Minnesota State University, Mankato
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.

College: Science, Engineering and Technology
College # Undergraduate
Department: Information Systems & Technology
Graduate
Program: Information Technology
CIP #

Type of Change: PROGRAM PROPOSALS
Proposed: Redesign--New Degree in Related Area

Title Current: Information Technology
Title Proposed: Informatics
24-Char. Abbrev: Informatics

Include a course or program description for the Bulletin (30-40 words maximum for courses, 100 for programs):
Informatics prepares students to use information technology (IT) to solve problems in multidisciplinary real-life settings. Informatics is a bridge connecting IT to a particular field of study such as biology, chemistry, health, medicine, law, fine arts, geography, etc. Students enrolled in the Informatics program will have the opportunity to select a field or discipline that interests them in other programs at Minnesota State University and prepare themselves to apply technology to real-life problems taking into account the social, cultural and organizational settings in which computing and information technology will be used.

Rationale or Justification for change:
Please see the attached rationale or justification for change.

***For General Education or Cultural Diversity Courses Only***

General Education Course:

<table>
<thead>
<tr>
<th>GE Category #</th>
<th>GE Category Name (Maximum of 3 Categories)</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>N/A</td>
<td></td>
</tr>
</tbody>
</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:

a. Syllabus or course outline.
b. Course's student learning outcomes associated with each GE competency or CD designation.
c. List of strategies to be used to assess students' achievement of each GE competency or CD designation.

Cultural Diversity Course:

(Please check one.)
- Core (At least 75% devoted to topics of race, gender, sexual orientation, age, class, and disabilities as they occur in United States Society.)
- Related (At least 25% devoted to the above topics or to a global perspective on topics related to African American, Asian, Hispanic, and Native American inhabitants of the United States.)

***For New Courses***

Instructional Type: Lecture
Grading Format: Grade P/N

Course will be offered:
- Fall Semester
- Spring Semester
- Summer Session

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:

a. Syllabus or course outline.
b. Course's student learning outcomes.
c. A list of resources required to offer and support this course.
d. A description of how teaching this course will affect department staffing.
e. If 400/500 level course, an explanation of added expectations of graduate students.

Revised September 2002
<table>
<thead>
<tr>
<th>Section</th>
<th>Recommended</th>
<th>Not Recommended</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Department</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>College Curriculum Committee</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>College Dean</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>General Education Subcommittee</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Undergraduate Curriculum and Academic Policy Committee</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Faculty Association Graduate Committee</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Graduate Dean</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Academic Affairs Council</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Senior Vice President and Vice President for Academic Affairs</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Rationale or Justification for change: (for the Informatics Program)

Informatics requires an understanding of the same areas studied by Information technology (IT), but it is also focused on the best applications of these technologies and is therefore less technical. Informatics prepares students to use information technology to solve problems in multidisciplinary settings. Informatics is a bridge connecting IT to a particular field of study such as biology, chemistry, health, medicine, law, fine arts, geography, etc. Accordingly, the existing IT program is redesigned to create a related multidisciplinary undergraduate program that will open up new opportunities for the students to relate to other professional fields. All Informatics students will have the option to select a field or discipline that interests them in other programs at Minnesota State University. The redesigned program uses only existing courses, but is more focused at a multidisciplinary setting compared to the existing IT program. Accordingly no additional resources are required. The currently offered Information Technology BS continues to exist.

Kem, 3/28/08

Scott said his reasons for not approving are based on Dean Trey's reasons.

-Brenda
PROPOSED
BACHELOR OF SCIENCE IN INFORMATICS
Redesigned from existing Information Technology (IT) Program
Information Systems & Technology Department

Summary of credit hours:
General education 41-42 (additionally, at least 6 credits for category 3 from non-departmental list or from free electives as needed)
Support courses 4
Informatics 45
  Core (37)
  Required electives (4)
  Capstone or Senior Project (4)
Required non-departmental electives 20
Free electives 9-10
Total credits 120

Description:
Informatics prepares students to use information technology (IT) to solve problems in multidisciplinary real-life settings. Informatics is a bridge connecting IT to a particular field of study such as biology, chemistry, health, medicine, law, fine arts, geography, etc. Students enrolled in the Informatics program will have the opportunity to select a field or discipline that interests them in other programs at Minnesota State University and prepare themselves to apply technology to real-life problems taking into account the social, cultural and organizational settings in which computing and information technology will be used.

Detailed Curriculum:

<table>
<thead>
<tr>
<th>Required General Education (41-42 credits)</th>
<th>Gen Ed</th>
<th>Cult Div</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENG 101 (4) Composition</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IT 100 (4) Introduction to computing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IT 202W (4) Computers in Society</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MATH 180 (4) Mathematics or Computer Science</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PSYC 101 (4) Psychology</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SPEE 203 (3) Intercultural Communication</td>
<td></td>
<td></td>
</tr>
<tr>
<td>STAT 154 (3) Elementary Statistics</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Choose one of the following:
ART 160 (3) Introduction to Visual Culture
SPEE 310 (3) Performance of Literature

Choose one of the following:
ANTH 102 (3) Ancient Peoples
ECON 100 (3) An Introduction to US Economy
ECON 201 (3) Principles of macroeconomics
ECON 202 (3) Principles of microeconomics

Choose one of the following:
MATH 121 (4) Calculus I or
MATH 181 (3) Intuitive Calculus

CDR 6, 8
CDR 6, 11
CDR 5, 10
Choose one of the following:
PHIL 120W (3) Introduction to Ethics 1C, 6, 9 CD Core
PHIL 222W (3) Medical Ethics 1C, 6, 9 CD-R

Choose one of the following:
SPEE 100 (3) Fundamentals of Speech Communication 1B
SPEE 212 (3) Oral Communication for Business and the Professions 1B
SPEE 233 (3) Public Speaking for Technical Professionals 1B

* By appropriately selecting courses from above list the students will be able to meet the general education requirements except for category 3. The category 3 requirements may be satisfied by appropriate selection of courses from the required non-departmental list.

Required Support Courses (4 credits)
ENG 271(4) Technical Communication

Required for Major (45 Credits)

Required Core Courses (37 credits):
IT 210 (4) Fundamentals of Programming (existing in IT program – required core)
IT 214 (4) Fundamental of Software Development (existing in IT program – required core)
IT 340 (4) Introduction to Databases Systems (existing in IT program – required core)
IT 350 (4) Information Security (existing in IT program – required core)
IT 360 (4) Introduction to Data Communication and Networking (existing in IT program – required core)
IT 380 (4) System Analysis & Design (existing in IT program – required core)
IT 440 (4) Database Management System II (existing in IT program – elective)
IT 482 (4) Human-Computer Interaction (existing in IT program – elective)
IT 483 (4) Web Applications and User Interface Design (existing in IT program – required core)
IT 495 (1) Seminar in Information Technology *(existing in IT program – elective)

* Students are required to maintain and present a portfolio to demonstrate their experience integrating their minor with their core courses.

Capstone Experience: choose one of the following capstone options (4 credits) *(existing in IT Capstone)
IT 497 Internship (4) *
IT 498 Information Technology Capstone (4)

* The Internship experience should be in support of major and non-departmental electives.

Required IT Electives: at least 4 credits from the following courses
IT 310 (4) Data Structures and Algorithms (existing in IT program – elective)
IT 311 (4) Business Applications Programming (existing in IT program – elective)
IT 320 (4) Machine Structures and Operating Systems (existing in IT program – required core)
IT 412 (4) Graphics (existing in IT program – elective)
IT 414 (4) Advanced Object Oriented Programming with Design Patterns (existing in IT program – elective)
IT 430 (4) Intelligent Systems (existing in IT program – elective)
IT 432 (4) Robotics (existing in IT program – elective)
IT 442 (4) Database Security, Auditing, and Disaster Recovery (existing in IT program – elective)
IT 444 (4) Data Warehousing and Mining (existing in IT program – elective)
IT 450 (4) Information Warfare (existing in IT program – elective)
IT 460 (4) Network and Security Protocols (existing in IT program – elective)
IT 462 (4) Network Security, Administration and Programming (existing in IT program – elective)
IT 464 (4) Applications of Wireless and Mobile Networks (existing in IT program – elective)
IT 480 (4) Software Quality Assurance and Testing (existing in IT program – elective)
IT 484 (4) Software Engineering (existing in IT program – elective)
IT 488 (4) Rapid Application Development (existing in IT program – elective)
IT 496 (1-4) Selected Topics in Information Technology (existing in IT program – elective)
IT 499 (1-2) Individual Study in Information Technology (existing in IT program – elective)
Required Non-Departmental Electives: select at least 20 credits from the following courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
<th>Gen Ed</th>
<th>Cult Div</th>
</tr>
</thead>
<tbody>
<tr>
<td>AST 125</td>
<td>3</td>
<td>Observational Astronomy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AST 201</td>
<td>2</td>
<td>Spherical Astronomy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AST 215</td>
<td>4</td>
<td>Astronomy &amp; Astrophysics I</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AST 225</td>
<td>4</td>
<td>Astronomy &amp; Astrophysics II</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BIOL 105</td>
<td>4</td>
<td>General Biology I</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>BIOL 106</td>
<td>4</td>
<td>General Biology II</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BIOL 211</td>
<td>4</td>
<td>Genetics</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BIOL 270</td>
<td>4</td>
<td>Microbiology</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BIOL 320</td>
<td>4</td>
<td>Cell Biology</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BIOL 476</td>
<td>5</td>
<td>Microbial Physiology and Genetics</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BIOL 479</td>
<td>4</td>
<td>Molecular Biology</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CHEM 201</td>
<td>5</td>
<td>General Chemistry I</td>
<td>2, 3</td>
<td></td>
</tr>
<tr>
<td>CHEM 202</td>
<td>5</td>
<td>General Chemistry II</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CHEM 305</td>
<td>4</td>
<td>Analytical Chemistry</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CHEM 320</td>
<td>5</td>
<td>Organic Chemistry I</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CHEM 321</td>
<td>2</td>
<td>Organic Chemistry II</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ENG 381</td>
<td>4</td>
<td>Introduction to English Linguistics</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ENG 483</td>
<td>4</td>
<td>English Structure and Pedagogical Grammar II</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ENG 485</td>
<td>3</td>
<td>Language and Culture in TESL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GEOG 101</td>
<td>3</td>
<td>Introductory Physical Geography</td>
<td>3, 10</td>
<td></td>
</tr>
<tr>
<td>GEOG 103</td>
<td>3</td>
<td>Introductory Cultural Geography</td>
<td>5, 8</td>
<td></td>
</tr>
<tr>
<td>GEOG 340</td>
<td>3</td>
<td>United States</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GEOG 341</td>
<td>3</td>
<td>World Regional Geography</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GEOG 370</td>
<td>3</td>
<td>Cartographic Techniques</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GEOG 373</td>
<td>3</td>
<td>Introduction to Geographic Information Systems</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GEOG 474</td>
<td>4</td>
<td>Introduction to Remote Sensing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MATH 122</td>
<td>4</td>
<td>Calculus II</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MET 104</td>
<td>1</td>
<td>Introduction to Manufacturing Technology</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHYS 211</td>
<td>4</td>
<td>Principles of Physics I OR PHYS 221 General Physics I</td>
<td>2, 3</td>
<td></td>
</tr>
<tr>
<td>PHYS 212</td>
<td>4</td>
<td>Principles of Physics II OR PHYS 222 General Physics II</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHYS 223</td>
<td>3</td>
<td>General Physics III</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHYS 335</td>
<td>3</td>
<td>Modern Physics I</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHYS 336</td>
<td>3</td>
<td>Modern Physics II</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Students will be required to select at least 8 credits from the above list at 300/400 level to meet the minimum requirement of 40 credits at 300/400 level for the degree requirement.

Other Informatics Program Requirements
Attendance of IT 495 seminars required for Informatics majors.

The following courses are not to be used in the Informatics program: IT 201, IT 296, IT 321.

Required Minor: Any (Computer Science excluded)
Requirements for admission to the Informatics program

Requirements for admission to the Informatics program are:

- A minimum of 32 earned semester credits
- Completion of MATH 121 or MATH 181 with a grade of C or better
- Completion of ENG 101 with a grade of C or better
- Completion of IT 210 with a grade of B or better
- Completion of IT 214 with a grade of C or better

POLICIES/INFORMATION

GPA Policy. The completion of any major or minor in the Department of Information Systems & Technology requires both:

- a GPA of 2.5 or higher for all departmental courses (ISYS or IT), or their substitutions, used to complete the major or minor, and
- a GPA of 2.5 or higher for all courses, or their substitutions, used to complete the major or minor. This includes all departmental courses (ISYS or IT), supporting courses, and General Education courses required for the major or minor.

It is recommended that students who cannot maintain a GPA of 3.0 is required 100 and 200 level courses see their advisor for a program review.

Grade Policy. All coursework used to complete a departmental major or minor, including required courses, required supporting courses, and required General Education courses, must be taken for a letter grade except for courses offered only as P/N.

No course completed with a grade of D can be used to complete a departmental major or minor program, or to meet a departmental prerequisite.

Registration Hold Policy. The department will place a registration hold on any student who earns a D or F in any of its courses. The department will also place such a hold on any student who drops any of its courses after the first two weeks of the semester. A student with a registration hold cannot register for courses until the hold is released, which requires filling out an appeal form and taking it to the student’s advisor for discussion. Appeal forms are available from the departmental office. This hold policy does NOT apply to students who are taking 100-level ISYS or IT courses.

Dual Major Policy. Students can earn at most one undergraduate major from this department.

Administrative Drop Policy. The department will automatically drop any student enrolled in ISYS 110 or IT 110 who does not attend the first course meeting. If you cannot attend the first meeting, submit a written request to ad-computer@mnsu.edu BEFORE the first day of the course. For assistance with the process, call the departmental office at 507-389-2968.

Incomplete Policy. The department gives incomplete grades for only two conditions. The first condition is illness, which requires a doctor’s written recommendation. The second condition arises when a death in the student’s family has caused the student to be away from the campus for an extended period. The student must have a satisfactory grade (C or better) in the course at the time of the onset of the condition.

Internship Policy. The Department of Information Systems & Technology continuously strives for improvements in the academic program. Coursework, coupled with extensive laboratory experience, play an important part in the student’s educational program. However, application of the concepts discussed in class to on-the-job situations is equally important. As a result, the department requires an internship or capstone experience for all Informatics majors.

Excluded Courses Policy. 201, 296, 321 do not count toward a major in the Informatics program.

Residency Policy. Students must earn at least 50 percent of the credits required for a departmental major or minor at Minnesota State Mankato.

Prerequisite Policy. For all courses, an equivalent (cross-listed) IT course from the Department of Information Systems & Technology is accepted as a prerequisite in lieu of an ISYS course and vice versa.
EXISTING PROGRAM
Bachelor of Science in Information Technology
Information Systems & Technology Department

INFORMATION TECHNOLOGY BS

Required General Education (27 or 28 credits)
ENG101  Composition (4)
SPEE100  Fundamentals of Speech Communication (3)
STAT154  Elementary Statistics (3)
MATH180  Mathematics for Computer Science (4)
IT 110  Foundations of Computing (4)
SPEE233  Public Speaking for Technical Professionals (3)
PHIL120  Introduction to Ethics (3)

Choose one of the following MATH Courses
MATH121  Calculus I (4)
MATH181  Intuitive Calculus (3)

Required Support Courses (4 credits)
ENG271  Technical Communication (4)

Required for Major (36 credits)
IT 210  Fundamentals of Programming (4)
IT 214  Fundamentals of Software Development (4)
IT 320  Machine Structures and Operating Systems (4)
IT 340  Introduction to Database Systems (4)
IT 350  Information Security (4)
IT 360  Introduction to Data Communication and Networking (4)
IT 380  Systems Analysis and Design (4)
IT 483  Web Applications and User Interface Design (4)

Choose one of the following
IT 497  Internship (4)
IT 498  Information Technology Capstone (4)

Required Electives (16 Credits) from Category A and B courses

Category A (12 credits):

Choose one sequence of courses from the following groups

Database technologies
IT 440  Database Management Systems II (4)
IT 442  Database Security, Auditing, and Disaster Recovery (4)
IT 444  Data Warehousing and Mining (4)

(Networking and Information Security
IT 450  Information Warfare (4)
IT 460  Network and Security Protocols (4)
IT 462  Network Administration and Programming (4)
**Software Development**

IT 414  Advanced Obj: Oriented Programming with Design Patterns (4)  
IT 480  Software Quality Assurance and Testing (4)  
IT 484  Software Engineering (4)  

**Category B (4 credits):**

Complete 4 credits from category I courses, but can not repeat a course if already taken  
OR Complete 4 credits from the following list

- IT 310  Data Structures and Algorithms (4)  
- IT 311  Business Applications Programming (4)  
- IT 412  Graphics (4)  
- IT 430  Intelligent Systems (4)  
- IT 432  Robotics (4)  
- IT 464  Applications of Wireless and Mobile Networks (4)  
- IT 482  Human Computer Interaction (4)  
- IT 488  Rapid Application Development (4)  
- IT 495  Seminar in Information Technology (1)  
- IT 496  Selected Topics in Information Technology (1-4)  
- IT 499  Individual Study in Information Technology (1-2)  

The following courses are not to be used in the Information Technology major: 100, 201, 296, 321.

**Required Minor:** Yes, Any (Computer Science excluded)

**Admission to the IT program** is granted by the department. Admission to the program is required before the student is permitted to take 300- and 400-level courses.

Requirements for admission to IT program are:
- A minimum of 32 earned semester credits  
- Completion of MATH 121 or MATH 181 with a grade of C or better  
- Completion of ENG 101 with a grade of C or better  
- Completion of IT 110 with a grade of B or better  
- Completion of IT 210, and IT 214 with a grade of C or better and a GPA of 2.5 in these courses (or their equivalents).

**POLICIES/INFORMATION**

**GPA Policy.** Candidates for the major degrees in the department must maintain a 2.5 grade-point average in all coursework in the major field, in addition to the 2.0 overall average required by the university for graduation. Students must earn a C or better for a course to apply to their major or minor in this department.

**P/N Grading Policy.** Courses leading to a major or minor in the department may not be taken on a P/N basis, except where P/N is mandatory.

**Registration Hold Policy.** The department will place a registration hold on any student who earns a D or F in any of its courses. The department will also place such a hold on any student who
drops any of its courses after the first two weeks of the semester. A student with a registration hold cannot register for courses until the hold is released, which requires filling out an appeal form and taking it to the student’s advisor for discussion. Appeal forms are available from the departmental office. This hold policy does NOT apply to students who are taking 100-level ISYS or IT courses.

Dual Major Policy. Students can earn at most one undergraduate major from this department.

Administrative Drop Policy. The department will automatically drop any student enrolled in ISYS 110 or IT 110 who does not attend the first course meeting. If you cannot attend the first meeting, submit a written request to ad-computer@mnsu.edu BEFORE the first day of the course. For assistance with the process, call the departmental office at 507-389-2968.

Incomplete Policy. The department gives incomplete grades for only two conditions. The first condition is illness, which requires a doctor’s written recommendation. The second condition arises when a death in the student’s family has caused the student to be away from the campus for an extended period. The student must have a satisfactory grade (C or better) in the course at the time of the onset of the condition.

Internship Policy. The Department of Information Systems & Technology continuously strives for improvements in the academic program. Coursework, coupled with extensive laboratory experience, play an important part in the student’s educational program. However, application of the concepts discussed in class to on-the-job situations is equally important. As a result, the department requires an internship or a capstone experience for all IT majors.

Excluded Courses Policy. IT 100, 201, 296, 321 do not count toward a major or minor in the department.

Residency Policy. Students must earn at least 50 percent of the credits required for a departmental major or minor at Minnesota State Mankato.
Informatics Program
Student Learning Outcomes

Informatics prepares students to use information technology (IT) to solve problems in multidisciplinary real-life settings. Informatics is a bridge connecting IT to a particular field of study such as biology, chemistry, health, medicine, law, fine arts, geography, etc. Students enrolled in the Informatics program will have the opportunity to select a field or discipline that interests them in other programs at Minnesota State University and prepare themselves to apply technology to real-life problems taking into account the social, cultural and organizational settings in which computing and information technology will be used.

The student learning outcomes are as follows:

The Informatics program will enable students to gain:

1. A technical understanding of how computing systems and programs operate
2. A basic understanding of social and psychological aspects of information technology
3. Ability to adapt/assess and apply new trends in IT
4. Well-developed problem-solving skills
5. Ability to work in a team
6. Well-developed communications skills to clearly convey solutions and observations to others
7. Ability to use information technology to solve problems in a variety of disciplines that interest them.
**Resource Requirements for the Informatics BS program:**

**Resources required to offer and support the Informatics BS program**

Resources currently in place within the department are adequate to support this BS program. All courses included in the BS program are currently offered by the department. Sufficient seats are available in the classes because of current low enrollments.

**Impact on staffing in the department to support the Informatics BS program**

This BS program will be able to be offered with the current staffing. All courses included in the BS program are currently offered by the department and there is sufficient seating in the classes because of low enrollments. No new sections will be required.

**List of additional library holdings required for the Informatics BS program**

Resources currently in place within University Library will support this BS program.
<table>
<thead>
<tr>
<th>Student Learning Outcomes (performance, knowledge, attitudes)</th>
<th>Related College Goals</th>
<th>Related Univ. Goals</th>
<th>Method(s) of Assessment</th>
<th>Who Assessed (Students from what courses - population)</th>
<th>When Assessed (dates)</th>
<th>Standard of Mastery/ Criterion of Achievement</th>
<th>What is Hoped to Be Learned?</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. A technical understanding of how computing systems and programs operate</td>
<td>1, 2, 3, 4</td>
<td>3</td>
<td>A1, A2, A3, A5</td>
<td>IT 100, 210, 214, 340, 380, 440, 483</td>
<td>semester end</td>
<td>&gt;80% passing</td>
<td>Core areas of IT</td>
</tr>
<tr>
<td>2. A basic understanding of social and psychological aspects of information technology</td>
<td>1, 2, 3, 4</td>
<td>3</td>
<td>A1, A2, A3, A5</td>
<td>IT 100, 202, 380, 240, 440, 482, 483</td>
<td>semester end</td>
<td>&gt;80% passing</td>
<td>Requirements understanding and analysis of organizations</td>
</tr>
<tr>
<td>3. Ability to adapt/assess and apply new trends in IT</td>
<td>1, 2, 3, 4</td>
<td>3</td>
<td>A1, A2, A3, A5, A6</td>
<td>IT 100, 340, 380, 440, 483</td>
<td>semester end</td>
<td>&gt;80% passing</td>
<td>Plan and implement IT</td>
</tr>
<tr>
<td>4. Well-developed problem-solving skills</td>
<td>1, 2, 3, 4</td>
<td>3</td>
<td>A1, A2, A3, A5</td>
<td>IT 210, 214, 340, 380</td>
<td>semester end</td>
<td>&gt;80% passing</td>
<td>Design correct secure system</td>
</tr>
<tr>
<td>5. Ability to work in a team</td>
<td>1, 2, 3, 4</td>
<td>3</td>
<td>A1, A2, A3, A5</td>
<td>IT 340, 380, 440, 483</td>
<td>semester end</td>
<td>&gt;80% passing</td>
<td>Use current and emerging technologies</td>
</tr>
<tr>
<td>6. Well-developed communications skills to clearly convey solutions and observations to others</td>
<td>1, 2, 3, 4</td>
<td>3</td>
<td>A1, A4, A5, A6</td>
<td>IT 380, 483, 495, 498</td>
<td>semester end</td>
<td>&gt;80% passing</td>
<td>Necessity for Continued learning</td>
</tr>
<tr>
<td>7. Ability to use information technology to solve problems in a variety of disciplines that interest them.</td>
<td>1, 2, 3, 4</td>
<td>3</td>
<td>A1, A4, A5</td>
<td>IT 340, 380, 440, 483, 495, 498</td>
<td>semester end</td>
<td>&gt;80% passing</td>
<td>Complete research on an assigned topic</td>
</tr>
</tbody>
</table>
Informatics BS Assessment Plan (page 2/2)

What will the program do with results of information? The department will use the results of information to determine what changes may be needed to improve the program, and to implement those changes.

Codes for methods of Assessment:

A1 Evaluation of student performances in their exams, home works, quizzes
A2 Course Evaluation
A3 Student Survey
A4 Research papers
A5 Project report submission
A6 Communication skills

Numbers Used for Related College Goals column:
Extracted from: http://cset.mnsu.edu/about/mission-goals.html
1. Provide students an in-depth knowledge of their discipline, accompanied with critical thinking skills, laboratory skills and problem solving skills,
2. Assure that all graduates of the college have strong oral and written communication skills.
3. Provide each major a thorough understanding of the ethical nature of their discipline and its application to societal needs.
4. Commit to life-long learning through a variety of technologies and research tools so each learner can adapt their knowledge base to new situations.

Numbers used for Related Univ. Goals column:
Extracted from: http://www.mnsu.edu/supersite/about/mission.html

3. The University will strengthen its role as a major provider of graduate education, offering intensive, scholarly graduate programs including collaborative efforts with other institutions and professionals, culminating in student expertise at professional levels.
Information Systems & Technology Department Meeting
1-23-08

In Attendance: Tiez, Veltsos, Schilling, Slack, Syed, Azarbod, Wells, Hart & Lindberg

Meeting called to order @ 12:15pm.

Motion made by Schilling to approve the previous meetings minutes. Seconded by Wells.

Motion to move forward with the Bachelor of Science in Informatics was made by Hart. Motion seconded by Azarbod. Discussion. Vote taken, proposal passes unanimously.

Motion to create IT 597. Motion made to change the pre requisite for ISYS/IT 350 to ISYS/IT 210. These two motions were proposed together by Veltosos. Seconded by Wells. Vote: unanimous.

Meeting adjourned @ 1:15pm
# REDESIGN: Create a New Program based on a Related Program

**Notice of Intent** Form submitted (Y/N)

## Part A: General Information

<table>
<thead>
<tr>
<th>Institution</th>
<th>Minnesota State University</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rationale for replacement or addition of proposed program</td>
<td>Informatics requires an understanding of the same areas studied by Information technology (IT), but it is also focused on the best applications of these technologies and is therefore less technical. Informatics prepares students to use information technology to solve problems in multidisciplinary settings. Informatics is a bridge connecting IT to a particular field of study such as biology, chemistry, health, medicine, law, fine arts, geography, etc. Accordingly, the existing IT program is redesigned to create a related multidisciplinary undergraduate program that will open up new opportunities for the students to relate to other professional fields. All Informatics students will have the option to select a field or discipline that interests them in other programs at Minnesota State University. The redesigned program uses only existing courses, but is more focused at a multidisciplinary setting compared to the existing IT program. Accordingly, no additional resources are required. The currently offered Information Technology BS continues to exist.</td>
</tr>
<tr>
<td>Will the existing program be closed? Y/N</td>
<td>If yes, attach the Suspend/Close Form</td>
</tr>
<tr>
<td>Proposed 6-digit CIP Code</td>
<td>11.010300 (current CIP code for IT program)</td>
</tr>
<tr>
<td>Effective Term/Year</td>
<td>Fall 2008</td>
</tr>
<tr>
<td>Online Delivery (Y/N)</td>
<td>In class and Online Mixed</td>
</tr>
<tr>
<td>Collaborating Institutions, if any</td>
<td></td>
</tr>
<tr>
<td>Brief catalog description</td>
<td>As attached</td>
</tr>
<tr>
<td>Special Circumstances</td>
<td></td>
</tr>
</tbody>
</table>

## Program Characteristics

<table>
<thead>
<tr>
<th>Program Characteristic</th>
<th>Existing Program</th>
<th>Proposed Program</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full Program Name</td>
<td>Information Technology BS</td>
<td>Informatics BS</td>
</tr>
<tr>
<td>Short Program Name (up to 50 characters)</td>
<td>Information Technology BS</td>
<td>Informatics BS</td>
</tr>
<tr>
<td>ISRS Program ID</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Award</td>
<td>Bachelor of Science</td>
<td>Bachelor of Science</td>
</tr>
<tr>
<td>Credit Length</td>
<td>128</td>
<td>120 (to meet the recent legislative requirements)</td>
</tr>
</tbody>
</table>
### Part B: Curriculum Design [Program Design]

<table>
<thead>
<tr>
<th>Program Component</th>
<th>Credits in Existing Program</th>
<th>Credits in Proposed Program</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>General Education</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prerequisites to the major that are not counted elsewhere</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Major: Core common to all emphases</td>
<td>36</td>
<td>37</td>
</tr>
<tr>
<td>Major: Restricted electives, if any</td>
<td>16</td>
<td>8 + 20(non-departmental electives)</td>
</tr>
<tr>
<td>Major: Unrestricted Electives, if any</td>
<td></td>
<td>0-10</td>
</tr>
<tr>
<td>Major: Emphasis, if any, beyond the core (copy this line if award has more than one emphasis)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Minor, if any</td>
<td>Yes (any, computer science excluded)</td>
<td>Yes (any, computer science excluded)</td>
</tr>
<tr>
<td>General electives</td>
<td>General Education and other free electives to meet the 128 credit requirement</td>
<td>General Education and other free electives to meet the 120 credit requirement</td>
</tr>
<tr>
<td>Other graduation requirements</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Upper Division Credits in degree (Baccalaureate Degrees Only)</td>
<td>Minimum 40 credits</td>
<td></td>
</tr>
</tbody>
</table>

### Part C: Evidence Required (Attachments)

Curriculum committee minutes documenting recommendation; include committee membership
Consortial programs require verification (below) by all member institutions.
Copies of current and proposed curricula with courses, course numbers, credit hours.

### Part D: Verification

<table>
<thead>
<tr>
<th>Name</th>
<th>Email</th>
<th>Phone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Application Author</td>
<td>Cyrus Azarbod</td>
<td><a href="mailto:cyrus.azarbod@mnsu.edu">cyrus.azarbod@mnsu.edu</a></td>
</tr>
<tr>
<td>Contact Person</td>
<td>Leon Tietz</td>
<td><a href="mailto:Leon.tietz@mnsu.edu">Leon.tietz@mnsu.edu</a></td>
</tr>
<tr>
<td>Chief Academic Officer</td>
<td></td>
<td></td>
</tr>
<tr>
<td>President</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Name | Signature | Date

NOTE: Please review and update articulation agreements that may apply to this program.
UNDERGRADUATE CATALOG DESCRIPTION

Informatics
College of Science, Engineering & Technology
Department of Information Systems & Technology
273 Wissink Hall • 507-389-2968
Web site: www.cset.mnsu.edu/info

Chair: Leon Tietz

Gregg Asher, Cyrus Azarbad, Lee Cornell, Cesar Guerra-Salcedo, Allan Hart, Ann Quade, Susan Schilling, James Slack, Mahbubur Syed, Leon Tietz, Christopher Veltsos, Michael Wells

Informatics prepares students to use information technology (IT) to solve problems in multidisciplinary real-life settings. Informatics is a bridge connecting IT to a particular field of study such as biology, chemistry, health, medicine, law, fine arts, geography, etc. Students enrolled in the Informatics program will have the opportunity to select a field or discipline that interests them in other programs at Minnesota State University and prepare themselves to apply technology to real-life problems taking into account the social, cultural and organizational settings in which computing and information technology will be used.

Admission to the Informatics program is granted by the department. Admission to the program is required before the student is permitted to take 300- and 400-level courses.

Requirements for admission to the Informatics program are:
- A minimum of 32 earnec semester credits
- Completion of MATH 121 or MATH 181 with a grade of C or better
- Completion of ENG 101 with a grade of C or better
- Completion of IT 210 with a grade of B or better
- Completion of IT 214 with a grade of C or better

INFORMATICS BS

Required General Education (41-42 credits)
ENG 101 Composition (4)
IT 100 Introduction to Computing (4)
IT 202W Computers in Society (4)
MATH 112 College Algebra (4)
MATH 180 Mathematics for Computer Science (4)
PSYC 101 Psychology (4)
SPEE 203 Intercultural Communication (3)
STAT 154 Elementary Statistics (3)

Choose one of the following:
ART 160 Introduction to Visual Culture (3)
SPEE 310 Performance of Literature (3)

Choose one of the following:
ANTH 102 Ancient Peoples
ECON 100 An Introduction to US Economy (3)
ECON 201 Principal of Macroeconomics (3)
ECON 202 Principal of Microeconomics (3)

Choose one of the following:
MATH 121 Calculus I (4)
MATH 181 Intuitive Calculus (3)
Choose one of the following:
PHIL 120W Introduction to Ethics (3)
PHIL 222W Medical Ethics (3)

Choose one of the following:
SPEE 100 Fundamentals of Speech Communication (3)
SPEE 212 Oral Communication for Business and the Professions (3)
SPEE 233 Public Speaking for Technical Professionals (3)

* By appropriately selecting courses from above list the students will be able to meet the general education requirements except for category 3. The category 3 requirements may be satisfied by appropriate selection of courses from the required non-departmental list.

Required Support Courses (4 credits)
ENG 271 Technical Communication

Required for Major (45 Credits)

Required Core Courses (37 credits):
IT 210 Fundamentals of Programming (4)
IT 214 Fundamental of Software Development (4)
IT 340 Introduction to Databases Systems (4)
IT 350 Information Security (4)
IT 360 Introduction to Data Communication and Networking (4)
IT 380 System Analysis & Design (4)
IT 440 Database Management System II (4)
IT 482 Human-Computer Interaction (4)
IT 483 Web Applications and User Interface Design (4)
IT 495 Seminar in Information Technology (1) *

* Students are required to maintain and present a portfolio to demonstrate their experience integrating their minor with their core courses.

Capstone Experience: choose one of the following capstone options (4 credits)
IT 497 Internship (4) *
IT 498 Information Technology Capstone (4)

* The Internship experience should be in support of major and non-departmental electives.

Required IT Electives: at least 4 credits from the following courses
IT 310 Data Structures and Algorithms (4)
IT 311 Business Applications Programming (4)
IT 320 Machine Structures and Operating Systems (4)
IT 412 Graphics (4)
IT 414 Advanced Object Oriented Programming with Design Patterns (4)
IT 430 Intelligent Systems (4)
IT 432 Robotics (4)
IT 442 Database Security, Auditing, and Disaster Recovery (4)
IT 444 Data Warehousing and Mining (4)
IT 450 Information Warfare (4)
IT 460 Network and Security Protocols (4)
IT 462 Network Security, Administration and Programming (4)
IT 464 Applications of Wireless and Mobile Networks (4)
IT 480 Software Quality Assurance and Testing (4)
IT 484 Software Engineering (4)
IT 488 Rapid Application Development (4)
IT 496 Selected Topics in Information Technology (1-4)
IT 499 Individual Study in Information Technology (1-2)
Required Non-Departmental Electives: select at least 20 credits from the following courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AST 125</td>
<td>3</td>
<td>Observational Astronomy</td>
</tr>
<tr>
<td>AST 201</td>
<td>2</td>
<td>Spherical Astronomy</td>
</tr>
<tr>
<td>AST 215</td>
<td>4</td>
<td>Astronomy &amp; Astrophysics I</td>
</tr>
<tr>
<td>AST 225</td>
<td>4</td>
<td>Astronomy &amp; Astrophysics II</td>
</tr>
<tr>
<td>BIOL 105</td>
<td>4</td>
<td>General Biology I</td>
</tr>
<tr>
<td>BIOL 106</td>
<td>4</td>
<td>General Biology II</td>
</tr>
<tr>
<td>BIOL 211</td>
<td>4</td>
<td>Genetics</td>
</tr>
<tr>
<td>BIOL 270</td>
<td>4</td>
<td>Microbiology</td>
</tr>
<tr>
<td>BIOL 320</td>
<td>4</td>
<td>Cell Biology</td>
</tr>
<tr>
<td>BIOL 476</td>
<td></td>
<td>Microbial Physiology and Genetics</td>
</tr>
<tr>
<td>BIOL 479</td>
<td>4</td>
<td>Molecular Biology</td>
</tr>
<tr>
<td>CHEM 201</td>
<td>5</td>
<td>General Chemistry I</td>
</tr>
<tr>
<td>CHEM 202</td>
<td>5</td>
<td>General Chemistry II</td>
</tr>
<tr>
<td>CHEM 305</td>
<td>4</td>
<td>Analytical Chemistry</td>
</tr>
<tr>
<td>CHEM 320</td>
<td>5</td>
<td>Organic Chemistry I</td>
</tr>
<tr>
<td>CHEM 321</td>
<td>2</td>
<td>Organic Chemistry II</td>
</tr>
<tr>
<td>ENG 381</td>
<td>4</td>
<td>Introduction to English Linguistics</td>
</tr>
<tr>
<td>ENG 483</td>
<td>4</td>
<td>English Structure and Pedagogical Grammar II</td>
</tr>
<tr>
<td>ENG 485</td>
<td>3</td>
<td>Language and Culture in TESL</td>
</tr>
<tr>
<td>GEOG 101</td>
<td>3</td>
<td>Introductory Physical Geography</td>
</tr>
<tr>
<td>GEOG 103</td>
<td>3</td>
<td>Introductory Cultural Geography</td>
</tr>
<tr>
<td>GEOG 340</td>
<td>3</td>
<td>United States</td>
</tr>
<tr>
<td>GEOG 341</td>
<td>3</td>
<td>World Regional Geography</td>
</tr>
<tr>
<td>GEOG 370</td>
<td>3</td>
<td>Cartographic Techniques</td>
</tr>
<tr>
<td>GEOG 373</td>
<td>3</td>
<td>Introduction to Geographic Information Systems</td>
</tr>
<tr>
<td>GEOG 474</td>
<td>4</td>
<td>Introduction to Remote Sensing</td>
</tr>
<tr>
<td>MATH 122</td>
<td>4</td>
<td>Calculus II</td>
</tr>
<tr>
<td>MET 104</td>
<td>1</td>
<td>Introduction to Manufacturing Technology</td>
</tr>
<tr>
<td>PHYS 211</td>
<td>4</td>
<td>Principles of Physics I</td>
</tr>
<tr>
<td>PHYS 212</td>
<td>4</td>
<td>Principles of Physics II</td>
</tr>
<tr>
<td>PHYS 221</td>
<td></td>
<td>General Physics I</td>
</tr>
<tr>
<td>PHYS 222</td>
<td>3</td>
<td>General Physics II</td>
</tr>
<tr>
<td>PHYS 223</td>
<td>3</td>
<td>General Physics III</td>
</tr>
<tr>
<td>PHYS 335</td>
<td>3</td>
<td>Modern Physics I</td>
</tr>
<tr>
<td>PHYS 336</td>
<td>3</td>
<td>Modern Physics II</td>
</tr>
</tbody>
</table>

* Students will be required to select at least 8 credits from the above list at 300/400 level to meet the minimum requirement of 40 credits at 300/400 level for the degree requirement.

Other Informatics Requirements
Attendance of IT 495 seminar is required for Informatics majors.

The following courses are not to be used in the Informatics program: IT 201, IT 296, IT 321.

Required Minor: Any (Computer Science excluded)
POLICIES/INFORMATION

GPA Policy. The completion of any major or minor in the Department of Information Systems & Technology requires both:

- a GPA of 2.5 or higher for all departmental courses (ISYS or IT), or their substitutions, used to complete the major or minor, and
- a GPA of 2.5 or higher for all courses, or their substitutions, used to complete the major or minor. This includes all departmental courses (ISYS or IT), supporting courses, and General Education courses required for the major or minor.

It is recommended that students who cannot maintain a GPA of 3.0 is required 100 and 200 level courses see their advisor for a program review.

Grade Policy. All coursework used to complete a departmental major or minor, including required courses, required supporting courses, and required General Education courses, must be taken for a letter grade except for courses offered only as P/N.

No course completed with a grade of D can be used to complete a departmental major or minor program, or to meet a departmental prerequisite.

Registration Hold Policy. The department will place a registration hold on any student who earns a D or F in any of its courses. The department will also place such a hold on any student who drops any of its courses after the first two weeks of the semester. A student with a registration hold cannot register for courses until the hold is released, which requires filling out an appeal form and taking it to the student’s advisor for discussion. Appeal forms are available from the departmental office. This hold policy does NOT apply to students who are taking 100-level ISYS or IT courses.

Dual Major Policy. Students can earn at most one undergraduate major from this department.

Administrative Drop Policy. The department will automatically drop any student enrolled in ISYS 110 or IT 110 who does not attend the first course meeting. If you cannot attend the first meeting, submit a written request to ad-computer@mnsu.edu BEFORE the first day of the course. For assistance with the process, call the departmental office at 507-389-2968.

Incomplete Policy. The department gives incomplete grades for only two conditions. The first condition is illness, which requires a doctor’s written recommendation. The second condition arises when a death in the student’s family has caused the student to be away from the campus for an extended period. The student must have a satisfactory grade (C or better) in the course at the time of the onset of the condition.

Internship Policy. The Department of Information Systems & Technology continuously strives for improvements in the academic program. Coursework, coupled with extensive laboratory experience, play an important part in the student’s educational program. However, application of the concepts discussed in class to on-the-job situations is equally important. As a result, the department requires an internship or capstone experience for all Informatics majors.

Excluded Courses Policy. 201, 296, 321 do not count toward a major in the Informatics program.

Residency Policy. Students must earn at least 50 percent of the credits required for a departmental major or minor at Minnesota State Mankato.

Prerequisite Policy. For all courses, an equivalent (cross-listed) IT course from the Department of Information Systems & Technology is accepted as a prerequisite in lieu of an ISYS course and vice versa.
COURSE DESCRIPTIONS

IT 100 (4) Introduction to Computing and Applications
Basic foundations in computer concepts. Topics include: hardware, software, ethical and social issues. Lab work covers various systems and applications software including word processing, email, the Internet, spreadsheets, databases, and presentation software.
Fall, Spring
GE-9, GE-13

IT 110 (4) Foundation of Computing
A comprehensive introduction to information systems and technology. Includes algorithms, hardware, software, and social issues. Labs cover both hardware and software. The course provides knowledge and skills applicable to all disciplines.
Pre: MATH 112 or MATH 115 or MATH 121 or MATH 181
Fall, Spring
GE-13

IT 201 (2) Introduction to Assistive Technology
This course introduces students to assistive technology and its applicability to people with various disabilities. Hardware and software demonstrations with an emphasis placed on inexpensive and readily available solutions. Extensive use of the Internet will be employed to keep current with latest technology and to facilitate a continuing dialogue with instructor.
Variable
CD-related

IT 202 W (4) Computers in Society
Complex social and ethical issues associated with computers. Through thoughtful questions, informative readings, and the analysis of opposing viewpoints, participants gain insight into the complexity of technology-related issues in a world without clearly defined borders.
Variable
GE-1C, GE-9, GE-13

IT 210 (4) Fundamentals of Programming
This is the first course for students planning to major or minor in Information Systems or Information Technology. Programming in a high-level language, abstraction and problem-solving skills are emphasized.
Pre: A grade of "A" or "B" in IT 110 or ISYS 110
Fall, Spring

IT 214 (4) Fundamentals of Software Development
A continuation of IT 210, IT 214 introduces object-oriented concepts, programming techniques, lists, stacks, queues, and trees. Students are expected to produce larger applications, utilizing multiple compilation units.
Pre: IT 210 or ISYS 210, MATH 121 or MATH 180 or MATH 181
Fall, Spring

IT 219 (2) Java for C/C++ Programmers
Designed for students who already know C++. Topics: data types, operators, functions, arrays, string operations, records, pointers, structures, classes, constructors, destructors, pointers as class members, static classes, operator functions, data type conversions, inheritance, polymorphism, and dynamic binding.
Pre: Consent
Variable

IT 296 (1-2) Introduction to Selected Topics
Special topics not covered in other 100- and 200-level courses. May be repeated for each new topic.
IT 310 (4) Data Structures & Algorithms
Study of trees, hashing, and graph algorithms. Analysis of algorithms, memory management, and proof techniques.
Pre: IT 214 or ISYS 215
Variable

IT 311 (4) Business Application Programming
Large-scale application development using the COBOL programming language. Emphasis on principles of application programming such as control breaks, table manipulations, file manipulations, sorting, interactive programming, subprogramming, index-sequential file handling, structure charts, and program documentation.
Pre: IT 214 or ISYS 215
Spring

IT 320 (4) Machine Structures and Operating Systems
Introduction to computer hardware, Boolean logic, digital circuits, data representations, digital arithmetic, digital storage, performance metrics, pipelining, memory hierarchy, and I/O; Operating System concepts, interface, multi-tasking, threads, memory and file management, tools.
Pre: IT 214 or ISYS 215, MATH 180
Fall

IT 321 (4) Micro Configuration & Maintenance
Provides a working knowledge and hands-on experience with configuring, upgrading, optimizing, troubleshooting and repairing personal computer hardware, networks and system software. Preventative maintenance and emergency recovery techniques. Does not satisfy requirements for any department major.
Pre: Jr/Sr status or consent
Variable

IT 340 (4) Introduction to Database Systems
Introduction to database systems, models, management systems, file organization, database design, data modeling, normalization, conversion of data model into relational model, and SQL. Implementation of a relational database application in a team environment.
Pre: IT 210 or ISYS 210
Fall, Spring

IT 350 (4) Information Security
Security concepts and mechanisms; security technologies; authentication mechanisms; mandatory and discretionary controls; crytography and applications; threats; intrusion detection and prevention; regulations; vulnerability assessment; information assurance; forensics; anonymity and privacy issues; disaster recovery planning, legal issues and ethics.
Pre: IT 210 or ISYS 210
Fall, Spring

IT 360 (4) Introduction to Data Communication and Networking
This course covers basic concepts related to data communication and networking. Topics addressed will include the OSI model, the Internet model, network management, network protocols and data security.
Pre: IT 210 or ISYS 210
Fall, Spring

IT 380 (4) Systems Analysis and Design
This course explores both structured as well as object oriented systems analysis and design. Use of upper and lower CASE tools are employed in the analysis, design and implementation of a team oriented term project.
Pre: IT 214 or ISYS 215
Fall, Spring
IT 412 (4) Graphics
Concepts and algorithms used in computer graphics, including polygonal and curved images in both 2 and 3 dimensions, representation of solid objects, and color and illumination models.
Pre: IT 214 or ISYS 215, MATH 121 or MATH 181
Variable

IT 414 (4) Advanced Object-Oriented Programming with Design Patterns
This course provides student with a solid understanding of the principles, techniques and design patterns involved in advanced object-oriented programming. Successful students should have a distinct advantage in the marketplace.
Pre: IT 340 or ISYS 340, IT 310
Variable

IT 430 (4) Intelligent Systems
This course offers an overview of intelligent systems. Emphasis is placed on rule-based systems, fuzzy rule-based systems, neural networks, evolutionary computation and uncertainty management.
Pre: IT 214 or ISYS 215 or CS 230, STAT 154
Variable

IT 432 (4) Robotics
This course is a survey of robotics including: current practice, future directions, robot anatomy, kinematics, sensors, sensor interfacing and fusion, mobile robotics, real-time programming, vision and image processing algorithms, and subsumption architecture.
Pre: IT 320
Variable

IT 440 (4) Database Management Systems II
Extensive coverage of query processing and optimization; concurrency control and recovery, and security and integrity in centralized/distributed environments. Team-oriented projects in a heterogeneous client server environment.
Pre: IT 214 or ISYS 215, IT 340 or ISYS 340
Variable

IT 442 (4) Database Security, Auditing, and Disaster Recovery
Covers science and study of methods of protecting data, and designing disaster recovery strategy. Secure database design, data integrity, secure architectures, secure transaction processing, information flow controls, inference controls, and auditing. Security models for relational and object-oriented databases.
Pre: IT 350 or ISYS 350, IT 440 or ISYS 441
Variable

IT 444 (4) Data Mining and Warehousing
The course details data mining and warehousing. Emphasis is placed on data mining strategies, techniques and evaluation methods. Various data warehousing methods are covered. Students experiment with data mining and warehousing tools.
Pre: IT 440 or ISYS 441
Variable

IT 450 (4) Information Warfare
Covers information warfare principles and technologies. Information warfare concepts; Protocols, Authentication, and Encryption; Network attack techniques, methodologies, and tools; Network defense; Malware: trojans, worms, viruses, and malicious code; Electronic crimes and digital evidence.
Pre: IT 350 or ISYS 350
Fall
IT 460 (4) Network and Security Protocols
Advanced coverage of data communication, networking and security protocols. Topics: transmission methods, error detection and recovery, flow control, routing, security issues and performance analysis of existing and emerging protocols for secure communication.
Pre: IT 214 or ISYS 215, IT 360
Variable

IT 462 (4) Network Security, Administration and Programming
Network and server systems administration. Domain administration; file system management; networked printers; user management; workstation configuration. Network programming assignments/projects in Layered Software Systems, HTTP Server, UDP (TFTP or DNS), CGI program, IPV6, RPC/SCTP.
Pre: IT 350 or ISYS 350, IT 460
Variable

IT 464 (4) Applications of Wireless and Mobile Networks
Existing and emerging mobile and wireless data networks with emphasis on digital data communications. Gain an understanding of the unique considerations that must be given to network protocols for wireless and mobile communication and their applications.
Pre: IT 460
Variable

IT 480 (4) Software Quality Assurance and Testing
Topics include software quality assurance, software quality metrics, software configuration management, software verification and validation, reviews, inspections, and audits, configuration control boards and software process improvement models, black-box and white-box testing models.
Pre: IT 380 or ISYS 380
Spring

IT 482 (4) Human Computer Interaction
Pre: IT 380 or ISYS 380 or CS110
Fall

IT 483 (4) Web Applications and User Interface Design
HTTP Protocol; Web-markup languages; Client-side, Server-side programming; Web services; Web servers; Emerging technologies; Security; Standards & Bodies; Web interface design techniques; User-centered design; Visual development environments and development tools; Interface design effectiveness.
Pre: IT 340 or ISYS 340, IT 380 or ISYS 380
Fall, Spring

IT 484 (4) Software Engineering
An introduction to all important aspects of software engineering. The emphasis is on principles of software engineering including project planning, requirements gathering, size and cost estimation, analysis, design, coding, testing, implementation, and maintenance.
Pre: IT 380 or ISYS 380
Fall, Spring

IT 488 (4) Rapid Application Development
Low and high CASE tools and rapid application development. CASE tools ranging from traditional SDLC to object-oriented client/server environments. Extensive team-oriented applications will be developed using tools such as SYNON, OBSDIAN, Power Builder, and MSSQL server.
Pre: IT 340 or ISYS 340, IT 380 or ISYS 380
Variable
IT 495 (1) Seminar in Information Technology
Provides Information Technology majors an opportunity, in a small group setting, to explore a topic not normally covered in the curriculum.
Pre: Consent
Variable

IT 496 (1-4) Selected Topics in Information Technology
Special topics not covered in other courses. May be repeated for credit on each new topic.
Pre: Consent
Variable

IT 497 (1-12) Internship
Provides students with opportunity to utilize their training in a real-world business environment working under the guidance and direction of a faculty. (At most 4 hours toward a major in this department.)
Pre: Permanent admission to IT and consent
Fall, Spring, Summer

IT 498 (4) Information Technology Capstone
Develop high quality software application researching and applying fundamental software engineering techniques, several advanced development and test tools, human factors of interface design and a team approach, each student controlling only a part of the system.
Pre: Senior standing and consent
Fall, Spring

IT 499 (1-2) Individual Study
Problems on an individual basis.
Pre: Consent
Fall, Spring
NOTICE OF INTENT APPLICATION

Part A: General Information

<table>
<thead>
<tr>
<th>Institution</th>
<th>Minnesota State University</th>
</tr>
</thead>
<tbody>
<tr>
<td>Award</td>
<td>Bachelor of Science</td>
</tr>
<tr>
<td>Full Program Name</td>
<td>Informatics</td>
</tr>
<tr>
<td>Short Program Name (up to 50 characters)</td>
<td>Informatics</td>
</tr>
<tr>
<td>Credit Length</td>
<td>120</td>
</tr>
<tr>
<td>Proposed 6-digit CIP Code</td>
<td>11.010300</td>
</tr>
<tr>
<td>Use 8-digit CIP Code for existing programs being redesigned, relocated, or replicated</td>
<td></td>
</tr>
<tr>
<td>Effective Term/Year</td>
<td>Fall 2008</td>
</tr>
<tr>
<td>Online Delivery (Y/N)</td>
<td>Mix – online and in class</td>
</tr>
<tr>
<td>Program Location(s)</td>
<td>Minnesota State University, Mankato</td>
</tr>
<tr>
<td>Collaborating Institution(s), if any</td>
<td>None</td>
</tr>
</tbody>
</table>

Brief catalog description: Informatics prepares students to use information technology (IT) to solve problems in multidisciplinary real-life settings. Informatics is a bridge connecting IT to a particular field of study such as biology, chemistry, health, medicine, law, fine arts, geography, etc. Students enrolled in the Informatics program will have the opportunity to select a field or discipline that interests them in other programs at Minnesota State University and prepare themselves to apply technology to real-life problems taking into account the social, cultural and organizational settings in which computing and information technology will be used.

Part B: Verification

Consortial programs require verification (below) by all member institutions.

<table>
<thead>
<tr>
<th>Name</th>
<th>Email</th>
<th>Phone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Application Author</td>
<td>Cyrus Azarbod</td>
<td><a href="mailto:cyrus.azarbod@mnsu.edu">cyrus.azarbod@mnsu.edu</a></td>
</tr>
<tr>
<td>Contact Person</td>
<td>Leon Tietz</td>
<td><a href="mailto:Leon.tietz@mnsu.edu">Leon.tietz@mnsu.edu</a></td>
</tr>
</tbody>
</table>

Chief Academic Officer

President

NOTE: Please review and update articulation agreements that may apply to the program.

September 24, 2007
Hi Leon,

I've reviewed the Informatics program proposal, particularly the biology courses being suggested as electives. The suggested electives (Bio 105, 106, 211, 270, 320, 476, 479) are good choices for someone in informatics. Furthermore, we can accommodate new students in almost every course listed with no additional resources. For those courses that may need additional resources, we will reallocate from our existing departmental resources. On behalf of the department, I am pleased to support the Informatics proposal.

Gregg Marg, Chairperson,
Department of Biological Sciences
Leon,

Yes, the Department of Mathematics and Statistics is committed to meeting the needs of all students whose majors require these courses. We will plan to accommodate additional students as best possible.

Ernie

Dr. Ernest Boyd  
Chair, Mathematics & Statistics  
Minnesota State University, Mankato  
273 Wissink Hall  
Mankato MN 56001

Phone: 507-389-1452  
Fax: 507-389-6376

-----Original Message-----
From: Tietz, Leon  
Sent: Monday, January 21, 2008 10:47 PM  
To: Boyd, Ernest J  
Subject: Query Concerning New Informatics Major

Ernie,

The Information Systems and Technology Department is proposing a major in Informatics. We anticipate graduating 10 to 15 students per year after the program is established. The degree requirements specify that each Informatics student must take STAT 154, MATH 112, MATH 180 and either MATH 121 or MATH 181.

In addition, the Informatics degree requirements include 20 credits from a list of non-departmental electives. We expect the typical Informatics major is use courses from this list to satisfy the requirements for a minor. There are currently about 40 courses in this list including MATH 122.

At this time, I can not project how many of the Informatics students will choose this class, though I assume it will be less than half. I am hereby requesting a letter or email reply by January 25 indicating whether your department will or will not be able to accommodate any additional students that this requirement for Informatics majors may add to these classes.

If you have questions please reply with them or call me at 5319. Thank you.

Leon Tietz, Ph.D., Professor and Chair  
Information Systems & Technology Department  
Minnesota State University, Mankato

1/25/2008
Hi Leon,

We would be happy to accommodate your students. If the class closes in a given semester, which it does regularly, let me know and we will "blue card" your students in when necessary. However, you should advise them to register as soon as they can.

Paul Brown

Paul F. Brown, Ph.D.,
Professor and Chair
Department of Anthropology
358 Traffon North
Minnesota State University, Mankato
Mankato, MN 56001
507-389-6613

From: Tietz, Leon
Sent: Monday, January 21, 2008 10:52 PM
To: Brown, Paul F
Subject: Query Concerning New Informatics Major

Paul Brown,

The Information Systems and Technology Department is proposing a major in Informatics. We anticipate graduating 10 to 15 students per year after the program is established. The degree requirements specify that Informatics students can elect to take ANTH 102 to satisfy required general education.

At this time, I can not project how many of the Informatics students will choose this class. I am hereby requesting a letter or email reply by January 25 indicating whether your department will or will not be able to accommodate any additional students that this requirement for Informatics majors may add.

If you have questions please reply with them or call me at 5319. Thank you.

Leon Tietz, Ph.D., Professor and Chair
Information Systems & Technology Department Minnesota State University, Mankato
From: Cronn-Mills, Daniel  
Sent: Tuesday, January 22, 2008 8:33 AM  
To: Tietz, Leon  
Subject: RE: Query Concerning New Informatics Major

Dr. Tietz,

The Speech Communication Department has reviewed your request for Informatic students to be required to take SPEE 203, and for each student to take either SPEE 100, SPEE 212, or SPEE 233. Another general education option may be SPEE 310. The department can accommodate this request and looks forward to seeing Informatic students in our courses.

Thanks

------------
Daniel Cronn-Mills, Ph.D.  
Professor and Chair  
Speech Communication Department  
daniel.cronn-mills@mnsu.edu  
507-389-6160

From: Tietz, Leon  
Sent: Monday, January 21, 2008 10:50 PM  
To: Cronn-Mills, Daniel  
Subject: Query Concerning New Informatics Major

Daniel Cronn-Mills,

The Information Systems and Technology Department is proposing a major in Informatics. We anticipate graduating 10 to 15 students per year after the program is established. The degree requirements specify that each Informatics student must take SPEE 203. In addition, each student must take one of: SPEE 100, SPEE 212, or SPEE 233. Another General Education option that some students may elect is SPEE 310.

At this time, I can not project how many of the Informatics students will choose each of these classes. I am hereby requesting a letter or email reply by January 25 indicating whether your department will or will not be able to accommodate any additional students that this requirement for Informatics majors may add to these classes.

If you have questions please reply with them or call me at 5319. Thank you.

Leon Tietz, Ph.D., Professor and Chair  
Information Systems & Technology Department  
Minnesota State University, Mankato

1/25/2008
Tietz, Leon

From: Johnson, James B
Sent: Tuesday, January 22, 2008 1:02 PM
To: Tietz, Leon
Subject: Re: Query Concerning New Informatics Major

Hi Leon -

We offer two sections of Art 160 each semester in Wiecking Auditorium, with an enrollment limit of 250 for each class. The courses are currently offered from 12:00 – 12:50 and 1:00-1:50 on Mondays, Wednesdays and Fridays, and there is usually space available, especially in the second section. We would welcome your students from the Informatics major and appreciate your consideration of our course.

Thanks,

Jim

James B. Johnson
Chair, Department of Art
Minnesota State University, Mankato
james.johnson@mnsu.edu
507-389-6412

On 1/21/08 11:01 PM, "Tietz, Leon" <leon.tietz@mnsu.edu> wrote:

James Johnson,

The Information Systems and Technology Department is proposing a major in Informatics. We anticipate graduating 10 to 15 students per year after the program is established. The degree requirements include ART 160 as an option to satisfy required general education.

I am hereby requesting a letter or email reply by January 25 indicating whether your department will or will not be able to accommodate any additional students that this requirement for Informatics majors may add.

If you have questions please reply with them or call me at 5319. Thank you.

Leon Tietz, Ph.D., Professor and Chair
Information Systems & Technology Department
Minnesota State University, Mankato

1/25/2008
Hello Prof. Tietz,
We offer multiple sections of 120W each semester and attempt to offer multiple sections of 222W at least one semester each year. We should have no problem accommodating the number of students you anticipate serving with this new major. Please let me know if I can be of further assistance. Cathryn Bailey

Professor C. Bailey, Chair
Department of Philosophy/AH 227
Minnesota State University
Mankato, Minnesota 56001

From: Tietz, Leon
Sent: Monday, January 21, 2008 10:56 PM
To: Bailey, Cathryn
Subject: Query Concerning New Informatics Major

Cathryn Bailey,

The Information Systems and Technology Department is proposing a major in Informatics. We anticipate graduating 10 to 15 students per year after the program is established. The degree requirements specify that Informatics students must take either PHIL 120W or PHIL 222W to satisfy required general education.

I am hereby requesting a letter or email reply by January 25 indicating whether your department will or will not be able to accommodate any additional students that this requirement for Informatics majors may add.

If you have questions please reply with them or call me at 5319. Thank you.

Leon Tietz, Ph.D., Professor and Chair
Information Systems & Technology Department Minnesota State University, Mankato
Tietz, Leon

From:      Sharma, Ved P
Sent:      Wednesday, January 23, 2008 10:25 AM
To:        Tietz, Leon
Subject:   RE: Query Concerning New Informatics Major

Hi Leon:

We run 10-12 sections of Econ 201, 9-10 sections of Econ 202, and about three sections of Econ 100 every semester. I do not see any problem handling 10-15 additional students a year. Let us know if your students have any questions.

I expect your students to be better than average in their analytical thinking. As such I would encourage them to take Econ 202 or Econ 201 rather than Econ 100. They will benefit more in these courses. Choice will be theirs, of course.

Ved P. Sharma Ph.D
Professor and Chair
Department of Economics
Minnesota State University
Mankato. MN 56001

Phone: 507-389-5421   Fax: 507-389-6377

---

From:        Tietz, Leon
Sent:        Monday, January 21, 2008 10:59 PM
To:          Sharma, Ved P
Subject:     Query Concerning New Informatics Major

Ved Sharma,

The Information Systems and Technology Department is proposing a major in Informatics. We anticipate graduating 10 to 15 students per year after the program is established. The degree requirements include ECON 100 or ECON 201 or ECON 202 as options to satisfy required general education.

I am hereby requesting a letter or email reply by January 25 indicating whether your department will or will not be able to accommodate any additional students that this requirement for Informatics majors may add.

If you have questions please reply with them or call me at 5319. Thank you.

Leon Tietz, Ph.D., Professor and Chair
Information Systems & Technology Department
Minnesota State University, Mankato

1/25/2008
Tietz, Leon

From: Mark A. Pickar [mark.pickar@mnsu.edu]
Sent: Friday, January 25, 2008 7:28 AM
To: Tietz, Leon
Cc: Pickar, Mark A
Subject: Re: Reminder: Query Concerning New Informatics Major
Importance: High

Dear Leon,

My department will be able to accommodate the additional students you anticipate your new major in Informatics may attract to the courses listed from my department.

My department welcomes any of your students that wish to get a minor in physics or astronomy.

Best regards,
Mark

Mark A. Pickar, Chair
Department of Physics and Astronomy
Minnesota State University, Mankato

----- Original Message ----- 
From: Tietz, Leon
To: Pickar, Mark A
Sent: Friday, January 25, 2008 6:18 AM
Subject: Reminder: Query Concerning New Informatics Major

...this is a gentle reminder that your reply is needed so that this proposal can reach the SET college curriculum committee by the Monday cut-off for proposal submissions.

Thanks.

Leon Tietz, Ph.D., Professor and Chair
Information Systems & Technology Department
Minnesota State University, Mankato

From: Tietz, Leon
Sent: Monday, January 21, 2008 10:29 PM
To: Pickar, Mark A
Subject: Query Concerning New Informatics Major

Mark,

The Information Systems and Technology Department is proposing a major in Informatics. We anticipate graduating 10 to 15 students per year after the program is established. The degree requirements include 20 credits from a list of non-departmental electives. We expect the typical Informatics major to use courses from this list to satisfy the requirements for a minor. There are currently about 40 courses in this list.

1/25/2008
The non-departmental course options from the Physics and Astronomy department include:
AST 125
AST 201
AST 215
AST 225
PHYS 211
PHYS 212
PHYS 221
PHYS 222
PHYS 223
PHYS 335
PHYS 336

At this time, I can not project how many of the Informatics students will choose to take some of your classes, though I assume it will be less than half. I am hereby requesting a letter or email reply by January 25 indicating whether your department will or will not be able to accommodate any additional students that this requirement for Informatics majors may add to these classes.

If you have questions please reply with them or call me at 5319. Thank you.

Leon Tietz, Ph.D., Professor and Chair
Information Systems & Technology Department
Minnesota State University, Mankato

1/25/2008
Tietz, Leon

From: Goebel, Ann M
Sent: Friday, January 25, 2008 10:00 AM
To: Tietz, Leon
Cc: Petersen, Harry C; Evers, Craig T; Jones, Bruce E; Markowski, Andrzej; Jones, Bruce E; Mead, Gary Richard; Sullivan, Paul L
Subject: RE: Reminder: Query Concerning New Informatics Major

Leon,

We have discussed and MET 104 is the only course we will have potential room for students outside the major.
Thank you!
Ann

Ann Goebel, Chair
Minnesota State Mankato
Department of Automotive and Manufacturing Engineering Technology
Trafton East 205
Mankato, MN 56001
phone: 507.389.6383
fax: 507.389.3002
ann.goebel@mnsu.edu

From: Tietz, Leon
Sent: Friday, January 25, 2008 6:20 AM
To: Goebel, Ann M
Subject: Reminder: Query Concerning New Informatics Major

...this is a gentle reminder that your reply is needed so that this proposal can reach the SET college curriculum committee by the Monday cut-off for proposal submissions.

Thanks.

Leon Tietz, Ph.D., Professor and Chair
Information Systems & Technology Department
Minnesota State University, Mankato

From: Tietz, Leon
Sent: Monday, January 21, 2008 10:31 PM
To: Goebel, Ann M
Subject: Query Concerning New Informatics Major

Ann,

The Information Systems and Technology Department is proposing a major in Informatics. We anticipate graduating 10 to 15 students per year after the program is established. The degree requirements include 20 credits from a list of non-departmental electives. We expect the typical Informatics major to use courses from this list to satisfy the requirements for a minor. There are currently about 40 courses in this list.

The non-departmental course options from Manufacturing Engineering Technology include:
MET 104
MET 142
MET 177

1/25/2008
At this time, I can not project how many of the Informatics students will choose to take some of your classes, though I assume it will be less than half. I am hereby requesting a letter or email reply by January 25 indicating whether your department will or will not be able to accommodate any additional students that this requirement for Informatics majors may add to these classes.

If you have questions please reply with them or call me at 5319. Thank you.

Leon Tietz, Ph.D., Professor and Chair  
Information Systems & Technology Department  
Minnesota State University, Mankato
Tietz, Leon

From: Groh, Brian L
Sent: Friday, January 25, 2008 11:09 AM
To: Tietz, Leon
Subject: RE: Reminder: Query Concerning New Informatics Major

Leon,
From our phone conversation I understand that only a few (3-4) students may likely take the listed classes and choose to minor in chemistry. With that in mind, Chem 201 always and will be somewhat problematic to enroll in. However, with the chem 191 online that should ease the pressure on 201 and there should be space available, but it will be competitive. Chem 305 usually has a couple seats that go unfilled each year and this too should be feasible but competitive. Chem 320 and 321 do not pose a problem, there will be plenty of space. These are the only courses required in the minor.

We should be able to accommodate some additional students in these courses recognizing that enrollment in some may be competitive.

Brian

From: Tietz, Leon
Sent: Friday, January 25, 2008 6:25 AM
To: Groh, Brian L
Subject: Reminder: Query Concerning New Informatics Major

...this is a gentle reminder that your reply is needed so that this proposal can reach the SET college curriculum committee by the Monday cut-off for proposal submissions.

Thanks.

Leon Tietz, Ph.D., Professor and Chair
Information Systems & Technology Department
Minnesota State University, Mankato

From: Tietz, Leon
Sent: Monday, January 21, 2008 10:39 PM
To: Groh, Brian L
Subject: Query Concerning New Informatics Major

Brian,

The Information Systems and Technology Department is proposing a major in Informatics. We anticipate graduating 10 to 15 students per year after the program is established. The degree requirements include 20 credits from a list of non-departmental electives. We expect the typical Informatics major to use courses from this list to satisfy the requirements for a minor. There are currently about 40 courses in this list.

The non-departmental course options from the Chemistry department include:
CHEM 201
CHEM 202
CHEM 305
CHEM 320
CHEM 321
CHEM 360

1/25/2008
At this time, I can not project how many of the Informatics students will choose to take some of your classes, though I assume it will be less than half. I am hereby requesting a letter or email reply by January 25 indicating whether your department will or will not be able to accommodate any additional students that this requirement for Informatics majors may add to these classes.

If you have questions please reply with them or call me at 5319. Thank you.

Leon Tietz, Ph.D., Professor and Chair
Information Systems & Technology Department
Minnesota State University, Mankato
From: Banchbach, John  
Sent: Friday, January 25, 2008 8:17 AM  
To: Tietz, Leon  
Subject: RE: Reminder: Query Concerning New Informatics Major

Sorry for the delay. I have consulted with the technical communications faculty, and their response is that “we will gladly welcome informatics majors into 271.” They did wonder, however, if there were other technical communications classes in the list of non-departmental electives.

From: Tietz, Leon  
Sent: Friday, January 25, 2008 6:27 AM  
To: Banchbach, John  
Subject: Reminder: Query Concerning New Informatics Major

...this is a gentle reminder that your reply is needed so that this proposal can reach the SET college curriculum committee by the Monday cut-off for proposal submissions.

Thanks.

Leon Tietz, Ph.D., Professor and Chair  
Information Systems & Technology Department  
Minnesota State University, Mankato

From: Tietz, Leon  
Sent: Monday, January 21, 2008 10:45 PM  
To: Banchbach, John  
Subject: Query Concerning New Informatics Major

John Banchbach,

The Information Systems and Technology Department is proposing a major in Informatics. We anticipate graduating 10 to 15 students per year after the program is established. The degree requirements specify that each Informatics student must take ENG 101 and ENG 271.

In addition, the Informatics degree requirements include 20 credits from a list of non-departmental electives. We expect the typical Informatics major is use courses from this list to satisfy the requirements for a minor. There are currently about 40 courses in this list. The courses for the Linguistics Minor can be used to satisfy this requirement.

At this time, I can not project how many of the Informatics students will choose to take some of these classes, though I assume it will be less than half. I am hereby requesting a letter or email reply by January 25 indicating whether your department will or will not be able to accommodate any additional students that this requirement for Informatics majors may add to these classes.

If you have questions please reply with them or call me at 5319. Thank you.

Leon Tietz, Ph.D., Professor and Chair  
Information Systems & Technology Department  
Minnesota State University, Mankato

1/25/2008
From: Banschbach, John
Sent: Friday, January 25, 2008 2:14 PM
To: Tietz, Leon
Subject: RE: Query Concerning New Informatics Major

Leon,

Half of the requirements in the linguistics are courses in other departments, and I can’t speak for the appropriateness or availability of those courses for your major. Your students would be welcome to take English 381, 483, and 485. An explanatory note: 483 and 485 are part of the TESL (teaching English as a second language) program; while the courses do not assume that students have expertise in these areas already, but the courses do have a focus on the application of knowledge to teaching English.

John

From: Tietz, Leon
Sent: Monday, January 21, 2008 10:45 PM
To: Banschbach, John
Subject: Query Concerning New Informatics Major

John Banschbach,

The Information Systems and Technology Department is proposing a major in Informatics. We anticipate graduating 10 to 15 students per year after the program is established. The degree requirements specify that each Informatics student must take ENG 101 and ENG 271.

In addition, the Informatics degree requirements include 20 credits from a list of non-departmental electives. We expect the typical Informatics major is use courses from this list to satisfy the requirements for a minor. There are currently about 40 courses in this list. The courses for the Linguistics Minor can be used to satisfy this requirement.

At this time, I can not project how many of the Informatics students will choose to take some of these classes, though I assume it will be less than half. I am hereby requesting a letter or email reply by January 25 indicating whether your department will or will not be able to accommodate any additional students that this requirement for Informatics majors add to these classes.

If you have questions please reply with them or call me at 5319. Thank you.

Leon Tietz, Ph.D., Professor and Chair
Information Systems & Technology Department
Minnesota State University, Mankato

1/25/2008
Tietz, Leon

From: Friend, Donald A
Sent: Friday, January 25, 2008 1:12 PM
To: Tietz, Leon
Subject: RE: Reminder: Query Concerning New Informatics Major
Attachments: nature.pdf

Leon,

The Department of Geography is most supportive of the proposed Informatics Major.

For most of the Geography classes listed there should not be a problem accommodating 10-15 additional students per year. GEOG 370 – Cartography might be problematic as we typically have just enough seats as students. However, if GEOG 370 is one of several courses available, this should not be an issue.

I would like to make you aware of our GISc (Geographic Information Science) Certificate program. It would be an excellent complement to a degree in informatics. For specific requirements please see: http://sbs.mnsu.edu/geography/programs/undergraduate/GISc_Certificate_Brochure.pdf.

Without being impertinent, you might consider adding to your list of Geography courses, GEOG 474 – Introduction to Remote Sensing, and GEOG 341 – World Regional Geography.

For your information I have attached a recent article in Nature discussing the growth of geospatial technologies. You might find this supportive of your new program in Informatics and of interest to your faculty and students.

Best,

Don Friend

Donald A. Friend, Ph.D.
Professor and Chair of Geography
Director of Earth Science Programs

Department of Geography
Minnesota State University
7 Armstrong Hall
Mankato, MN 56001-6026
USA

507-389-2618 voice
507-389-2980 fax
don.friend@mnsu.edu

"I regard it as the foremost task of education to ensure the survival of these qualities: an enterprising curiosity, an undefeatable spirit, tenacity in pursuit, readiness for sensible self-denial and above all, compassion" (Kurt Hahn, founder of Outward Bound).

From: Tietz, Leon
Sent: Friday, January 25, 2008 6:24 AM
To: Friend, Donald A
Subject: Reminder: Query Concerning New Informatics Major

...this is a gentle reminder that your reply is needed so that this proposal can reach the SET college curriculum.
committee by the Monday cut-off for proposal submissions.

Thanks.

Leon Tietz, Ph.D., Professor and Chair
Information Systems & Technology Department
Minnesota State University, Mankato

From: Tietz, Leon
Sent: Monday, January 21, 2008 10:37 PM
To: Friend, Donald A
Subject: Query Concerning New Informatics Major

Donald Friend,

The Information Systems and Technology Department is proposing a major in Informatics. We anticipate graduating 10 to 15 students per year after the program is established. The degree requirements include 20 credits from a list of non-departmental electives. We expect the typical Informatics major to use courses from this list to satisfy the requirements for a minor. There are currently about 40 courses in this list.

The non-departmental course options from the Geography department include:
GEOG 101
GEOG 103
GEOG 340
GEOG 370
GEOG 373

At this time, I can not project how many of the Informatics students will choose to take some of your classes, though I assume it will be less than half. I am hereby requesting a letter or email reply by January 25 indicating whether your department will or will not be able to accommodate any additional students that this requirement for Informatics majors may add to these classes.

If you have questions please reply with them or call me at 5319. Thank you.

Leon Tietz, Ph.D., Professor and Chair
Information Systems & Technology Department
Minnesota State University, Mankato

1/25/2008
Hello Leon,

My department will be able to accommodate the additional students in PSYC 101 resulting from the new major in Informatics.

Good luck moving forward with you program!

Rosemary Krawczyk

Rosemary Krawczyk, Ph.D.
Professor and Chairperson
Dept. of Psychology
Minnesota State University, Mankato
Mankato, MN 56001
rosemary.krawczyk@mnsu.edu

"We are not what we know but what we are willing to learn."

- Mary Catherine Bateson

--------
From: Tietz, Leon
Sent: Monday, January 21, 2008 10:54 PM
To: Krawczyk, Rosemary
Subject: Query Concerning New Informatics Major

Rosemary Krawczyk,

The Information Systems and Technology Department is proposing a major in Informatics. We anticipate graduating 10 to 15 students per year after the program is established. The degree requirements specify that Informatics students must take PSYC 101 to satisfy required general education.

I am hereby requesting a letter or email reply by January 25 indicating whether your department will or will not be able to accommodate any additional students that this requirement for Informatics majors may add.

If you have questions please reply with them or call me at 5319. Thank you.

Leon Tietz, Ph.D., Professor and Chair
Minnesota State University, Mankato  
College of Science, Engineering and Technology  
Curriculum Committee Meeting Minutes  
Trafton Center 126, Wednesday 13 February 2008

Present: Mary Guy (Math & Statistics), Beth Proctor (Bio. Science), Jim Rife (Chem. & Geol., arrives at 9:30 am), Jim Slack (IST), Youwen Xu, Chair (Physics & Astronomy), Karen Chou, Secretary (ME & CIVE), Julio Sanchez (CS), Scott Fee (IDCM)  
Absent: Bruce Jones (AMET), and Rajiv Kapadia (ECET).  
Guests: David Haglin (Dean’s office), Mahbubur Syed, (UCAP-CSET rep.), Angie Bomier (Advising Ctr.), Leon Tietz (IST Chair), Cyrus Azarod (IST)

1. The meeting was called to order at 9:00 am.  
2. Meeting minutes from 2/6/2008 meeting was not prepared for approval.  
3. The committee reviewed and approved proposals 0896, 0897, 08110, and 08109 with modification on cover sheet and inclusion of program assessment.  
4. The committee suggested that proposals 08100 to 08108 be withdrawn for this academic year since new courses will replace some of the existing courses and a program re-design is needed to show how all these new courses fit into their curriculum for accreditation. The committee suggested that these proposals should be included in the package of proposals to be submitted next fall with their program redesign. Scott Fee agreed to withdraw the proposals.  
5. The committee revisited proposals 0888, 0892 to 0894 which were tabled from 2/6/2008 meeting due to lack of time. IST didn’t submit the suggested statement because the suggestions were not approved by the committee. The discussion was then focused on the purpose of the college curriculum committee since programs don’t have to respond to the college curriculum committee as long as MnSCU does not request the information. The proposals were passed with the modification that TOEFL requirement be removed from admission criteria. There were five yes, two abstains, and three absence.  
6. The committee reviewed proposal 0898 – program re-design to add a new MS degree in ITS. The proposal was passed with the modification distributed during the meeting. There were five yes, two abstains, and three absence.  
7. The committee reviewed proposal 0899 – program re-design to add a new BS degree in Informatics. The proposal was passed with the modification to remove the sentence under “required minor”. There were five yes, three abstains, and two absence.  
8. Proposal 08111 to 08114 were submitted passed deadline (Jan. 28). The committee members agreed to meet on Thursday, Feb. 14 to review the proposal.  
9. David Haglin distributed a bulletin change proposal (08115) on behalf of Computer Science Department.  
10. The next committee meeting was scheduled for Thursday 14 February 2008 at 9:00 am in TR-C126.  
11. The meeting was adjourned at 9:50 am.  

Respectfully submitted,  

Karen Chou
March 18, 2008

To: Daniel Cronn-Mills, UCAP

From: Leon Tietz, Chair, Information Systems and Technology

Re: Informatics Proposal

The purpose of this memo is to address each of the points in the email from Dean Frey stating why he did not recommend the Informatics proposal.

1) a new BS program was being developed and I was not aware of its development;

**Background:** An Informatics program has been under consideration in the department since the early discussions about how to proceed with the split of the old department. The previous CIS department had 3 programs: CS, CIS, and MIS. After long discussions and a day long retreat in April 2005 the department decided to redesign CIS to SE (Software Engineering). However, during a department split initiated in 2006 the options considered for redesign of CIS were: SE, IT, Applied Comp., and Informatics. These options were known by all members of the previous department, the Dean and the current Assoc Dean. The SE option was put off the table by the Dean. Accordingly, the IT option was finally chosen being a more established field than Informatics. The Informatics program was planned for a future expansion.

The Information Systems and Technology Department has seen enrollment declines for 6 or more years. This has been a national trend and it is still not obvious that the trend has reversed. With the current low enrollments in both iSYS and IT, the IS&T Department is below the credit hour production standards set for the department.

**Designing the Informatics Program:**

**Goal:** to meet the challenges of declining enrollment with existing limited resources, by opening up new opportunities to students, businesses and professionals already in the field.

**Design and Timeline:** Informatics, being a multidisciplinary application area of IT and a rapidly growing field, was selected to be a program that could be developed with minimal or no new resources.
Information gathering and designing the Informatics curriculum started in fall 2007 through weekly meetings of the related faculty members. Intensive multi-hour meetings were held during all of Christmas break and considered several options for including new courses, new course designators etc. University and MNSCU rules were explored and clarified by contacting the UCAP representative for CSET and the Director of Academic Programs at MNSCU. After considering these options, the Informatics curriculum proposal was finalized during the 3rd week of January meeting the following goals:

- No additional resources are required. We thought the request for any additional resources, especially when there is a global trend of low enrollments in all computing areas in general, including at MSU, would raise concerns for the MSU administration including the Dean. This is especially true since resources have been more constrained after the department split in the fall of 2007.

- The Informatics curriculum conforms to the basic definition of Informatics and uses existing IT courses and yet has a distinct difference compared to the IT program that is currently offered. Future plans are to expand the content and even the designator to further differentiate the Informatics program from the IT program.

Cooperation and support from 15 departments was requested during the last week of January. All activities to complete the preparation of the proposal to submit to the college curriculum committee to meet the deadline of January 28th kept us very busy. It may be noted that Health Science, which was also planned in our original curriculum had to be left out because of the time constraint for them to complete some departmental formalities, in spite of strong interest expressed by the Health Science chair. It is included in the future expansion plans.

The proposal was discussed with Dean immediately after it was ready for submission to the college curriculum committee. The Dean made his recommendation on February 18th, more than two weeks after this. It was our understanding (possibly a misunderstanding) that a time period of two weeks would be sufficient to consider a recommendation, especially a well designed proposal with no additional resource requirements. We were ready to provide additional information as needed. During this period the Dean asked for more information on January 31. It was provided on February 3. A copy of the information provided is attached.

2) there did not seem to be any documentation that this major was needed;

The Bureau of Labor Statistics (http://www.bls.gov/opub/mlr/2007/11/art5full.pdf) indicates that computer related jobs represent the fastest growth among the professional subgroups. Informatics is a new sub-discipline and can be expected to exhibit these rapid gains as indicated by the number of schools that are adding
Informatics programs. Many of these schools were referenced in the attached information that was provided to the dean via email. Informatics is a critical component of this department's goal of increasing both enrollments and diversity (especially women).

All documentation required by the Academic Affairs checklist and by MnSCU was provided.

3) the other programs they provided me with evidence as similar seemed to be much stronger in that these programs actually had courses in the program with Informatics in the title that suggest it is a program different from the IT program which is already offered.

In the process of designing the Informatics major, consideration was given to the course content in different existing Informatics programs. Please note that it is not unusual (rather very common) to have different titles for a course with similar or even with the same content. Several informatics programs have courses with Informatics in their title, the content of which is the same or similar to our existing IT courses. For better presentation of the Informatics program we intended to modify the titles to include the word informatics in them and even change the designator to INFO. These courses could be cross-listed with the IT courses. We consulted with UCAP and learned that these courses will be considered as new courses. We therefore decided to make these changes gradually as the program grows. We strongly believe that time is of the essence and a one year delay to start the program will significantly change our marketing plan, enrollment issues and will waste lots of time, effort and resources, not to mention lost opportunities. It is our plan to go through program modifications as we grow in this rapidly expanding area.

4) the major reason is that there seems to be very little difference between IT and Informatics course content to justify a new BS degree.

The existing IT program and the proposed Informatics program have distinct differences in their focus and course completion requirements.

- The proposed Informatics program is designed following a well acknowledged definition: Informatics is a new field of study that gives students the skills to apply information technology to another field - from health care to journalism to biology to economics. Informaticists can then use technology to harness the power of information and make exciting new discoveries that increase productivity at home and at work. (University-Purdue University Indianapolis). Accordingly, the core requirements were modified and the required 12 credits of IT specialization were removed. 20 credits of non-departmental (application areas/cognates) have been included.

- More General Education courses have been specified for the Informatics program to give students a better understanding of the human side of information transfer.
(Psychology, Intercultural Communication, Visual Culture/Performance of Literature, etc.). The courses PSYC 101 (4), SPEE 203 (3), ART 160/SPEE 310 (3), PHIL 222 (3) required for the Informatics program are not required by the IT program.

- The Informatics students are required to attend a seminar class and create a portfolio in which the student will document the work done in applying IT to topics in their chosen multidisciplinary courses. The portfolio must be presented (defended) in a seminar to show that the student has successfully merged the information acquired in the two disciplines. The IT program does not have this requirement.

- The Informatics internship/capstone will not be just an IT internship, but must again involve the successful integration of the student’s chosen disciplines.

- In terms of course completion, with the best possible combinations, a student earning an IT or Informatics major will be required to complete at least 13 to 20 additional credits (depending on the IT specialization targeted or completed) of IT designated courses to meet the requirements of the other program. This does not include the changes in the general education and multidisciplinary course requirements. This provides a different approach to justify the distinct difference between the IT and Informatics programs. The Informatics program is indeed significantly different from the IT program.

- A vision statement has been prepared (see attached) to show the importance of the Informatics program in the future plans of the IS&T Department.

By the careful packaging and selection of IT courses, we are able to provide the necessary knowledge units for the Informatics program. We do anticipate that student populations in this discipline will again increase to help us reach our goals. This remains a very rapidly changing technology area and future changes are anticipated for us to remain in a position of offering what our students require to be highly competitive in a job market where out-sourcing has become more common. The skill sets that we will continue to offer provide considerable immunity from out-sourcing.
From: Tietz, Leon
Sent: Sunday, February 03, 2008 10:41 PM
To: Frey, John E
Subject: Informatics

John,

The portion of our meeting devoted to Informatics last Monday was too short for me to even understand the questions that you might have. Hopefully this email and the references provided will answer your questions. If this is still incomplete, I or Cyrus Azarbad, the author of the Informatics proposal, will be glad to work with you on helping you with this.

What is Informatics?

Documentation at Indiana University-Purdue University Indianapolis web-site states: (see the attached IndianaUniPurdue.pdf)

- Informatics is...
- understanding the impact technology has on people.
- the development of new uses for technology.
- the application of information technology in the context of another field.

Informatics is a new field of study that gives students the skills to apply information technology to another field - from health care to journalism to biology to economics. Informaticists can then use technology to harness the power of information and make exciting new discoveries that make us more productive at home and at work.

The web-site for Indiana University SouthEast (see the attached ius.pdf) states: Informatics encompasses the art, science and human dimensions of information technology (IT). People who are successful in informatics are often both right- and left-brained, able to comprehend the technical aspects of computer systems, and apply them in new and creative ways.

Informatics specialists study and develop new uses for information technology in all types of settings. People working in informatics find themselves working in a variety of fields, including telecommunications, banking and finance, media, biology, chemistry, dentistry, medicine, entertainment, life sciences research, social studies, and many others.

Indiana University has a School of Informatics whose web-site includes: (see the attached IndianaUniversity.pdf) Informatics develops new uses for information technology and in order to solve specific problems in areas as diverse as biology, fine arts, and economics. Informatics is also interested in how people transform technology, and how technology transforms us.

The Informatics Undergraduate Association says: “Informatics refers to the study of information systems – the people, the information, and the information technology” (see the attached iuga.doc). The human centered approach also mentioned on that page is the motivation for including PSYC 101 as a required Gen Ed. and the inclusion of IT 482 (Human-Computer Interaction) and IT 483 (Web Applications and User Interface Design) in the core.

Purdue University’s web site includes additional information about the name “Informatics”. http://www.itap.purdue.edu/communications/web/why/ explains in part: “Generally informatics refers to the intersection between information technology and human information consumers or users. The three domains entailed within it are (1) information technology and its application, (2) information organization and structure, and (3) human behavior and communication related to these other two domains. Ultimately informatics focuses on the science and human aspects of communication technology. Its goal is to develop more efficient systems and techniques related to the delivery of information.”

The department of Informatics at UC Irvine (see attached ucallIrvin.jpg) lists the aims of Informatics as:

3/18/2008
• Apply information technology to real-world problems
• Design and develop new uses for information technology
• Understand the impact information technology has on people

What is the job availability?

The University of Washington lists job titles/descriptions for students receiving the BS in Informatics. (see the attached uofwashington.pdf). The sample job titles include: Information architect, web designer, interface designer, network administrator, IT director/manager, technology solutions consultant, project manager, database developer, product developer, web developer, systems analyst, usability engineer. These titles are similar to titles of jobs that IT graduates could fill, however, the close association with the allied discipline (sometimes referred to as the cognate) will make these graduates more suited for some positions.

What are some of the allied disciplines (cognates)?

The Centre for Management: Informatics at Dalhousie University has a long list (see attached defined.pdf). Some of the areas that we have targeted to include in our near-term implementation of the Informatics major include: Biological, Biomedical, Chemical, Geographic, Health, Medical and Nursing. Note that not all of these are included in this original proposal, but we will update the list of cognates as we develop the appropriate relationships with the various departments.

Should MSU have an Informatics program?

Many universities are now offering degrees in informatics at all levels. Several were listed above. Three more of the many possibilities are: University of Illinois (see univofillinois.pdf), University of Manchester (see universityofManchester.pdf), and Radford University (see radford.pdf).

Informatics is an excellent fit with the course offerings already available in the IS&T department and we hope to use it to further invigorate our department and to clearly distinguish our offerings from those of SCC or Rasmussen. By including Informatics in our marketing campaign, we are planning to be able to attract additional, highly-qualified students to our department.

The two courses listed in the paper that I gave you previously were designed to allow IT students to gain an adequate grasp of what is done in bioinformatics without needing to take multiple biology courses. In designing our program, we felt that the student should achieve at least the level of a minor in the area in which he/she wishes to apply informatics, hence our use of required non-departmental courses that can be used to assemble a minor in that area. We feel that we have done an excellent job of creating a program with very high subject content and still fitting it within the 120 credit limit.

--Leon

From: Frey, John E  
Sent: Thursday, January 31, 2008 2:05 PM  
To: Tietz, Leon  
Subject: Informatics

Leon: I reviewed the paper that you left off. If this is the foundation for the informatics proposal, I do not see the connection in the paper. It does focus on biomedical informatics but not the wide sweep of disciplines that your program has laid out. I am also confused on the connection of the two courses that the paper proposes in 3.1 and 3.2 and the lack of them in your proposal. Try to get me educated on this. Thanks, John

Dr. John E. Frey, Dean  
College of Science, Engineering and Technology  
131 Traffon Science Center North  
Minnesota State University  
Mankato, MN 56001  
P: 507-389-5998  
F: 507-389-1095  
C: 507-380-6001  
john.frey@mnsu.edu

3/18/2008
Information Systems and Technology (IS&T) Department

Mission Statement: The mission of IS&T department is to educate students to understand and apply the science and practices of Information Systems and Technology, to prepare them for jobs in broad areas of IS&T, and for a lifetime of learning through undergraduate and graduate teaching, through student/faculty research, and other scholarly activities that serve the local, state, national and global communities.

Vision Statement: The IS&T department will be a recognized leader to advance and disseminate the science and practices of Information Systems and Technology to stimulate the exchange and creation of Information as knowledge. IS&T is committed to excellence by promoting the values of professionalism, integrity, efficiency, effectiveness, innovation, collaboration and teamwork.

Background: The Information Systems and Technology Department has seen enrollment declines for 6 or more years. This has been a national trend and it is still not obvious that the trend has reversed. With the current low enrollments in both iSYS and IT, the IS&T department is below the credit hour production standards set for the department.

Goals: To reach the mission/vision the major short-term goals of the IS&T Department are:

- to provide our students with the knowledge and skills needed to be highly effective contributors in areas where computing is applied to the
  - secure and efficient acquisition and transmission of data,
  - processing to transform data into valuable information,
  - dissemination of information in a form effectively utilized by information consumers.
- Reverse the declining enrollment trend using existing faculty resources.
- Increase the number of minorities, especially women, enrolled in our programs.

To achieve these goals, the IS&T Department must

- recruit students of high potential to excel in this discipline. To do this effectively, we must recruit:
  - High school graduates
  - Holders of 2-year degrees (AS or AAS) in the computing field
  - Local and regional employees working in IT departments or similar positions
  - Minorities, especially women
- prepare students for the wide variety of employment positions involving information processing available throughout this region and the world by
  - providing a thorough academic grounding in the application of computing to solve real-world problems
  - requiring that all students work to achieve effective communication techniques
  - providing internship experiences to further prepare our graduates for their careers in this field.
- continue to meet regularly with representatives of local and regional IT departments to better understand their needs and how to meet them.

The IS&T Department currently offers degrees in Information Systems (iSYS) and in Information Technology (IT). These degrees are the updated versions of the former MIS and CIS degrees respectively that have proven to be highly successful in preparing students for careers in this field. In order to document and ensure the on-going quality of these programs we are pursuing accreditation of both programs. The iSYS accreditation effort is in the data gathering stage during the 2007-08 academic year with an on-site visit planned for the 2008-09 A.Y. The IT program is scheduled to do data gathering in 2008-09 and to have an on-site visit in 2009-10 for its accreditation. In addition, the IS&T Department together with the Computer Science Department is offering a master's degree in Computer Science.

A number of new options have been created to make this department more effective in the areas of recruitment and student preparation.

Actions to achieve goals: A new master's degree in IT has been designed to more effectively address the needs of those interested in improving their knowledge and skills to become leaders in this field. This degree is similar to the Computer Science MS however, barriers to entry to that program that are based on the more theoretical aspects of CS
have been removed to make the degree a much better match to the skill set typically found among those with a strong IT background. This will effectively open opportunities for graduate education to recent graduates of our IT program and to those with a number of years of field experience who are seeking to move into positions of greater leadership.

Four new certificate programs have been designed based on the existing specializations offered under the IT, BS program to provide an opportunity for graduates with 2-year computing-based degrees and current computing professionals who feel the need to develop additional expertise in any of the four areas, namely: Database Technologies, Software Development, Information Security, and Networking. Each of these certificates includes 12 credit hours of upper-division undergraduate coursework that will be scheduled to make the courses more accessible to those with full-time employment.

The MS and Certificate programs are designed primarily as a service to the community and region. While they should result in some improvement in credit-hour production, their primary goal is not long-term enrollment gains.

An Informatics program has been under consideration in the department since the early discussions about how to proceed with the split of the old department. The Informatics program design as proposed represents well over 100 hours of faculty time invested over the recent Winter Break. The Bureau of Labor Statistics (http://www.bls.gov/opub/mlr/2007/11/art5full.pdf) indicates that computer related jobs represent the fastest growth among the professional sub-guops. Informatics is a new sub-discipline and can be expected to exhibit these rapid gains as indicated by the number of schools that are adding Informatics programs. The Goals in the design of this program include:

- Increase enrollments in IS&T without adding additional faculty positions
- Recruit quality students for this multi-disciplinary area
- Recruit a more diverse student population (especially women)

Informatics develops new uses for information technology in order to solve specific problems in related disciplines (referred to as cognate areas) as diverse as biology, health, medical, pharmacy, chemistry, fine arts, and economics. Informatics is also interested in how people transform technology, and how technology transforms us. There have been difficulties recruiting women into IT and related fields. The multi-disciplinary approach of Informatics has a broader appeal to this population than the more restrictive pure IT programs.

The Informatics program succeeds in combining existing IT courses that provide the basis for understanding how to effectively use computational ability with a cognate area that will benefit from the application of digital technology and media. Additional communication, psychology and cross-cultural skills are included to improve the effectiveness with which Informatics majors can convey information. The ability to apply IT to the chosen cognate area must be demonstrated via a portfolio and a capstone experience (e.g. internship) as part of the program requirements. While built upon IT courses, the Informatics program is distinctly different from the current IT program in terms of focus areas and course requirements to be completed by the students. It will also permit the IS&T department to effectively differentiate ourselves from 2-year institutions that are now advertising and offering IT programs. We also plan to have the Informatics program accredited in about five years. The Informatics program is a critical component of our offerings so that we can more effectively recruit quality students.

We as a department are able to offer this wide variety of programs and certificates because the general body of IT knowledge is at the heart of each. By the careful packaging and selection of IT courses, we are able to provide the necessary knowledge units for each offering. We do anticipate that student populations in this discipline will again increase to help us reach our goals. This remains a very rapidly changing technology area and future changes are anticipated for us to remain in a position of offering what our students require to be highly competitive in a job market where out-sourcing has become more common. The skill sets that we will continue to offer provide considerable immunity from out-sourcing.
What is Informatics?

Informatics is...

- understanding the impact technology has on people.
- the development of new uses for technology.
- the application of information technology in the context of another field.

Informatics is a new field of study that gives students the skills to apply information technology to another field - from health care to journalism to biology to economics.

Informaticists can then use technology to harness the power of information and make exciting new discoveries that make us more productive at home and at work.
Overview

The Bachelor of Science in Informatics

Informatics studies information systems and technology from a user-centered perspective. This perspective focuses on users as a critical part of information systems. Coursework in the Informatics program integrates user-centered approaches with a well-balanced technical background. In their senior year, students conduct independent fieldwork in the form of a capstone project that involves either user-centered research or interactive system design.

What can you do with a degree in Informatics?

Informatics prepares students for a wide range of endeavors in the information field including:

- Information management and technology
- Research and information services
- Interactive system design
- Human-computer interaction
- Information science

Graduates of the program will be qualified for jobs in the information and technology industry and in business, public services, and other professions. Our students also pursue graduate programs in an array of disciplines, including accounting, business, biomedical informatics, information management, law, environmental studies, and information technology.

Sampling of Possible Job Titles/Descriptions:

- Information architect
- Web designer
- Interface designer
- Network administrator
- IT director/manager
- Technology solutions consultant
- Project manager
- Database developer
- Product developer
- Web developer
- Systems analyst
- Usability engineer

© 2007 University of Washington - Information School. Send comments to: webmaster@ischool.washington.edu
School of Informatics

What is Informatics?

Video:
Real Player | Windows Media | Text transcript | Video help

Informatics is best described as the use of multidisciplinary design for developing computer-based applications. We see it as the meeting place of people, business, and information technology.

Informatics draws upon many disciplines including computer science, design, psychology, business and management, and information systems. Whichever Informatics course you choose, you will fundamentally be learning about multi-disciplinary design approaches for technology-based systems. Please visit:

- Undergraduate study
- Postgraduate taught study
- Postgraduate research study

The School of Informatics at the University of Manchester aims to:

- Conduct research, at levels of international excellence, into the theory, design and management of computing and information processing systems, with a specific focus on the role of such systems in a socio-economic environment
- Advance fundamental knowledge through multidisciplinary research and collaboration with leading researchers in other disciplines, with a focus on the interaction between people, data, organisations and software-based systems
- Provide a high quality education in business and user-oriented computing that meets the needs of industry for highly skilled and effective graduates at Bachelors, Masters and Doctoral levels
- Contribute to economic and societal needs by disseminating and exploiting research for the benefit of regional, national and global communities

Video help

Browser plugins are needed to watch the video on this page, which is provided in two different formats - Real Player format and Windows Media format. To view the video, click on one of the links below the picture. The speed and picture size should automatically adjust to suit the speed of your internet connection. Links to download plugins are available on our Media Streaming Links page. If you experience problems with these videos and need technical help, please contact videostreaming@manchester.ac.uk

School of Informatics, The University of Manchester, PO Box 88, Manchester, UK, M60 1QD | Contact details | Feedback

The School of Informatics is part of the Faculty of Humanities

http://www.informatics.manchester.ac.uk/aboutus/whatis/ 1/31/2008
A one-page explanation of "informatics"

Informatics studies the application of information technology to practically any field, while considering its impact on individuals, organizations, and society. It uses computation as a universal tool to solve problems in other fields, to communicate, and to express ideas.

Formally, informatics is the study of the structure and behavior of natural and artificial systems that generate, process, store, and communicate information. Informatics also includes (1) the study of the cognitive, social, legal, and economic impact of information systems; (2) research and development of technologies needed to implement artificial information systems that enhance our cognitive abilities; and (3) the development and use of advanced information systems in science, engineering, arts, humanities, education, and business. Because so much information can be stored digitally, we can manipulate it by computer. And because there is so much information, computing is often the only way to make information beneficial to humanity.

The ability to handle vast amounts of information cheaply has changed the way we live. Advances in computing power, the World Wide Web, search engines, and large-scale collaborative initiatives like Wikipedia have revolutionized the way knowledge is created and shared. We have new forms of social interaction — from email, IM, and blogs to eBay, Facebook, and YouTube — and collaborative art and entertainment - from Limewire and podcasts to Guitar Hero and Second Life. Information technology (IT) has become a ubiquitous, indispensable component of our everyday lives, helping — or hindering — us as we manage information, create knowledge, and make decisions.

Within the humanities, digital content is changing the way we visualize, present, understand, and experience history and literature. Within the fine arts, artists are using high-tech tools to construct virtual worlds, produce animations, and make music. Within the social, biological, and physical sciences, pattern analysis, data mining, visualization of massive data sets, and large-scale simulation of biological and physical processes, are enabling new discoveries and insights.

To leverage these advances to solve problems across all disciplines requires knowledge of how to represent problems and domain-specific data, how to structure processes, how to handle work-flow, how to manage complexity, and how to interpret results. To fully participate as an informed member of society, we must appreciate the historical, ethical, and social ramifications of these accelerating changes.

Informatics addresses all of these issues and provides tools for handling them.

For some examples of how others define informatics, click here.
Informatics Program Home

School of Natural Sciences Home > Informatics Home

New Bachelor of Science Degree in Informatics

Indiana University Southeast students will be able to pursue a bachelor of science degree in informatics beginning with the Fall 2006 semester. The new degree is focused on understanding and interpreting information technology to solve problems in a wide range of fields. Read more about the new Informatics degree in the April 3, 2006 press release.

Informatics is:

Informatics encompasses the art, science and human dimensions of information technology (IT). People who are successful in informatics are often both right- and left-brained, able to comprehend the technical aspects of computer systems, and apply them in new and creative ways.

Informatics specialists study and develop new uses for information technology in all types of settings. People working in informatics find themselves working in a variety of fields, including telecommunications, banking and finance, media, biology, chemistry, dentistry, medicine, entertainment, life sciences research, social studies, and many others.

In informatics, people typically apply their computer skills in a more practical, less theoretical manner than other IT professionals. They are generally more research-oriented and less technical, focusing more on how the technology will be used and the people who will use it.
Informatics Certificate - Radford University Graduate College

RU Informatics

RU Informatics—Where people and information technology meet.
New information systems are having a dramatic impact on all spheres of society. At Radford University, we believe there is a great need and opportunity for students and practitioners in a variety of fields to learn to apply state-of-the-art information technology and science to their disciplines. To that end, we have developed a Certificate in Informatics, with applications in Health Informatics, Security & Intelligence Informatics, Geoinformatics, Bioinformatics.

What is Informatics?
Informatics is a discipline that studies and researches the human uses of technology as applied to multidisciplinary subject areas. In essence, Informatics equips students to study information technology, consider its social impact and find ways to use technology to solve problems.

<table>
<thead>
<tr>
<th>Informatics...</th>
<th>Uses technology to...</th>
</tr>
</thead>
<tbody>
<tr>
<td>starts with a problem</td>
<td>identify and retrieve data</td>
</tr>
<tr>
<td></td>
<td>compile and manipulate the data</td>
</tr>
<tr>
<td></td>
<td>identify and present the insights or solutions</td>
</tr>
</tbody>
</table>

Cohort starting Fall 2006.

Why Study Informatics at RU?
- Courses focus on applying IT to real world applications within your discipline
- IT, research and statistical background NOT required
- Flexible instructional format for busy lives (live online & limited face-to-face)
- 15 credit-hour Certificate (9-hour core + 6 hour discipline-specific)
- Certificate designed to be completed in one year
- May be completed as a "stand-alone" certificate, or in conjunction with a master's degree

RU Graduate College, Preston Hall 213, (540) 831-5431 gradcoll@radford.edu
PO Box 6928, Radford, VA 24142

http://www.radford.edu/~informatics/

1/31/2008
What is Management informatics?

Information has become like the air we breathe, so pervasive that we scarcely notice its existence and yet so essential that we cannot live without it.

- J. Tague-Sutcliffe

Management informatics is the science and art of turning data into useful and meaningful information. It has given birth to a family of 'informatics' such as health, social and business informatics. Management informatics analyzes, formalizes, and models data, information, and knowledge, and leverages the output for sound decision making and for communication, knowledge sharing, and information use among employees, clients, and partners.

Informatics plays an important role in the evolution of public and private institutions. It allows managers to re-invent relationships with their clients, partners, and employees. It takes a holistic approach to organizational challenges, melding information and computing sciences with management, environmental, social, legal, and policy issues.

Informatics

- harnesses the power of computational and information technologies to analyze large volumes of sometimes disparate data;
- seeks to understand how knowledge can be shared, and how to develop innovative tools to facilitate information sharing and use;
- studies the design, use and evaluation of new information products, and digital tools;
- represents a broad spectrum of research from the highly technical to the predominately human, centred around modelling, analyzing and presenting data, and information.

© 2006 CMI - Dalhousie University
This site was last updated:
Tuesday May 23, 2006
What is Informatics?

Informatics refers to the study of information systems — the people, the information, and the information technology.

The Bachelor of Science in Informatics offers a human-centered approach to the study of information systems and technology. Students completing this degree develop conceptual understandings of the information and technology, a range of technical skills, and a human-centered perspective for designing and implementing information systems.

You irritated the IUGA Server for 0.0471339226 seconds. Don't irritate it too much or it may fail.
Tietz, Leon

From: Tietz, Leon
Sent: Tuesday, March 18, 2008 11:00 AM
To: Syed, Mahbubur R; Cronn-Mills, Daniel
Subject: Informatics Proposal
Attachments: Informatics Memo March 18.doc; Informatics ; Vision_Statement2c.doc

Daniel Cronn-Mills,
I have attached a response to the email below from Dean Frey. My response, (see the attachment “Informatics Memo March 18.doc”) addresses each of the points that the dean included in his email. My response also makes reference to two attachments. The first of these is the email “Informatics” that was sent to the dean to answer questions that he had. The second reference is to a vision statement (“Vision Statement2c.doc”) that the dean requested that I prepare to help him in reconsidering the Informatics proposal.

I have provided a hard copy of this information to Mahbubur Syed, the CSET representative to UCAP.

Thank you for your consideration.

Leon Tietz, Ph.D., Professor and Chair
Information Systems & Technology Department
Minnesota State University, Mankato

From: Syed, Mahbubur R
Sent: Wednesday, March 05, 2008 12:42 PM
To: Tietz, Leon
Cc: Azarbold, Cyrus
Subject: FW: Program Proposals

To: Leon Tietz, Chair IS&T
From: Mahbubur Syed, UCAP rep for CSET

Please read the UCAP decision and the related comments from the CSET Dean on your Informatics proposal. Please, let me know if you desire to provide any response to UCAP on the Dean’s comments, which will be discussed before a final approval vote is taken in two weeks.

From: Cronn-Mills, Daniel
Sent: Wednesday, March 05, 2008 9:43 AM
To: Cronn-Mills, Daniel; Handke, Margaretta; Hoffman, Patricia; Rolfes, Mary Swanson; Schomberg, Jessica J; Syed, Mahbubur R
Subject: FW: Program Proposals

FYI
We will take the Dean’s comments into consideration at our next UCAP meeting.

Thanks,
Dan

From: Frey, John E
Sent: Wednesday, March 05, 2008 8:36 AM
To: Cronn-Mills, Daniel

3/18/2008
Subject: RE: Program Proposals

Daniel: After not offering support for the software engineering proposal, additional information came to me which changed my vote on this program. I overlooked data provided me on program demand and the fact that they made 4 curriculum changes that suggests new content for a new major.

I did not approve the Informatics BS program because for three reasons: 1) a new BS program was being developed and I was not aware of its development; 2) there did not seem to be any documentation that this major was needed; 3) the other programs they provided me with evidence as similar seemed to be much stronger in that these programs actually had courses in the program with Informatics in the title that suggest it is a program different from the IT program which is already offered. But the major reason is that there seems to be very little difference between IT and Informatics course content to justify a new BS degree. I apologize for not having my reasoning attached to my decision. John

Dr. John E. Frey, Dean
College of Science, Engineering and Technology
131 Trafton Science Center North
Minnesota State University
Mankato, MN 56001
P: 507-389-5998
F: 507-389-1095
C: 507-380-6001
john.frey@mnsu.edu

From: Cronn-Mills, Daniel
Sent: Tuesday, March 04, 2008 5:23 PM
To: Frey, John E
Subject: Program Proposals

To: Dean Frey
From: Dan Cronn-Mills, UCAP Chair

RE: Program proposals in Informatics and Software Engineering

UCAP reviewed today the program proposals for Informatics and Software Engineering. The committee noted in both instances the department chair and college curriculum committee chair have recommended approval. The committee also noted the college Dean did not recommend approval for either proposal. UCAP did not find any comments from the Dean indicated reasons for not recommending approval.

UCAP voted to give both proposals tentative approval. UCAP is requesting the Dean of CSET, if desired, to provide written comments to UCAP explaining his “not recommended” decision. Any comments provided by the Dean will be taken into consideration before a final approval vote is taken in two weeks.

3/18/2008