for the knowledge unit subcategories Information system development fundamentals and Infrastructure and Integration.

• Portfolio: 80% of students' portfolios show evidence of satisfactory completion of at least one higher-level objective from each knowledge unit subcategory associated with this goal, subject to the courses each student has taken.

• Graduate survey: 75% of the graduates will be satisfied or very satisfied that they received a sound foundation of computing basics that facilitated work in upper division ISYS courses.

• Employer survey: 75% of the employers will rate the graduates as having a good or very good foundation in computing basics.

• Departmental Business Advisory Board will meet annually to ensure that the topics remain up to date and evolve with technological advances.

Population Assessed

• Students: declared ISYS majors.

• Graduates: Alumni who have been employed in an information systems position for a minimum of one year.

• Employers: Known employers of alumni who have been employed in an information systems position for a minimum of one year.

When Assessed

The ISYS faculty will conduct the following assessments annually, during each spring semester:

• Course-specific evaluations

• Portfolio evaluation

• Elicitation of advice from departmental Business Advisory Board

The ISYS faculty will conduct the following assessments every two to three years:

• Graduate survey

• Employer survey

Standard of Mastery Criterion of Achievement

• At least 80% of students in ISYS 484 successfully design and implement a database, then use a code generator to generate a skeleton application that allows a user to manipulate the contents of the database.
• At least 80% of students in ISYS 215 successfully write a program that uses a list: add to the beginning, end, and middle; delete from the beginning, end, and middle; sort the list; update the list contents.

• At least 70% of students in ISYS 340 successfully write a SELECT statement involving a join of two tables, a GROUP BY clause, a WHERE clause (in addition to the join condition), and an aggregate function on an exam.

• At least 80% of students in ISYS 454 can successfully construct and critique (on an exam question) the object-oriented paradigm with other paradigms, including structured, functional, and logical.

• At least 90% of groups in ISYS 480 design and write a practical and workable quality assurance and quality control plan for their group projects.

• At least 70% of students in ISYS 350 can (on an exam question) justify the need for confidentiality, integrity, and availability, explain the benefits, assumptions, and weaknesses of cryptography, and list five security tasks performed by operating systems.

• At least 80% of students in ISYS 311 using a top-down, bottom-up, or meet-in-the-middle strategy to successfully create a structure chart to solve a programming problem on an exam.

• At least 70% of students in ISYS 4/582 successfully explain the importance of user interface design on an exam.

• Portfolio: 80% of students' portfolios show evidence of satisfactory completion of at least one higher-level objective from each knowledge unit subcategory associated with this goal, subject to the courses each student has taken.

• Graduate survey: 75% of the graduates will be satisfied or very satisfied that they received a sound foundation of computing basics that facilitated work in upper-division ISYS courses.

• Employer survey: 75% of the employers will rate the graduates as having a good or very good foundation in computing basics.

• Departmental Business Advisory Board will meet annually to ensure that the topics remain up to date and evolve with technological advances.

What is Hoped to be Learned

How we can best improve individual instruction, courses and the curriculum.

8.2 Program Goal 2

Each student will assimilate a solid base of business enterprise concepts, including principles of accounting, finance, business law, management, operations, and enterprise resource planning (ERP).

Business is the application domain of information systems; a thorough understanding of these topics is thus necessary for success in the field. Program goal 2 is supported by the following related knowledge unit subcategories and courses:

• Business models (subcategory of business fundamentals), in courses BLAW 371 (comprehensive), ISYS 202W (knowledge), ISYS 215 (comprehensive), ISYS 380 (comprehensive), ISYS 4/541 (comprehensive), MGMT 330 (comprehensive), MGMT 346 (application) and MGMT 473 (analysis)

• Evaluation of business performance (subcategory of business fundamentals), in course MGMT 346 (comprehensive)

• Functional business areas (subcategory of business fundamentals), in courses ACCT 200 (comprehensive), ACCT 210 (comprehensive), FINA 362 (application) and MGMT 473 (analysis)

• Security-related fields (subcategory of information security), in course ISYS 350 (knowledge)

Related College and University Goals

• College goal 1: Providing strong, discipline-based and interdisciplinary undergraduate and graduate degree programs that are recognized and respected for their high quality by the many publics.

• College goal 3: Providing a thorough understanding of the applications of their major as well as the ethical nature of the applications to societal needs.

• University goal 2: The University will prepare students for careers and for life-long learning by providing a clearly defined general education program and focused undergraduate pre-professional, professional, and liberal arts programs.

Method of Assessment

• At least 70% of students in ISYS 350 can (on an exam question) justify the need for business continuity and disaster recovery plans. (This assesses the knowledge unit subcategory security-related fields.)

• We are still developing an assessment mechanism for the knowledge unit subcategories Business models, Evaluation of business performance and Functional business areas.

• Portfolio: 80% of students' portfolios show evidence of satisfactory completion of at least one higher-level objective from each knowledge unit subcategory associated with this goal, subject to the courses each student has taken.

• Graduate survey: 75% of the graduates will be satisfied or very satisfied that they assimilated a solid base of business enterprise concepts.
What is Hoped to be Learned
How we can best improve individual instruction, courses and the curriculum.

8.3 Program Goal 3

Each student will learn the theory and practice of information technology, and develop skills to apply this knowledge to analyze and solve business problems. This area brings all other areas together into a cohesive whole: how to analyze, design, develop, and manage information systems. Program goal 3 is supported by the following related knowledge unit subcategories and courses:

- Data modeling (subcategory of database management systems), in courses ISYS 340 (application) and ISYS 4/541 (analysis)
- Database application development (subcategory of database management systems), in courses ISYS 340 (comprehension) and ISYS 4/541 (application)
- Information systems project management (subcategory of information systems development process), in courses ISYS 110 (knowledge), ISYS 311 (application), ISYS 380 (knowledge), ISYS 4/580 (application) and MGMT 346 (application)
- Information warfare (subcategory of information security), in course ISYS 4/550 (analysis)
- Phenomena and theories of human-computer interaction (subcategory of human-computer interaction), in course ISYS 4/582 (application)
- Security deployment (subcategory of information security), in course ISYS 350 (application)
- Systems analysis and design (subcategory of information systems development process), in courses ISYS 101 (knowledge), ISYS 110 (knowledge), ISYS 215 (comprehension), ISYS 311 (application), ISYS 380 (application), ISYS 4/584 (synthesis) and MGMT 346 (application)
- Systems implementation (subcategory of information systems development process), in courses ISYS 101 (knowledge) and ISYS 110 (knowledge)
- Test documentation techniques (subcategory of quality assurance and testing), in course ISYS 4/580 (analysis)
- Testing principles (subcategory of quality assurance and testing), in courses ISYS 215 (knowledge), ISYS 311 (application) and ISYS 4/580 (analysis)
Related College and University Goals

- College goal 1: Providing strong, discipline-based and interdisciplinary undergraduate and graduate degree programs that are recognized and respected for their high quality by the many publics.
- College goal 2: Providing a thorough understanding of the applications of their major as well as the ethical nature of the applications to societal needs.
- University goal 2: The University will prepare students for careers and for lifelong learning by providing a clearly defined general education program and focused undergraduate pre-professional, professional, and liberal arts programs.

Method of Assessment

- At least 75% of students in ISYS 441 are able, on an exam question, to successfully decompose a relation of at least 6 attributes, and that has non-trivial multivalued dependencies, into two or more SNF relations. (This assesses the knowledge unit subcategory data modeling.)
- At least 80% of the groups in ISYS 441 are able to (in a group project) successfully design and implement a database that involves at least 15 tables, along with an application that accesses and manipulates the database (beyond simple CRUD (create, retrieve, update, delete) operations). (This assesses the knowledge unit subcategory database application development.)
- At least 70% of students in ISYS 350 can (on an exam question) identify the threats posed by malware, the vulnerability of network communications, and the techniques used to detect network-based attacks. (This assesses the knowledge unit subcategory information warfare.)
- 80% of students in ISYS 482 are able to successfully identify the correct training implementation for a specific user interface on an exam. (This assesses the knowledge unit subcategory phenomena and theories of human-computer interaction.)
- At least 70% of students in ISYS 350 can justify (on an exam) the need for code robustness, risk analysis, and determine the level of residual risk remaining after implementing safeguards. (This assesses the knowledge unit subcategory security deployment.)
- 80% of students in ISYS 484 are able to design and implement (in an individual programming assignment) a prototype of a moderately-sized IS application, given a set of realistic (i.e., mostly complete, but in several places vague and ambiguous) requirements. The prototype will implement at least 80% of the given requirements, and will take no longer than one week to write. (This assesses the knowledge unit subcategory systems analysis and design.)
- 75% of groups in ISYS 480 are able to change that group project's moderately complex requirements specification in response to a simulated user request, and predict (within +/- 30%, as judged by the course instructor) the effect of the change on the overall time and budget estimates of the project (This assesses the knowledge unit subcategory test documentation techniques.)

Population Assessed

- Students: declared ISYS majors.
- Graduates: Alumni who have been employed in an information systems position for a minimum of one year.
- Employees: Known employers of alumni who have been employed in an information systems position for a minimum of one year.

When Assessed

The ISYS faculty will conduct the following assessments annually, during each spring semester:

- Course-specific evaluations
- Portfolio evaluation
- Elicitation of advice from departmental Business Advisory Board
- MSU Career Development Center's annual survey

The ISYS faculty will conduct the following assessments every two to three years:
**Graduate survey**

**Employer survey**

**Standard of Mastery Criterion of Achievement**

- At least 75% of students in ISYS 441 are able, on an exam question, to successfully decompose a relation of at least 6 attributes, and that has non-trivial multivalued dependencies, into two or more 3NF relations.

- At least 80% of the groups in ISYS 441 are able to (in a group project) successfully design and implement a database that involves at least 15 tables, along with an application that accesses and manipulates the database (beyond simple CRUD (create, retrieve, update, delete) operations).

- At least 70% of students in ISYS 350 can (on an exam question) identify the threats posed by malware, the vulnerability of network communications, and the techniques used to detect network-based attacks.

- 80% of students in ISYS 482 are able to successfully identify the correct training implementation for a specific user interface on an exam.

- At least 70% of students in ISYS 350 can justify (on an exam) the need for code robustness, risk analysis, and determine the level of residual risk remaining after implementing safeguards.

- 80% of students in ISYS 484 are able to design and implement (in an individual programming assignment) a prototype of a moderately-sized IS application, given a set of realistic (i.e., mostly complete, but in several places vague and ambiguous) requirements. The prototype will implement at least 80% of the given requirements, and will take no longer than one week to write.

- 75% of groups in ISYS 480 are able to change that group project's moderately complex requirements specification in response to a simulated user request, and predict (within +/- 30%, as judged by the course instructor) the effect of the change on the overall time and budget estimates of the project.

- 75% of students in ISYS 480 are able (in an individual programming assignment) to construct an automated test framework that covers 80% of the code (C1 coverage) for a database-backed e-commerce web application involving a database with 9 to 12 tables.

- Portfolio: 80% of students’ portfolios show evidence of satisfactory completion of at least one highest-level objective from each knowledge unit subcategory associated with this goal, subject to the courses each student has taken.

- At least 90% of graduates available for employment are employed within one year of graduation, according to MSU Career Development Center’s annual survey.

**What is Hoped to be Learned**

How we can best improve individual instruction, courses and the curriculum.

**8.4 Program Goal 4**

Each student will develop analytical, critical thinking, and interpersonal skills applicable to real-world problems.

Critical thinking skills give the student the capacity for life-long learning and the ability to adjust rapidly to changes in their work environment. Program goal 4 is supported by the following related knowledge unit subcategories and courses:

- **Creativity (subcategory of analytical and critical thinking), in courses ECON 207 (application), MATH 112 (application) and MATH 180 (application)**

- **Interpersonal (subcategory of interpersonal, communication, and teamwork), in course SPEE 212 (comprehension)**

- **Organizational problem solving (subcategory of analytical and critical thinking), in courses ISYS 101 (knowledge), ISYS 340 (knowledge) and MGMT 330 (comprehension)**

- **Team work and leadership (subcategory of interpersonal, communication, and teamwork), in courses ISYS 4097 (analysis) and SPEE 212 (comprehension)**

**Related College and University Goals**

- **College goal 2**: Providing degree programs that give students in-depth knowledge, inspire critical thinking skills, problem solving skills, oral and written communication skills and laboratory skills.

- **College goal 4**: Promoting a commitment to life-long learning through a variety of technologies and research tools so that each learner has the ability to maintain and adapt their knowledge base to new situations.

- **University goal 4**: The University will enhance advising, support services, and learning experiences that aid students in identifying life goals, planning academic careers, and achieving timely graduation.
Method of Assessment

- We are still developing an assessment mechanism for the knowledge unit subcategories Creativity, Interpersonal, Organizational problem solving and Team work and leadership.

- Portfolio: 80% of students' portfolios show evidence of satisfactory completion of at least one higher-level objective from each knowledge unit subcategory associated with this goal, subject to the courses each student has taken.

- Graduate survey: 75% of the graduates will be satisfied or very satisfied that they developed analytical, critical thinking, and interpersonal skills applicable to real-world problems.

- Employer survey: 75% of the employers will rate the graduates as having analytical, critical thinking, and interpersonal skills applicable to real-world problems.

- Departmental Business Advisory Board will meet annually to ensure that the topics remain up to date and evolve with technological advances.

Population Assessed

- Students: declared ISYS majors.

- Graduates: Alumni who have been employed in an information systems position for a minimum of one year.

- Employers: Known employers of alumni who have been employed in an information systems position for a minimum of one year.

When Assessed

The ISYS faculty will conduct the following assessments annually, during each spring semester:

- Course-specific evaluations

- Portfolio evaluation

- Elicitation of advice from departmental Business Advisory Board

The ISYS faculty will conduct the following assessments every two to three years:

- Graduate survey

- Employer survey

Standard of Mastery Criterion of Achievement

- Portfolio: 80% of students' portfolios show evidence of satisfactory completion of at least one higher-level objective from each knowledge unit subcategory associated with this goal, subject to the courses each student has taken.

- Graduate survey: 75% of the graduates will be satisfied or very satisfied that they developed analytical, critical thinking, and interpersonal skills applicable to real-world problems.

- Employer survey: 75% of the employers will rate the graduates as having analytical, critical thinking, and interpersonal skills applicable to real-world problems.

- Departmental Business Advisory Board will meet annually to ensure that the topics remain up to date and evolve with technological advances.

What is Hoped to be Learned

How we can best improve individual instruction, courses and the curriculum.

8.5 Program Goal 5

Each student will develop effective oral and written communication skills.

Oral and written communication skills allow the student to work well in a team environment, and to contribute to their organization's success. Program goal 5 is supported by the following related knowledge unit subcategories and courses:

- Communication (subcategory of interpersonal, communication, and teamwork), in courses ENG 101 (application), ENG 271 (application), ENG 475 (application), SPEE 100 (comprehension) and SPEE 212 (application)

Related College and University Goals

- College goal 4: Promoting a commitment to life-long learning through a variety of technologies and research tools so that each learner has the ability to maintain and adapt their knowledge base to new situations.

- University goal 2: The University will prepare students for careers and for life-long learning by providing a clearly defined general education program and focused undergraduate professional, professional, and liberal arts programs.

Method of Assessment

- We are still developing an assessment mechanism for the knowledge unit subcategory Communication.
ISYS Program Redesign Proposal

8. Assessment Plan

- Portfolio: 80% of students' portfolios show evidence of satisfactory completion of at least one higher-level objective from each knowledge unit subcategory associated with this goal, subject to the courses each student has taken.
- Graduate survey: 75% of the graduates will be satisfied or very satisfied that they developed effective oral and written communication skills.
- Employer survey: 75% of the employers will rate the graduates as having effective oral and written communication skills.
- Departmental Business Advisory Board will meet annually to ensure that the topics remain up to date and evolve with technological advances.

Population Assessed

- Students: declared ISYS majors.
- Graduates: Alumni who have been employed in an information systems position for a minimum of one year.
- Employers: Known employers of alumni who have been employed in an information systems position for a minimum of one year.

When Assessed

The ISYS faculty will conduct the following assessments annually, during each spring semester:
- Course-specific evaluations
- Portfolio evaluation
- Elicitation of advice from departmental Business Advisory Board

The ISYS faculty will conduct the following assessments every two to three years:
- Graduate survey
- Employer survey

Standard of Mastery Criterion of Achievement

- Portfolio: 80% of students' portfolios show evidence of satisfactory completion of at least one higher-level objective from each knowledge unit subcategory associated with this goal, subject to the courses each student has taken.
- Graduate survey: 75% of the graduates will be satisfied or very satisfied that they developed effective oral and written communication skills.

ISYS Program Redesign Proposal

8. Assessment Plan

- Employer survey: 75% of the employers will rate the graduates as having effective oral and written communication skills.
- Departmental Business Advisory Board will meet annually to ensure that the topics remain up to date and evolve with technological advances.

What is Hoped to be Learned

How we can best improve individual instruction, courses and the curriculum.

8.6 Program Goal 6

Each student will appreciate the social and ethical issues in information systems. Students should be able to do their own values and ideals thoroughly, so they can act properly when faced with ethical dilemmas. Program goal 6 is supported by the following related knowledge unit subcategories and courses:
- Ethics and professionalism (subcategory of analytical and critical thinking), in courses HUM 282W (comprehension), ISYS 110 (knowledge), ISYS 215 (comprehension), ISYS 210W (application), ISYS 450 (comprehension), ISYS 455 (comprehension) and PHIL 224 (analysis)

Related College and University Goals

- College goal 3: Providing a thorough understanding of the applications of their major as well as the ethical nature of the applications to societal needs.
- University goal 2: The University will prepare students for careers and for life-long learning by providing a clearly defined general education program and focused undergraduate pre-professional, professional, and liberal arts programs.

Method of Assessment

- We are still developing an assessment mechanism for the knowledge unit subcategory Ethics and professionalism.
- Departmental Business Advisory Board will meet annually to ensure that the topics remain up to date and evolve with technological advances.
- Graduate survey: 75% of the graduates will be satisfied or very satisfied that they appreciate the social and ethical issues in information systems.
- Employer survey: 75% of the employers will rate the graduates as having an appreciation for the social and ethical issues in information systems.
- Departmental Business Advisory Board will meet annually to ensure that the topics remain up to date and evolve with technological advances.
Population Assessed

- Students: declared ISYS majors.
- Graduates: Alumni who have been employed in an information systems position for a minimum of one year.
- Employers: Known employers of alumni who have been employed in an information systems position for a minimum of one year.

When Assessed

The ISYS faculty will conduct the following assessments annually, during each spring semester:

- Course-specific evaluations
- Portfolio evaluation
- Elicitation of advice from departmental Business Advisory Board

The ISYS faculty will conduct the following assessments every two to three years:

- Graduate survey
- Employer survey

Standard of Mastery Criterion of Achievement

- Departmental Business Advisory Board will meet annually to ensure that the topics remain up to date and evolve with technological advances.
- Graduate survey: 75% of the graduates will be satisfied or very satisfied that they appreciate the social and ethical issues in information systems.
- Employer survey: 75% of the employers will rate the graduates as having an appreciation for the social and ethical issues in information systems.
- Departmental Business Advisory Board will meet annually to ensure that the topics remain up to date and evolve with technological advances.

What is Hoped to be Learned

How we can best improve individual instruction, courses and the curriculum.
Minnesota State Colleges and Universities
PROGRAM REDESIGN APPLICATION

RELATED POLICY or STATUTE: MS 1996, Ch. 368, Sec. 33; MS 1995, Ch. 248, Article 11, Sec. 10; and MS 1996, Ch. 398, Sec. 38; Board Policy 3.14, 3.17, 3.19

[This form is designed for electronic use. You should have some familiarity with the Word table-making function. Enter your information in the correct box on the Tables below.] Please submit an individual form for each program you are redesigning. Multiple changes to the same program may be made on the same form. You may delete all the tables that do not apply to your redesign request.]

### SECTION I: DESCRIPTION OF CURRENTLY APPROVED PROGRAM

<table>
<thead>
<tr>
<th>8-Digit CIP #</th>
<th>Program Name</th>
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<td>BS</td>
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<td>MSU, Mankato</td>
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Name of affiliated educational institution that offers one or more credits in this program:  

Is this award jointly offered: Yes No ✓

### SECTION II: PROPOSED CHANGES TO PROGRAM

Effective start date/s: July 1, 2007

Rationale for Proposed Changes: Redesign of program to match IS 2002 model curriculum, suggestions of departmental Business Advisory Board, and current trends in the field in preparation for ABET accreditation. Change of name to match ABET and ACM recommendations.

### Section IIA: NAME CHANGE

Current: Management Information Systems  Proposed: Information Systems

### Section IIC: CHANGE CREDIT LENGTH WITHIN POLICY

Previous: 65  Proposed: 68
SECTION III: REDESIGNED PROGRAM SUMMARY

Program Requirements:
Complete this section if the number of credits in the award has increased from the previous design, or if it is a new award.
Use the following headings to provide information on each of the components in the program. List all credit totals required for the students to graduate, including prerequisites. If this application is for multiple awards (AAS and/or diplomas and/or certificates) duplicate this table and list requirements for each award separately.

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<thead>
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<th>Program Component</th>
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<th>Proposed Credits</th>
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<td>Prerequisites</td>
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<tr>
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</table>

SECTION IV: APPROVAL VERIFICATION

Application Author: James M. Slack
Title: Associate Professor, Department of Computer and Information Sciences
Campus: Minnesota State University, Mankato
Phone and E-Mail: (507) 389-5311, slack@mnmsu.edu

Approval Chief Academic Officer

Approval of President

Signature of cooperating institution’s president for joint awards

SECTION V: APPENDICES/SUPPORTING DOCUMENTATION

A. Institution Curriculum Committee Membership and Minutes showing recommendations (required)
B. Occupational/Professional Demand Data (required, if adding a certificate or AAS to an AS).
C. Copies of Agreements with Institutions (Joint and Articulated degrees) (required, if applicable)
D. Justification for Exceeding Program Credit Lengths set in Policy (required, if applicable)
E. Evidence of business/industry support (required for occupational programs, optional for others)
F. Letters of Support (optional)
Department Meeting – October 4, 2006

Members Absent: Sanchez, Kruse, Sallam, Quade, Syed, Kelley.
On sabbatical this term: Azarbod, Case, Cornell.

Call to order at 10:07.

David: Just a comment – there is still at least one ACMP designator in the IT curriculum.
Mike: I move that we approve the minutes of the last two department meetings.
Al: Second.
 Approved
David: The only other item on the agenda is curriculum.
Gregg: I move that we adopt the IS curriculum as distributed (MIS to ISYS Curriculum.xls included with these minutes).
Al: Second.
Mike: Our group talked about the Software Engineering title and the use of another descriptive term is ok with us. Dave, did you talk to the other CS group members.
David: I got an email from the dean that said that if the title changes, it is considered a new course.
Gregg: The content is what is critical. The title is not. If the form has “Change of course title” checked, then it is not a new course.
Jim: What about just updating content?
Gregg: Just not radical changes.
Mike: Are there other concerns about the ISYS proposal?
David: The course titles don’t match with those from the IT memo from Syed of last night. Are the titles intended to match word-for-word?
Mike: Yes.
David: I have not yet inquired if a student could take both ISYS 484 and IT 484, for example.
Mike: Cross listing within one department should not be a problem.
David: We want some courses cross-listed across two departments. We are thinking about 202 being cross-listed.
Mike: I think it fits better in ISYS.
David: Those knowledge units need to be there for CS accreditation. We’d like to minimize having extra courses.
Mike: We need some info if cross-listing 202 is a possibility.
David: I think most of my questions are concerning IT.
Gregg: Dave, as chair of the CS group, you can reflect to us what has been said.
David: There is no problem with the IS curriculum. Suppose, however, that the IT group wants to change a name.
Mike: We should send it forward and then clean it up in the spring. Cross-listing with different names is possible, but we chose not to do that.
David: Are the UCAP forms ready to go?
Jim: Yes.
Mike: We are ready to send it off after a few updates.
 Approved
David: Let’s move on to IT.
Al: I move that we approve the IT curriculum. <The most current version as of meeting
time (IT Redesign.xls) is included with these minutes.>

Gregg: Second.

David: I guess I was not looking at the most recent IT document last night.
462 is now combined with 461 and neither is the old 462.
I have a comment from another CS member regarding Network administration and
programming.
464: you have Application of Wireless Networks, but there are no outcomes listed. It
claims to be the existing 464 course, but outcomes should be listed for comparison to the
CS version.
When Steve first presented this course to UCAP, it was about half applied and half
theory. Should it be presented as a new course? Will equipment be needed? Have you
considered how the course will be delivered?

Mike: There is an IS/IT staffing plan.

David: The equipment that Steve has used is owned by the Center for Pervasive Computing.

Jim: Is the center tied to Steve?

David: Yes, but CS would not own it.

Al: Steve is the director. Mahbub or Chris need to determine what equipment is needed.

Rick: It is not a track course, so it is not as critical.

David: If there are two courses, they should be documented as different. Other places where two
courses have the same lineage would include 362.

Mike: Yours is 3 credits, right?

David: If there are two courses with 75 percent overlap, the College Curriculum Committee will
not be happy about that.

Sue: So, what are you asking?

David: 360, 460 and 464 need outcomes.

Sue: We have no problem supplying outcomes. The dean did say that IT would be regarded as
the department of record and that CS is a new department.

Gregg: The differences should be at least 50 percent different.

----- Lost Quorum ------

David: On 360, it is a matter of practice versus theory.

On 460, security protocols have been added. That is a content change.
Both groups should go off and rework those sections.

Leon: They should share documentation and attempt to reconcile differences prior to the next
department meeting.

Sue: 464 was maintained to offer students more options.

David: In a 300-level networking course, IT would have less emphasis on theory.

Sue: We will write outcomes for 360 and 460 and then decide on 464.

Becky: About the Cognitive Science program – all students are required to take 3 CS courses.
Those with a CS emphasis will take 24 credits. The AI course is one of them; the
Human-Computer Interaction course. We planned a 3-credit 430 and we can’t to
consider cross-listing.

Mike: That can’t be done if yours is 3 credits.

Becky: We could say 11 or 12 credits for that requirement. CS will have a 3-credit AI course.
Students who don’t focus on CS will have programming plus the 4-credit 230. Then all
students will be ready for 430. If there was some understanding for how Cognitive
Science students could take 430 (like changing prerequisites) that would be good. Also
the 482 (HCI) course should be available to Cognitive Science students.

Jim: The prerequisite to 482 is either ISYS 380 or IT 380.
Mike: We could include CS 3 as an alternative. We will change the prerequisites to allow students who have completed CS 3 to take 482 (HCI).
Sue: That change would work to allow your students to take 430 as well.
Mike: Is the next department meeting next Monday?
David: Yes.

Adjourned at 11:11

--Leon Tietz, secretary
College of Science, Engineering and Technology
Curriculum Committee Meeting Minutes
WA 303, Tuesday, October 31, 2006

Present:  Harry Petersen (AMET), Beth Lavoie (Biology), Jim Rife (Chemistry/Geology),
Gregg Asher (CIS), Julio Mandojana (ECET), Brian Wasserman (IDCM), Dan Singer
(Math/Statistics), Karen Chou (ME/CivE), Youwen Xu (Physics/Astronomy), Mahbubur Syed
(UCAP Representative for CSET).
Guests:    David Haglin (CIS), Bill Hudson (ECET)

1. The meeting was called to order at 8:06 AM.
2. The minutes of 10-24-2006 meeting was approved as written.
3. Karen Chou thanked Jim Rife and Gregg Asher for chairing the 10-24-06 meeting.
4. David Haglin and Bill Hudson attended in order to clarify any confusion in the proposal CIS
   and ECET submitted. Bill Hudson also brought some of the previously required documentation
to the committee for reviewing.
5. The committee reviewed 165 proposals. 164 proposals were approved contingent upon the
   required materials submitted in proper format. Please see attached spreadsheet for details.
   Proposal 07168 was tabled for insufficient of information.
3. Jim Rife left at 9 AM, and Beth Lavoie left at 9:20 AM, due to prior commitment.
4. Several members of the committee suggested UCAP to allow “Class action” for simple
   proposals such as change of designators or change of prerequisites. It would save the related
   parties a lot of work.
5. Two proposals were delivered to us yesterday (10-30-06) afternoon at 4 PM. Many
   committee members did not have a chance to review the proposal. They are general
   education proposals. We may vote on these proposals using email if possible.

Meeting adjourned at 9:50 am.

Respectfully submitted,

Youwen Xu, Secretary
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