

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

0734  
 Revised  
 10-27-06

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

(Check all that apply):

College: Science, Engineering and Technology	<input checked="" type="checkbox"/> Undergraduate	Proposal # <u>319</u>
Department: Electrical and Computer Engineering and T	<input checked="" type="checkbox"/> Graduate	Effective Date of Change:
Program: Computer Engineering	CIP #	Academic Year <u>06-07</u>
		(For Office Use Only)

Course Designator and Number	Number of Credits
EE 250	2
EE 450/550	3

(if applicable)

**Type of Change:** COURSE PROPOSALS  
**Proposed:** Change in Credits and Number

**Title Current:** EE 250 - Engineering Economics  
**Title Proposed:** EE 450/550 - Engineering Economics  
**24-Char. Abbrev:** Engineering Economics

*Include a course or program description for the Bulletin (30-40 words maximum for courses, 100 for programs):*  
 Overview of accounting and finance and their interactions with engineering. Lectures include the development and analysis of financial statements, time value of money, decision making tools, cost of capital, depreciation, project analysis and payback, replacement analysis, and other engineering decision making tools.

**Rationale or Justification for change:**  
 The existing course does not cover these topics in sufficient depth to meet the requirements of the FE exam. The revised course increases the depth of coverage as well as expanding the range of analysis options to meet and exceed all requirements of the FE.

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

General Education Course:		Cultural Diversity Course:
GE Category #	GE Category Name (Maximum of 3 Categories)	(Please check one.)
N/A		<input type="checkbox"/> <b>Core</b> (At least 75% devoted to topics of race, gender, sexual orientation, age, class, and disabilities as they occur in United States Society.)  <input type="checkbox"/> <b>Related</b> (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.)
N/A		
N/A		

? 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\*\*\***

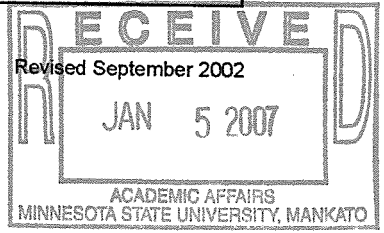
(Check all that apply):

<input checked="" type="checkbox"/> Course is an elective.	Instructional Type: <u>Lecture</u>	Course will be offered:
<input checked="" type="checkbox"/> Course is required for program	Grading Format: <input checked="" type="checkbox"/> Grade <input type="checkbox"/> P/N	<input checked="" type="checkbox"/> Fall Semester
<input checked="" type="checkbox"/> Pre- or Co-requisites:	<u>EE and CE</u>	<input type="checkbox"/> Spring Semester
<input checked="" type="checkbox"/> Other courses are being changed or eliminated. (Explain.)	<u>Advanced standing in the program</u>	<input type="checkbox"/> Summer Session

EE 250 is being significantly revised and expanded (see above).  
 This course replaces the 250 course.

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.)



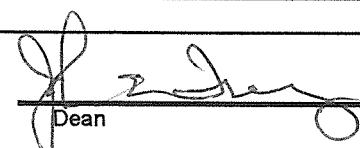

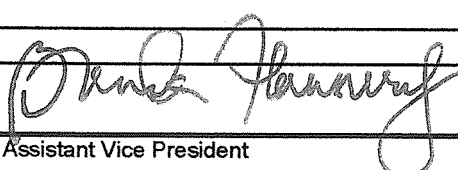
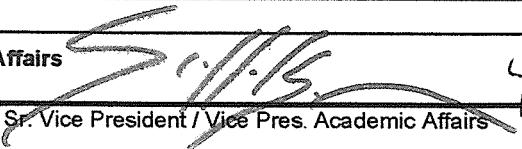
Attach paper copies of the following:  
 a. Syllabus or course outline.  
 b. Course's student learning outcomes.  
 c. A list of resources required to offer and support this course.  
 d. A description of how teaching this course will affect department staffing.  
 e. If 400/500 level course, an explanation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





**Minnesota State University, Mankato  
Curriculum Proposal**

\*\*\*Signature Page\*\*\*

<b>Department</b>		
<input checked="" type="checkbox"/> Recommended (Category/ies _____) <input type="checkbox"/> Not Recommended (Category/ies _____)	 Department Chair	10-6-2006 Date
Comments:		
<b>College Curriculum Committee</b>		
<input checked="" type="checkbox"/> Recommended (Category/ies _____) <input type="checkbox"/> Not Recommended (Category/ies _____)	 Committee Chair	4/4/07 Date
Comments:		
<b>College Dean</b>		
<input checked="" type="checkbox"/> Recommended (Category/ies _____) <input type="checkbox"/> Not Recommended (Category/ies _____)	 Dean	11/6/06 Date
Comments:		
<b>General Education Subcommittee</b>		
<input type="checkbox"/> Recommended (Category/ies _____) <input type="checkbox"/> Not Recommended (Category/ies _____)	_____ General Education Subcommittee Chair	_____ Date
Comments:		
<b>Undergraduate Curriculum and Academic Policy Committee</b>		
<input checked="" type="checkbox"/> Recommended (Category/ies _____) <input type="checkbox"/> Not Recommended (Category/ies _____)	 UCAP Faculty Chair	4/15/07 Date
Comments:		
<b>Faculty Association Graduate Committee</b>		
<input type="checkbox"/> Recommended <input type="checkbox"/> Not Recommended	_____ Faculty Association Graduate Chair	_____ Date
Comments:		
<b>Graduate Dean</b>		
<input type="checkbox"/> Recommended <input type="checkbox"/> Not Recommended	_____ Graduate Dean	_____ Date
Comments:		
<b>Academic Affairs Council</b>		
<input checked="" type="checkbox"/> Recommended (Category/ies _____) <input type="checkbox"/> Not Recommended (Category/ies _____)	 Assistant Vice President	4/20/07 Date
Comments:		
<b>Senior Vice President and Vice President for Academic Affairs</b>		
<input checked="" type="checkbox"/> Approved (Category/ies _____) <input type="checkbox"/> Not Approved (Category/ies _____)	 Sr. Vice President / Vice Pres. Academic Affairs	4/20/07 Date
Comments:		

### Attachment A: EE 450/550 Engineering Economics (3 credits)

*Topics Covered:* Overview of accounting and finance and their interactions with engineering. Lectures include the development and analysis of financial statements, time value of money, decision making tools, cost of capital, depreciation, project analysis and payback, replacement analysis, and other engineering decision making tools.

*Hours:* Class meets for three (3) lecture hours per week.

*Text:* Contemporary Engineering Economics, 4<sup>th</sup> Edition, Chan S. Park

#### Tentative Schedule of Weekly Topics

<u>Week</u>	<u>Chapter</u>	<u>Topics</u>
1	1 & 2	Introduction/Financial Statements
2	2	Ratio Analysis
3	3	Interest Rate and Economic Equivalence
4	4	Money and Its Management
5	4 & 5	Evaluation of Assets
6	5	Evaluation of Assets
7	6	Annual Worth
8	7	Rate of Return
9	8	Decision Making
10	9	Depreciation and Taxes
11	9/10	Project Cash Flows
12	10	Project Cash Flow
13	11	Inflation and Its Impact
14	12	Risk and Uncertainty
15	Review	

#### *Course Objectives:*

Upon completion of this course you should be able to:

1. Understand the basics of rate of return calculations
2. Understand how to perform a basic benefit/cost analysis
3. Understand present value concepts, internal rate of return, and payback analysis
4. Understand the effect of taxes, inflation, and depreciation
5. Be able to perform breakeven analysis.
6. Be able to read, understand, and construct a basic balance sheet and P/L.
7. Understand the cash flow planning process.
8. Be able to perform basic ratio analysis and decision making

ADDITIONAL ATTACH. 10-26-06

Comparison of Coverage of Economic Analysis  
(# of class periods)

<u>Topic</u>	<u>EE 250</u>	<u>EE 450</u>
Financial Statements	2	3
Economic Equivalence	3	3
Money Management	2	2
Present Worth	3	3
Annual Worth	3	3
ROR and IRR	3	4
Costing	2	3
Depreciation, Taxes, & Cash Flow	4	4
Project Cash Flows	4	4
Risk And Uncertainty	1	3
Project Risk Management	--	4
Financial Management Options	--	3
Capital Budgeting Decisions	--	3
Exams	3	3
<b>Totals</b>	<b><u>30</u></b>	<b><u>45</u></b>

### Appendix B:

Upon completion of this course students should be able to:

1. Understand the basics of rate of return calculations
2. Understand how to perform a basic benefit/cost analysis
3. Understand present value concepts, internal rate of return, and payback analysis
4. Understand the effect of taxes, inflation, and depreciation
5. Be able to perform breakeven analysis.
6. Be able to read, understand, and construct a basic balance sheet and P/L.
7. Understand the cash flow planning process.
8. Be able to perform basic ratio analysis and decision making

### Appendix C:

This course is being revised/added as a part of the departments overall curriculum revision. As a result, the resources to support this course will result from allocation of existing department resources ~~and with the assistance of the College of Science Engineering and Technology to support and growth and advancement of ECET programs.~~ WBH

### Appendix D:

Staffing resources to support this course will result from allocation of existing department resources ~~and with the assistance of the College of Science Engineering and Technology to support and growth and advancement of ECET programs.~~ WBH

### Appendix E:

Students enrolled at the 500 level will; in addition to the problem sets, quizzes, and exams normally completed; be required to complete an economic analysis of a new product line. Starting from a given set of assumptions students will estimate the overall development time and cost; required capital expenditures and timing; the project cash flow, profitability, and break even point; and the overall ROE, ROI, and impact on the company's profitability.

Oct 30, 06 13:16

EE450.txt

Page 1/1

From harold.thiewes@mnsu.edu Mon Oct 30 12:15:21 2006  
Return-Path: harold.thiewes@mnsu.edu  
Received: from MAIL2.Campus.mnsu.edu (msuex4.campus.mnsu.edu [134.29.52.159])  
by www.ee.mnsu.edu (8.13.7/8.13.7) with ESMTTP id k9UIFLg4018347  
for <paco@www.ee.mnsu.edu>; Mon, 30 Oct 2006 12:15:21 -0600  
X-MimeOLE: Produced By Microsoft Exchange V6.5  
Content-class: urn:content-classes:message  
MIME-Version: 1.0  
Content-Type: text/plain;  
charset="us-ascii"  
Subject: Renumbering of EE250 to EE450  
Date: Mon, 30 Oct 2006 12:15:07 -0600  
Message-ID: <92D5728BE863F241AA105C161CBF9CA202A99A1D@MAIL2.Campus.mnsu.edu>  
X-MS-Has-Attach:  
X-MS-TNEF-Correlator:  
Thread-Topic: Renumbering of EE250 to EE450  
Thread-Index: Acb8T1RTYhFmJExjSlKR87JMrPPXwg==  
From: "Thiewes, Harold" <harold.thiewes@mnsu.edu>  
To: "Mandojana, Julio C" <julio.mandojana@mnsu.edu>  
Content-Transfer-Encoding: 8bit  
X-MIME-Autoconverted: from quoted-printable to 8bit by www.ee.mnsu.edu id  
+k9UIFLg4018347

Dear Mr. Mandojana,

I have spoken to Dr. Steve Wilcox, Finance Department Chairman, and he has agreed with my assessment that EE250 is more appropriate for a 400-level course (EE450). I have reviewed my syllabi for FINA 362 and feel many of the topics covered in EE250 are also covered in FINA 362, but many are not; ie., some accounting topics are covered in the accounting prerequisite course, while other topics, specifically lease-buy, higher level capital budgeting, etc. are covered in our FINA 462 course.

It is my view that this course is an extremely comprehensive course that would be best offered as a senior level course.

Sincerely yours,

Harry Thiewes, Professor, Finance Department

# Memorandum

**To:** Course and Curriculum Committees  
**CC:** [Click here and type name]  
**From:** William B Hudson, Chair ECET  
**Date:** February 15, 2007 (Information previously provided – revised here for clarity)  
**Re:** Electrical Engineering Curriculum Changes

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Attached please find the revised curriculum for the Electrical Engineering degree program. Please be aware that many of the courses required for the Electrical Engineering degree are also required for the Computer Engineering degree so that changes in both Electrical and Computer Engineering degree programs need to be reviewed and considered jointly.

Specific points to note:

- Because of required sequencing of courses to meet prerequisites changes in the program are first shown on a modified student advising form to establish that course prerequisites are met and also that students would be able to complete the program in four years
- Changes in this program do not change current engineering general education requirements
- Course additions proposed as part of this proposal include, EE 106 and EE 107 to help in addressing student retention issues through integrated freshmen year departmental hands on courses
- The addition of a of CS 220 course requirement to be offered by the new CS department to better meet the needs of transfer students
- Addition of an additional semester of design through the creation of a new design course in the junior year EE336
- Addition of two new courses EE 381 and EE 382 to address the current weaknesses in students exposure to digital design
- Changes in credit hours for EE 332, EE 341, EE 333, EE 353, EE 350, EE 467, EE 250, and EE 477 to allow more consistent class scheduling to aid in student learning and faculty scheduling.
- The total credit hours required for the Electrical Engineering degree would not change with the proposed curriculum changes.

February 15, 2007

Provided in support of this proposal and identified as attachment 2 are the required program student learning outcomes as defined by our accreditation agency ABET. These outcomes listed as topics a-k are supported by course outcomes which have been created for all courses and mapped to the provided learning outcomes.

Minutes of department meetings supporting these changes are provided and marked as attachment 3.

Our program accreditation requires both assessment and improvement. Accreditation Criteria 2 requires that we evaluate and determine that the Electrical Engineering program prepares students to meet career and professional requirements normally one to five years after graduation. It is required that we have in place a process by which we determine this and use the results to improve our Electrical Engineering program. Further Criteria 3 of our accreditation requires that we assess program outcomes (competencies at graduation) and use these results to improve the Electrical Engineering program. An overview of the assessment plan for the Electrical Engineering program is provided as attachment 4.

As can be seen the change in the Electrical Engineering program has implications for new course requirements in Computer Science. Correspondence related to this change can be found marked as attachment 5.

#### **Resources**

Resources required to support the changes will occur through departmental reallocation of existing resources and will change only as student numbers increase as would occur with the existing curriculum.

#### **Staffing**

Departmental staffing is adequate to address the program changes. Staffing needs will change only as student numbers change which would occur with the current program.

#### **Library Needs**

No changes would occur relative to necessary library holdings.

#### **Bulletin Copy**

Changes in bulletin copy should only reflect changed course offering and program requirements as provided in the supporting materials.



Notes:

\*H/SS:

Humanities 6-7 credits

Social Sciences 6-7 credits

16 total credits one class following at the 300 or 400 level

\*\* EE Electives

Previous requirements 9 credits

EE 334 and EE 344 are now allowed as possible electives in addition to the others listed

So 7 credits of EE electives will be required to reach 128

\*\*\* Business Area Electives:

Would have a total of 6 or 9 credits depending on how we view Econ credits

EE 450 – 3 credits

And one of BLAW 200, FINA 362, MGMT 330, MGMT 440, or MRKT 310

Would also have macro or micro economics 3 credits

Total Credits = 128

Electrical Engineering		Proposed Program Changes	
Current Program			Proposed Program
English Composition (4 Credits)	Credit Hours		English Composition (4 Credits)
			Credit Hours
ENG 101 Composition	4		ENG 101 Composition
<b>Mathematics (16 Credits)</b>			<b>Mathematics (16 Credits)</b>
MATH 121 Calculus I	4		MATH 121 Calculus I
MATH 122 Calculus II	4		MATH 122 Calculus II
MATH 223 Calculus III	4		MATH 223 Calculus III
MATH 321 Ordinary Differential Equations	4		MATH 321 Ordinary Differential Equations
<b>Chemistry (5 Credits)</b>			<b>Chemistry (5 Credits)</b>
CHEM 201 General Chemistry I	5		CHEM 201 General Chemistry I
<b>Physics (10 Credits)</b>			<b>Physics (10 Credits)</b>
PHYS 221 General Physics I	5		PHYS 221 General Physics I
PHYS 222 General Physics II	5		PHYS 222 General Physics II
<b>Computer Science (2 Credits)</b>			<b>Computer Science (3 Credits)</b>
FORTRAN, C, or C++	2		CS 220 Machine Structures and Programming
<b>Mechanical Engineering (5 Credits)</b>			<b>Mechanical Engineering (5 Credits)</b>
ME 212 Statics	3		ME 212 Statics
EE 488 Thermal Systems Engineering or	2		EE 488 Thermal Systems Engineering or
ME 299 Thermal Analysis	2		ME 299 Thermal Analysis
<b>General Studies (3 Credits One of the following)</b>			<b>General Studies (3 Credits One of the following)</b>
ENG 271 Technical Communication	4		ENG 271 Technical Communication
SPEE 233 Public Speaking for Technical Professionals	3		SPEE 233 Public Speaking for Technical Professionals
SPEE 102 Public Speaking	3		SPEE 102 Public Speaking
<b>Humanities (6-7 Credits)</b>			<b>Humanities (6-7 Credits)</b>
<b>Social Sciences (6-7 Credits)</b>			<b>Social Sciences (6-7 Credits)</b>
<b>Economics (3 Credits) (One of the following)</b>			<b>Economics (3 Credits) (One of the following)</b>
ECON 201 Principles of Macroeconomics	3		ECON 201 Principles of Macroeconomics
ECON 202 Principles of Microeconomics	3		ECON 202 Principles of Microeconomics
<b>Business (5 Credits)</b>			<b>Business (6 Credits)</b>
EE 250 Engineering Economics (Required)	2		EE 450 Engineering Economics (Required)
			3
BLAW 200 Legal, Political, and Regulatory Environment or	3		BLAW 200 Legal, Political, and Regulatory Environment or
FINA 362 Strategic Financial Management or	3		FINA 362 Strategic Financial Management or
MGMT 330 Human Resources Management or	3		MGMT 330 Human Resources Management or
MRKT 310 Principles of Marketing	3		MRKT 310 Principles of Marketing
<b>Required Courses (53 Credits)</b>			<b>Required Courses (53 Credits)</b>
EE 101 Introduction to Engineering	1		
ME 103 Computer Graphics Communication	1		
EE 230 Circuit Analysis I	3		EE 230 Circuit Analysis I
EE 231 Circuit Analysis II	3		EE 231 Circuit Analysis II
EE 240 Evaluation of Circuits	1		EE 240 Evaluation of Circuits
EE 244 Introduction to Digital Systems	2		
EE 254 Digital and Circuits Lab	1		
EE 303 Introduction to Solid State Devices	3		EE 303 Introduction to Solid State Devices
EE 304 Lab: Introduction to Solid State Devices	1		EE 304 Lab: Introduction to Solid State Devices
EE 332 Electronics I	4		EE 332 Electronics I
EE 333 Electronics II	4		EE 333 Electronics II
EE 334 Microprocessor Engineering	3		
EE 337 Principles of Engineering Design	1		EE 337 Principles of Engineering Design II
EE 341 Signals and Systems	2		EE 341 Signals and Systems
EE 342 Electronics Laboratory	1		EE 342 Electronics Laboratory
EE 344 Design and Evaluation of Microprocessors	1		
EE 350 Engineering Electromagnetics	4		EE 350 Engineering Electromagnetics
EE 353 Communication Systems Engineering	2		EE 353 Communication Systems Engineering
EE 358 Control Systems	3		EE 358 Control Systems
EE 363 Communication Systems Laboratory	1		EE 363 Communication Systems Laboratory
EE 368 Control Systems Laboratory	1		EE 368 Control Systems Laboratory
EE 467 Principles of Engineering Design I	2		EE 467 Principles of Engineering Design I
EE 477 Principles of Engineering Design II	2		EE 477 Principles of Engineering Design II
EE 482 Electromechanics	3		EE 482 Electromechanics
ME 291 Engineering Analysis or	3		ME 291 Engineering Analysis or
MATH 354 Concepts of Probability and Statistics	3		MATH 354 Concepts of Probability and Statistics
<b>Elective Courses (9 Credits)</b>			<b>Elective Courses (7 Credits)</b>
EE 453 Advanced Communications Systems Engineering	3		EE 106 Introduction to EE and CE I
EE 462 Computer Architecture	3		EE 107 Introduction to EE and CE II
EE 471 Advanced Control Systems	3		
EE 472 Digital Signal Processing	3		EE 235 Microprocessors I Lab
EE 475 Integrated Circuit Engineering	3		EE 336 Principles of Engineering Design I
EE 476 Antennas, Propagation, and Microwave Engineering	3		EE 381 Digital Systems and Testability
EE 479 Superconductive Devices	3		EE 382 Digital Systems and Testability Lab
EE 480 Integrated Circuit Fabrication Lab	1		
EE 481 VLSI Design Laboratory	1		
EE 484 VLSI Design	3		
EE 487 RF Systems Engineering	3		
<b>Total Credits</b>	<b>128</b>		<b>Total Credits</b>
			128
			EE 453 Advanced Communications Systems Engineering
			EE 462 Computer Architecture
			EE 471 Advanced Control Systems
			EE 472 Digital Signal Processing
			EE 475 Integrated Circuit Engineering
			EE 476 Antennas, Propagation, and Microwave Engineering
			EE 479 Superconductive Devices
			EE 480 Integrated Circuit Fabrication Lab
			EE 481 VLSI Design Laboratory
			EE 484 VLSI Design
			EE 487 RF Systems Engineering
			EE 334 Microprocessors II
			EE 344 Microprocessors II Lab

## Attachment 2 - The Electrical Engineering Student Learning Outcomes

Students completing the Electrical Engineering degree program will be able to:

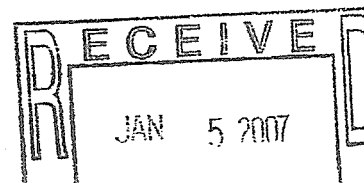
- (a) to apply knowledge of mathematics, science, and engineering
- (b) to design and conduct experiments, as well as to analyze and interpret data
- (c) to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability
- (d) to function on multi-disciplinary teams
- (e) to identify, formulate, and solve engineering problems
- (f) understand professional and ethical responsibility
- (g) to communicate effectively
- (h) have the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context
- (i) understand the need for, and an ability to engage in life-long learning
- (j) understand contemporary issues
- (k) use the techniques, skills, and modern engineering tools necessary for engineering practice.

Attachment #3

Minutes of the Meeting of part of the faculty of Department of Electrical and Computer Engineering and Technology  
31 October 2006

Present: Han-way Huang, William Hudson, Julio Mandojana, Thomas Hendrickson, John Caven, Muhammad Khaliq,  
Vincent Winstead, Paul Lindfors

1. The minutes of the meeting of 3 October 2006 were approved.
2. Department Good News
  - 2.1 IEEE speakers
  - 2.2 IEEE tour of Winland Electronics on Monday, 30 October
  - 2.3 Grants?
  - 2.4 Grant applications
3. The personnel committee will be forthcoming in the near future regarding the request by Dr. Kapadia to be promoted to rank of Full Professor.
4. Faculty interested in teaching summer courses need to apply to Dr. Hudson soon. Those who have expressed interest thus far are: Khaliq, Kapadia, Mandojana and Winstead. The courses that will probably be offered are EE-230 and EE-231.
5. Some graduate courses have experienced a problem with insufficient enrollment. The department needs to develop a system of written commitment by graduate students so the department can plan the courses and teaching loads more effectively. Ideas were forwarded, but no action was taken.
6. Thanks to Mandojana and Allen for preparation of course and program materials and Mandojana and Hudson for steering the course and curriculum changes through the Course and Curriculum Committee of the college. The process was tedious but necessary. The faculty had reviewed and approved the Course and Curriculum materials previously but to provide a clear paper trail Hudson and Winstead will circulate a form that will preserve a written record of faculty approval of the course and curriculum changes by way of email.
7. Mandojana will tour Winstead and Zhang through Goodrich so possible courses for Spring Semester 2007 can be identified. Planning for this tour will be done by the 3 participants.
8. Hudson was surprised by the announcement regarding IEEE publications and a complete shift to electronic forms that arrived from the library. Several faculty noted the absence of journals they thought had once were present. The rushed schedule and extent of the changes will be investigated by Hudson.
9. Jeff Pribyl of Chemistry and Geology has been discussing with the engineering program heads the development of a new, 3-credit chemistry course for engineering students. This course would have no laboratory. Such a course would allow electrical, mechanical and computer engineering students greater program flexibility but the laboratory component may be needed by civil engineering students. It was agreed that students could still take Chemistry-201 in place of the new course when it is offered.
10. Other issues were tabled.



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INTEROFFICE MEMORANDUM

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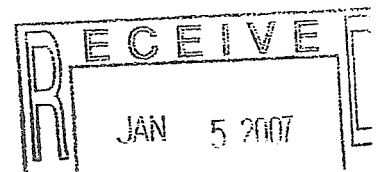
TO: COURSE AND CURRICULUM COMMITTEE  
FROM: WILLIAM B HUDSON, CHAIR ECET  
SUBJECT: DEPARTMENT VOTE ON PROGRAM CHANGES  
DATE: 11/7/2006  
CC: [CLICK HERE AND TYPE NAME]

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The ECET department has invested many meetings during the last two years to the refinement of all of the department programs. The department faculty have had many votes as we have worked to refine the curriculum to best serve our students and our constituent groups. The final affirmation of these changes has been accomplished by an email vote sent to faculty after changes recommended by the College Course and Curriculum were implemented - Email attached as well as program summaries.

The results of email vote are as follows:

Electronic Engineering Technology	Approve 8	Disapprove 1
Computer Engineering Technology	Approve 9	Disapprove 0
Electrical Engineering	Approve 9	Disapprove 0
Computer Engineering	Approve 9	Disapprove 0

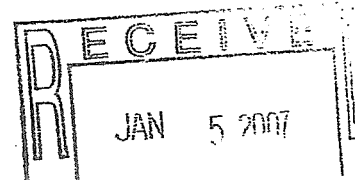


Minutes of the Meeting of part of the faculty of Department of Electrical and Computer Engineering and Technology  
07 November 2006

Present: Gale Allen, Han-way Huang, William Hudson, Paul Lindfors, Julio Mandojana, R. A. Nair, Mahbubur Syed, Vincent Winstead, Vincent Zhang

1. Presentation by Diane Richards, Collection Development Librarian: Questions regarding change to electronic form of journals and possibility of "missing" journals were answered. Receiving the journals in electronic form will duplicate the printed journals now received plus add others. The apparently "missing" journals are still present in printed form.
2. The minutes of the meeting of 31 October 2006 were approved.
3. Curriculum issues dominated the meeting. Hudson reported that all program changes that were approved previously were not going to be approved by the Dean because of staffing issues. Working with David Haglin of CIS many changes were preserved while some changes were not included or a compromise with CIS was worked out. A list of the present and revised programs that are expected to be approved for EE, CompE, EET, and CompET are attached. No easy summary of the situation can be made. Motion made and seconded all present voted to move forward with the programs as defined in the attached forms.
4. Summer teaching remained as reported previously: 1) courses that would be offered would be EE-230 and 231 and 2) interested faculty are Kapadia, Khaliq, Mandojana, and Winstead.
5. Khaliq went home sick this afternoon so the procedure and timetable for review of materials and decision regarding the submission for promotion from Kapadia will be announced later.
6. Allen distributed a list of general education courses for engineering technology majors that cover multiple categories. This list should aid students to complete their degree programs in the minimum 128 credits and the list should be used during pre-registration reviews on Thursday and Friday. A copy is attached.
7. Upon suggestion by the Dean the department agreed to drop the courses listed below because they will not be included in the revised programs:

EE-101, 380, 462  
EET\_101, 225, 230, 400, 480, 488, 489



Electrical and Computer Engineering and Technology Department  
Program and Course Assessment

**Educational Objective Assessment (1-5 years after graduation)**

Efforts are made to contact graduates of all department programs for at least five years following graduation. Surveys are used based on the major that ask graduates for their impressions on how their program of study prepared them for their career. Information from these surveys is fed back into the program to make improvements. Both students and faculty are involved in this effort.

**Constituent Input**

Input from Internship employers is gathered through internship reports to assist in program assessment and improvement. Further input is obtained by faculty through the use of company survey forms to determine specific company skill set needs. Information from these surveys and reports is used to refine curriculum to better meet the needs of employers as they use ever evolving technologies.

**Course Assessment**

Outcomes are established for each course that map to the required ABET a-k outcomes for each of the degree offerings. Each instructor in the ECET department is responsible for assessing student competency in each course outcome area. This information is gathered each semester and is reviewed by the department assessment committee which then makes recommendations to the ECET faculty regarding possible improvement areas. All department faculty scan examples of student work to create assessment portfolios to support our accreditation and assessment efforts.

**Student Input for Assessment**

Input from students in all department programs is solicited by a student advisory board meeting and through the use of online surveys supported through MSU assessment office. The surveys are offered students each semester and solicit and analyze responses by program of study and by year in the program. As with all of the other assessment tools this information is fed back into the assessment loop to support program improvement efforts.

ATTACHMENT #5

Hudson, William B

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From: Haglin, David  
Sent: Tuesday, November 07, 2006 11:45 AM  
To: Hudson, William B  
Subject: Dropping COMS courses

Bill Hudson,

I am writing to acknowledge that your department has been keeping the CIS department informed of your intended curricular changes that include dropping several COMS courses from your CE and CET majors. I understand that these changes reflect the feedback you have received from your advisory board, and I have been happy to work with you on providing some replacement courses that make sense (CS 320 and CS 360) for your majors.

Sincerely,

David Haglin

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Dr. David J. Haglin, Chair  
Computer and Information Sciences Department  
Minnesota State University, Mankato, MN 56001  
<http://theory.cs.mnsu.edu/haglin>

RECEIVED  
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**Hudson, William B**

**From:** Haglin, David  
**Sent:** Tuesday, February 20, 2007 2:45 PM  
**To:** Hudson, William B  
**Subject:** EE Students in CS 220

Bill Hudson,

I understand you have proposed changes to your EE major whereby your students will be required to take our CS 220(3) and a 1-credit ECET lab course. Our CS majors will be taking the same CS 220(3) lecture course along with a CS 221(1) lab. I believe the blending of EE and CS students in the CS 220(3) will enhance and broaden the discussion without losing focus on material. We welcome this opportunity for our CS students to interact with your EE students in these courses. We anticipate proposing the change from CS 220(4) to CS 220(3) and CS 221(1) by March 1, 2007 to accommodate this blending of curricular experience for the students our respective programs.

Sincerely,

David Haglin

-----  
Dr. David J. Haglin, Chair  
Computer and Information Sciences Department  
Minnesota State University, Mankato, MN 56001  
<http://theory.cs.mnsu.edu/haglin>

# Minnesota State Colleges and Universities PROGRAM REDESIGN APPLICATION

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

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

## ***SECTION I: DESCRIPTION OF CURRENTLY APPROVED PROGRAM***

8-Digit CIP #	Program Name Electrical Engineering	Award Bachelor of Science	Cr Length 128	Location/s MSU, Mankato
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Name of affiliated educational institution that offers one or more credits in this program: None

Is this award jointly offered: Yes No - No

## ***SECTION II: PROPOSED CHANGES TO PROGRAM***

Effective start date/s: Fall 2007

Rationale for Proposed Change/s: Support update of Electrical Engineering curricula

### ***Section IIA: NAME CHANGE***

Current:

Proposed:

### ***Section IIB: CIP CHANGE\****

Current:

Proposed:

Current Program Outcomes:

Proposed Program Outcomes:

\*Contact staff to determine whether change is permitted as a redesign, or whether a new program proposal is required.

### ***Section IIC: CHANGE CREDIT LENGTH WITHIN POLICY***

Previous:

Proposed:

### ***Section IID: CHANGE CREDIT LENGTH TO EXCEED POLICY***

*Credit length beyond the policy limits will be approved only if one or more of the following conditions exist: a) the length is required by a state or national licensing body or other regulatory agency, accrediting association, or board; b) the program is employer-sponsored where the employer specifies the required credits as a condition for conferring the award; or c) a formal task analysis has been conducted within the last three years and the results endorsed by an advisory committee. Request for a program length in excess of policy from a professional association or advisory committee is not sufficient for approval.*

Previous Length:

Proposed Length:

State Rationale for Exceeding Policy Limits (Attach evidence as appropriate in an appendix):

**Section IIE: ADD CURRICULUM ALTERNATIVE/S\***

Name: \_\_\_\_\_ CIP Code: \_\_\_\_\_ Total Credits: \_\_\_\_\_

Option or Emphasis or certificate that is a subcredential of existing award (choose one):

Courses unique to this alternative:

COURSE TITLE/NUMBER	Number of Credits	EXISTING COURSE/S	
		Yes	No

\*Change in Curriculum Alternative/s: If you are adding multiple alternatives to a single program, please identify each separately and list courses separately by copying and pasting this section as many times as necessary. \*

**Section IIF: DELETE EXISTING CURRICULUM ALTERNATIVE/S\***

Name of Alternative: \_\_\_\_\_ CIP: \_\_\_\_\_


\*Delete Curriculum Alternative/s: If you are deleting multiple alternatives, identify each separately. Add additional lines as necessary.

**Section IIG: AWARD CHANGE**

Current Award: \_\_\_\_\_ Proposed Award: \_\_\_\_\_

List courses for both current award and proposed award

CURRENT AWARD:	COURSE TITLE/NUMBER	Number of Credits	EXISTING COURSE/S	
			Yes	No
PROPOSED AWARD:	COURSE TITLE/NUMBER	Number of Credits	EXISTING COURSE/S	
			Yes	No

**Section IIIH: CREATE NEW AWARD IN RELATED ACADEMIC AREA**

Name:	6-digit CIP:	Total Credits:		
Please list all courses for the new award below:			Award:	
COURSE TITLE/NUMBER	Number of Credits	EXISTING COURSE/S		
		Yes	No	

\*Creating new awards in related academic areas: Before completing this section, contact Academic Program staff to verify that you can make these proposed changes as redesigns. If you are adding awards in multiple related areas, identify each

separately  
and list courses separately by replicating this table.

**SECTION III: REDESIGNED PROGRAM SUMMARY**

**Program Requirements:**

Complete this section if the number of credits in the award has increased from the previous design, or if it is a new award.

Use the following headings to provide information on **each** of the components in the program. List all credit totals required for the students to graduate, including prerequisites. If this application is for multiple awards (AAS and/or diplomas and/or certificates) duplicate this table and list requirements for each award separately.

<b>Program Name: Electrical Engineering</b>		<b>Award: Bachelor of Science</b>
<b>Program Component</b>	<b>Previous Credits</b>	<b>Proposed Credits</b>
General Education/Liberal Studies Eng, H/SS, Gen Stud, Econ, Bus	28	29
Prerequisites Math, Chem, Physics, Coms	33	34
Major-Core ME, EE	58	58
Major-Alternative (see above)		
Major-Restricted Electives	9	7
Required Minor (or est. 20 credits)		
Free Electives		
<b>TOTAL PROGRAM CREDITS</b>	<b>128</b>	<b>128</b>

**SECTION IV: APPROVAL VERIFICATION**

**Application Author:** William B Hudson

**Title:** Professor and Chair Electrical and Computer Engineering and Technology

**Campus:** Minnesota State University, Mankato

**Phone and E-Mail:** 507-389-5639 [william.hudson@mnsu.edu](mailto:william.hudson@mnsu.edu)

**Approval Chief Academic Officer:**

**Approval of President:**

College of Science, Engineering and Technology  
Curriculum Committee Meeting Minutes  
TR E210, Thursday, March 8, 2007

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

1. The meeting was called to order at 5:05 PM.
2. The minutes of 10-31-2006 meeting were approved as written.
3. Karen Chou reported that the proposals which were approved by the Committee and have all required documents have been moved forward to UCAP. However, although proposals 734 and 717 were approved by the Committee, when they reached UCAP the signature pages were missing. Karen will sign the proposals and return them back to UCAP.
4. Karen Chou summarized the proposals that will be reviewed in this meeting.
5. The Committee reviewed and approved 28 proposals.
6. Proposals 711, 712, 748, 749 have been resubmitted and renumbered to 7269, 7270, 7271 and 7272, and the Committee approved the later ones.

Meeting adjourned at 5:55 PM.

Respectfully submitted,

Youwen Xu, Secretary