Minnesota State University, Mankato  HOLD and CLEAR buttons only compatible with Acrobat V. 4 and 5
Curriculum Proposal

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

<table>
<thead>
<tr>
<th>College:</th>
<th>Science, Engineering and Technology</th>
</tr>
</thead>
<tbody>
<tr>
<td>Department:</td>
<td>Computer Science</td>
</tr>
<tr>
<td>Program:</td>
<td>Computer Science</td>
</tr>
<tr>
<td>CIP #:</td>
<td>11.010104</td>
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<table>
<thead>
<tr>
<th>Proposal #:</th>
<th>Q10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Effective Date of Change:</td>
<td>Academic Year: 50-57</td>
</tr>
<tr>
<td>(For Office Use Only)</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Course Designator and Number</th>
<th>Number of Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 350</td>
<td>3</td>
</tr>
</tbody>
</table>

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

An introduction to data communications and networks. The field encompasses local area networks, wide area networks, and wireless communication. Topics include digital signals, transmission techniques, error detection and correction, OSI model, TCP/IP model, network topologies, network protocols, and communications hardware.

Pre: CS 210 and CS 320
Spring

Rationale or Justification for change:
This is part of the CS program redesign and includes some material from the original COMS 362.

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

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

***For New Courses***

<table>
<thead>
<tr>
<th>Instructional Type:</th>
<th>Lecture</th>
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<tbody>
<tr>
<td>Course is an elective.</td>
<td></td>
</tr>
<tr>
<td>Grade</td>
<td>P/N</td>
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<table>
<thead>
<tr>
<th>Course will be offered:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall Semester</td>
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<tr>
<td>Spring Semester</td>
</tr>
<tr>
<td>Summer Session</td>
</tr>
</tbody>
</table>

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
# Minnesota State University, Mankato

## Curriculum Proposal

### Signature Page

**Department**
- [x] Recommended
- [ ] Not Recommended

Comments:

**College Curriculum Committee**
- [x] Recommended
- [ ] Not Recommended

Comments:

**College Dean**
- [x] Recommended
- [ ] Not Recommended

Comments:

**General Education Subcommittee**
- [ ] Recommended
- [ ] Not Recommended

Comments:

**Undergraduate Curriculum and Academic Policy Committee**
- [x] Recommended
- [ ] Not Recommended

Comments:

**Faculty Association Graduate Committee**
- [ ] Recommended
- [ ] Not Recommended

Comments:

**Graduate Dean**
- [ ] Recommended
- [ ] Not Recommended

Comments:

**Academic Affairs Council**
- [x] Recommended
- [ ] Not Recommended

Comments:

**Senior Vice President and Vice President for Academic Affairs**
- [x] Approved
- [ ] Not Approved

Comments:

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*Revised September 2002*
CS 350: Networking Architectures (3 credits)

Course Description:
This course is an introduction to the field of data communications and networks. This topic is very broad, encompassing local area networks, wide area networks, and wireless communication. Topics will include digital signals, transmission techniques and problems, error detection and correction, the OSI model, the TCP/IP model, network topologies, network protocols, and communications hardware.

3 lecture hours per week.

Prerequisites: CS 210, CS 320

Proposed Text: C

Schedule of Topics:
1) OSI and TCP/IP Reference Models (~1 wk)
2) Theoretical Basis for Data Communication (~1 wk)
3) Physical Layer: Fourier Analysis, Shannon’s and Nyquist’s Theorems (~2 wk)
4) Data Link Layer: Error Detection and Correction, Sliding Window Protocols (~2 wk)
5) Medium Access Sublayer: Multiple Access Protocols (~2 wk)
6) Network Layer: Routing Algorithms, Congestion Control, Internetworking, IP (~2 wk)
7) Transport Layer: Connections, Quality of Service, Multiplexing, TCP and UDP (~2 wk)
8) Application Layer: DNS, SNMP, SMTP, POP, HTTP (~2 wk)
9) Network Security (~1 wk)

Student Outcomes.
Students who complete this course will be able to:
1) Understand the OSI and TCP/IP models.
2) Understand layering and protocol principles.
3) Understand the distribution of network services among layers.
4) Describe the Internet architecture.
5) Describe general communication performance.
6) Describe standard mechanisms of media access control.
7) Describe the principles of reliable transmission.
8) Plan a local area network with different users, hosts and services.
9) Establish the differences between datagrams and virtual circuits.
10) Describe the elements of addressing and routing and its implementation in the Internet.
11) Develop software to establish and tear out a connection.
12) Describe TCP transmission rules.
13) Describe network congestion reduction mechanisms.
14) Demonstrate familiarity with end-to-end data standards such as XML.

Grades will be assigned based on exams and assignments.

Required Resources & Departmental Staffing:
Resources currently in place within the department, the college, and the university library will support this new course. No new resources are required.

There is no impact on staffing requirements.