



0674

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: <u>Science, Engineering and Technology</u>		(Check all that apply):		Proposal # <u>246</u>
Department: <u>Electrical and Computer Engineering and T</u>		<input checked="" type="checkbox"/> Undergraduate		Effective Date of Change:
Program: _____		<input type="checkbox"/> Graduate		Academic Year <u>05-06</u>
Type of Change: <u>COURSE PROPOSALS</u>		CIP # _____		(For Office Use Only)
Proposed: <u>New Course</u>				
Title Current: _____				
Title Proposed: <u>Integrated Computer Technology III</u>				
24-Char. Abbrev: <u>Integrated Comp Tech III</u>				

Course Designator and Number	Number of Credits
EET 143	4
(if applicable)	

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

Sequential circuits, logic timing, clock distribution, counter, LED display, shift register, transceiver, 555 timer, 555 oscillator, D/A converter, RAM, ROM, mass memory, synchronous logic, asynchronous logic, microprocessor-interfacing, testability, and simulation.

Rationale or Justification for change:

The course strengthens the digital content of the EET and CET programs. It focuses on developing skills needed for use of existing hardware and related software tools in digital technology engineering. The proposed course was strongly endorsed by the ECET Industry Advisory Board at the Fall 2005 meeting.

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

<p style="text-align: center;">General Education Course:</p> <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th>GE Category #</th> <th>GE Category Name (Maximum of 3 Categories)</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">N/A</td> <td></td> </tr> <tr> <td style="text-align: center;">N/A</td> <td></td> </tr> <tr> <td style="text-align: center;">N/A</td> <td></td> </tr> </tbody> </table> <p><small>? 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.</small></p> <p>Attach paper copies of the following:</p> <ol style="list-style-type: none"> Syllabus or course outline. Course's student learning outcomes associated with each GE competency or CD designation. List of strategies to be used to assess students' achievement of each GE competency or CD designation. 	GE Category #	GE Category Name (Maximum of 3 Categories)	N/A		N/A		N/A		<p style="text-align: center;">Cultural Diversity Course:</p> <p>(Please check one.)</p> <p><input type="checkbox"/> Core (At least 75% devoted to topics of race, gender, sexual orientation, age, class, and disabilities as they occur in United States Society.)</p> <p><input type="checkbox"/> 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.)</p>
GE Category #	GE Category Name (Maximum of 3 Categories)								
N/A									
N/A									
N/A									

*****For New Courses*****

(Check all that apply):		Instructional Type: <u>Lecture/Lab</u>	Course will be offered:
<input type="checkbox"/> Course is an elective.		Grading Format: <input checked="" type="checkbox"/> Grade <input type="checkbox"/> P/N	<input checked="" type="checkbox"/> Fall Semester
<input checked="" type="checkbox"/> Course is required for program	CET		<input type="checkbox"/> Spring Semester
<input checked="" type="checkbox"/> Pre- or Co-requisites:	Pre: EET 142		<input type="checkbox"/> Summer Session
<input checked="" type="checkbox"/> Other courses are being changed or eliminated. (Explain.)	EET 101 and EET 225 outcomes will be covered by this 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:

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



Minnesota State University, Mankato
Curriculum Proposal

Signature Page

Department
 Recommended (Category/ies _____)
 Not Recommended (Category/ies _____)

 Department Chair Date

W B Hudson
 4-6-06

Comments:

College Curriculum Committee
 Recommended (Category/ies _____)
 Not Recommended (Category/ies _____)

Alan Mahoney
 4-6-06
 Committee Chair Date

Comments:

College Dean
 Recommended (Category/ies _____)
 Not Recommended (Category/ies _____)

[Signature]
 4/10/06
 Dean Date

Comments:

General Education Subcommittee
 Recommended (Category/ies _____)
 Not Recommended (Category/ies _____)

 General Education Subcommittee Chair Date

Comments:

Undergraduate Curriculum and Academic Policy Committee
 Recommended (Category/ies _____)
 Not Recommended (Category/ies _____)

Mark Komij
 5/11/06
 UCAP Faculty Chair Date

Comments:

Faculty Association Graduate Committee
 Recommended
 Not Recommended

 Faculty Association Graduate Chair Date

Comments:

Graduate Dean
 Recommended
 Not Recommended

 Graduate Dean Date

Comments:

Academic Affairs Council
 Recommended (Category/ies _____)
 Not Recommended (Category/ies _____)

[Signature]
 5/17/06
 Assistant Vice President Date

Comments:

Senior Vice President and Vice President for Academic Affairs
 Approved (Category/ies _____)
 Not Approved (Category/ies _____)

[Signature]
 5/17/06
 Sr. Vice President / Vice Pres. Academic Affairs Date

Comments:



Minnesota State University, Mankato
Curriculum Proposal

*****For Program Proposals*****

Attach paper copies of the following:

- a. Student learning outcomes for the program.
- b. Minutes from department and college curriculum meetings in which action was taken on this proposal.
- c. Program Assessment Plan. Forms are available on the Academic Affairs Web site:
<http://www.mnsu.edu/acadaf/pra/forms/>
- d. List of program requirements for **New** programs, or a list of **Current** and **Proposed** program requirements for **Redesigned** programs.
- e. A list of resources required to offer and support this program.
- f. A description of how offering this program will affect department staffing.
- g. A list of additional library holdings required for this program.

Please include rationale for any proposed changes in number of program credits:

*****For Programs Requiring MnSCU Approval*****

If any of the following changes are proposed, please fill out and attach MnSCU Program Approval Forms, which are available on the Academic Affairs Web site:

<http://www.mnsu.edu/acadaf/Curriculum/currformsprocess.html>

1. **Creation** of an entirely new program.
2. **Redesign** of existing programs, which takes any of the following forms:
 - ? Addition or deletion of a program option. Options are part of program design in which 30-50% of the courses are required as part of a common core for all students, and which offers curriculum alternatives greater than 30% of the total number of credits in the major. Options are appropriate to baccalaureate or masters programs.
 - ? Addition or deletion of a program emphasis. Emphases are part of program design in which more than 50% of the courses are required as part of a common core for all students, and which offers curriculum alternatives with a minimum of nine credits. Emphases are appropriate to associate and baccalaureate programs.
 - ? Change in program name.
 - ? Change in program CIP #.
 - ? Change in TOTAL program credits.
 - ? Change in degree award. For example, changing a B.A. to B.S.
 - ? Creation of a new degree award in a related academic area. Examples include creation of a certificate program from an existing degree program, or a new degree program from an existing degree program (e.g., Art History BA from Art BA.)
3. **Relocation** of an existing program. This is a proposal to move an existing program from one site to be exclusively offered at another site, and requires closing the program offered at the original site. For example, a program offered both on-campus and through extended campus is to be offered only at the extended campus site.
4. **Replication** of an existing program. This is a proposal to offer an existing program at a new site, which may be an existing MnSCU-approved site, or another campus of the same institution. Replicated programs are offered at both the original site and the new location.
5. **Suspension or reinstatement** of a program. This proposal suspends admission of students into an existing program, and is good for three years. Reinstatement proposals request the reopening of student admissions into a given program.
6. **Closure** of a program. This proposal requests closure of an existing program and its removal from an institution's official inventory of academic programs. Unless a department seeks to re-open a suspended program, it should be closed within three years of suspension.

EET 143 Integrated Computer Technology III (4 credits)
Course Proposal
Outline

Class Schedule: 3 lectures, 1 2-hour lab

Description: Sequential circuits, logic timing, clock distribution, counter, LED display, shift register, transceiver, 555 timer, 555 oscillator, D/A converter, RAM, ROM, mass memory, synchronous logic, asynchronous logic, microprocessor, interfacing, testability, and simulation.

Pre: EET 142

Texts:

Digital Electronics: A Practical Approach, 7/E. William Kleitz. ISBN: 0-13-114165.

Prentice Hall, Copyright: 2005.

Programming in C, 3/E, Stephen Kochan, ISBN: 0-672-32666-3. Sams, Copyright: 2005

Plan:

- Divide-by-N and synchronous counters.

- Seven-segment LED display decoders.

- Shift registers.

- Transceivers.

- 555 IC used as timers and oscillators.

- D/A and A/D converters.

- Interfacing with static RAM, dynamic RAM, and ROM memory.

- Magnetic and Optical Storage.

- Basic instructions and functions of a microprocessor.

- Interfacing a microprocessor and an device using individual TTL gates.

- Simulating the microprocessor, interface logic and device using a gate-level simulator such as (ORCAD).

- Simulating the microprocessor, interface logic and device using C.

- Testing oscilloscope logic analyzer tools.

Laboratory:

Weekly labs will support the lecture plan and develop the microprocessor system.

EET 143 Integrated Computer Technology III
Course Proposal
Outcomes

After completing Integrated Computer Technology III (EET 143) the student will be able to:

1. Use divide-by-N and synchronous counters.
2. Use seven-segment LED display decoders.
3. Use shift registers.
4. Use transceivers.
5. Use the 555 IC to implement timers and oscillators.
6. Use D/A and A/D converters.
7. Use logic to Interface with static RAM, dynamic RAM, and ROM memory.
8. Describe the characteristics of Magnetic and Optical Storage.
9. Use the basic instructions and functions of a microprocessor.
10. Use C to simulate transceivers and shift registers.
11. Use C to simulate timers and oscillators.
12. Use C to simulate D/A and A/D converters.
13. Design and build logic to interface a microprocessor and a device using individual TTL gates.
14. Simulate the microprocessor, interface logic and device using a gate-level simulator such as (ORCAD).
15. Simulate the microprocessor, interface logic and device using C.
16. Test the system with an oscilloscope.
17. Test the system with a logic analyzer.

**EET 143 Integrated Computer Technology III
Course Proposal
Staff Impact and Resource Needs**

Staff Impact – a new ECET faculty is starting in Fall 06 and will teach the course.

Resource Needs – no additional resources are needed. Equipment exists in current labs.

Minutes
ECET Faculty Staff Meeting
March 20, 2006

Attending: G. Allen, R. Bates, J.Caven, M. Dvorak, T. Hendrickson, H. Huang, B. Hudson, R. Kapadia, M. Khaliq, P. Lindfors and M. Syed.

Good News – Gale Allen discussed the paper that he will be presenting, Bill Hudson provided brief overview of ECEDHA Department Heads Meeting

Center of Excellence Proposals – Faculty were thanked for their involvement in proposal preparation for the Center of Excellence. The department received multiple awards including new instrumentation for the electronics lab and funds to support equipping a automation laboratory.

Professor Hudson provided a brief update on Vince Winstead – it appears that he will be joining us but it is not yet confirmed.

Professor Hudson brought forth the issue regarding the Minnesota State Boards decision to not allow our Computer Engineering students to sit for the FE exam. Brief discussion about possible options. Professor Hudson will gather additional information and this will be discussed at a future meeting. Much of this is complicated by issues in the CIS department

Professor Hudson informed faculty that he would be in Texas Monday and Tuesday of next week assisting with ABET issues – as such no ECET faculty meeting next week

Professor Allen presented a proposal to move forward with the changes for the EET and CET program shown in the attached materials. After brief discussion Tom Hendrickson moved and Paul Lindfors seconded that we move forward with the proposed changes. Motion passed.

Respectfully submitted: Bill Hudson

ECET Course Advising
COMPUTER ENGINEERING TECHNOLOGY
Program revisions
shown contrasted with 2005-2006 program

<u>Freshman (FALL)</u>	<u>Credits</u>
COMS 110 Intro to Comp Sei	_ 4 _
EET 113 DC Circuits	_____
ENG 101 English Comp	_____
MATH 115 Pre-Calculus	_____
General Education _____	_____
EET 101 Intro to EET/CET (Not Required)	_____
<i>EET 141 Integ Comp Tech I</i>	<i>4</i>

<u>Freshman (SPRING)</u>	<u>Credits</u>
COMS 211 Fund of Comp Science I	_ 4 _
EET 114 AC Circuits	_____
MATH 121 Calculus I	_____
SPEE 102 Public Speaking	_____
General Education _____	_____
<i>EET 142 Integ Comp Tech II</i>	<i>4</i>

<u>Sophomore(FALL)</u>	<u>Credits</u>
COMS 212 Fun of Comp SeiII	_ 4 _
EET 221 Electronic CAD	_____
EET 222 Electronics I	_____
PHYS 211 Prin of Physics I	_____
MATH 127 Calc II for ET	_____
<i>EET 143 Integ Comp Tech III</i>	<i>4</i>

<u>Sophomore (SPRING)</u>	<u>Credits</u>
EET 223 Electronics II	_____
EET 225 Digital Principles	3
EET 241 Elec. Shop Practice	_____
PHYS 212 Principles of Physics II	_____
General Education _____	_____

<u>Junior(FALL)</u>	<u>Credits</u>
COMS 380 Sys Ana & Des	_ 4 _
ENG 271 Tech Comm	_____
MATH 180 Math Comp Sci	_____
General Education _____	_____

<u>Junior (SPRING)</u>	<u>Credits</u>
EET 400 Network Analysis	_____
EET 454 Microprocessors I	_____
EET 456 Communications I	_____
General Education _____	_____

<u>Senior(FALL)</u>	<u>Credits</u>
EET 480 Auto Controls	_ 3 _
EET 484 Microprocessors II	_____
EET 488 Senior Design I	1
General Education _____	_____
EET 497 Internship**	_____
EET Technical Elective *	_____
<i>EET 461 Industrial Automation I</i>	<i>4</i>

<u>Senior (SPRING)</u>	<u>Credits</u>
COMS 340 Database Mgmt Systems I	_ 4 _
EET 489 Senior Design II	2
STAT 154 Elementary Statistics	_____
<i>OR MATH 354 Con. Of Prob&Stat (3)</i>	
<i>OR CHEM 104 Intro to Chemistry (3)</i>	
General Education _____	_____
EET Technical Elective *	_____
<i>EET 462 Industrial Automation II</i>	<i>4</i>

* 9 hours of technical electives approved by Technology Coordinator

The proposal calls for dropping 20 credits of CIS coursework and 9 credits of EET coursework. 20 credits of new EET coursework has been added and students will be required to complete 9 hours of technical electives. The net credit hour change is zero.

ELECTRONIC ENGINEERING TECHNOLOGY
Program revisions - shown contrasted with 2005-2006 program

<u>Freshman (FALL)</u>	<u>Credits</u>	<u>Freshman (SPRING)</u>	<u>Credits</u>
COMS 110 Intro to Comp Sci	4	COMS 211 Fund of Comp Science I	4
EET 113 DC Circuits	_____	EET 114 AC Circuits	_____
ENG 101 English Comp	_____	MATH 121 Calculus I	_____
MATH 115 Pre-Calculus	_____	SPEE 102 Public Speaking	_____
General Education _____	_____	General Education _____	_____
EET 101 Intro to EET/CET (Not Required)	_____	<i>EET 142 Integ Comp Tech II</i>	<i>4</i>
<i>EET 141 Integ Comp Tech I</i>	<i>4</i>		
<u>Sophomore(FALL)</u>	<u>Credits</u>	<u>Sophomore(SPRING)</u>	<u>Credits</u>
COMS 212 Fun of Comp Sci II	4	EET 223 Electronics II	_____
EET 221 Electronic CAD	_____	EET 225 Digital Principles	3
EET 222 Electronics I	_____	EET 241 Elec. Shop Practice	_____
PHYS 211 Prin of Physics I	_____	PHYS 212 Principles of Physics II	_____
MATH 127 Calc II for ET	_____	General Education _____	_____
<u>Junior(FALL)</u>	<u>Credits</u>	<u>Junior(SPRING)</u>	<u>Credits</u>
CHEM 104 Intro to Chem	_____	EET 400 Network Analysis	_____
EET 355 Elecl Power Sys	_____	EET 454 Microprocessors I	_____
EET 452 Op Amp App	_____	EET 456 Communications I	_____
ENG 271 Tech Comm	_____	EET 458 Advanced Instrumentation	_____
General Education _____	_____	STAT 154 Elementary Statistics	_____
		<i>OR MATH 354 Con. Of Prob & Stat</i>	
<u>Senior(FALL)</u>	<u>Credits</u>	<u>Senior(SPRING)</u>	<u>Credits</u>
EET Technical Elective*	_____	EET Technical Elective*	_____
EET 480 Automatic Controls	3	EET 489 Senior Project Design II	2
EET 488 Sen Proj Design I	1	General Education _____	_____
MET 427 Quality Assurance	_____	General Education _____	_____
General Education _____	_____	<i>EET 462 Industrial Automation II</i>	<i>4</i>
EET 497 Internship**	_____		
<i>EET 461 Industrial Automation I</i>	<i>4</i>		

* 11 hours of technical electives approved by Technology Coordinator

- Current program has 6 credits of advances electives. Revised program will have 11 credits of technical electives
- A total of 21 credits have been dropped. 16 credits of new courses have been added, and with the increase of 5 credits of technical electives the net change is zero.



INTEROFFICE MEMORANDUM

TO: CSET COURSE AND CURRICULUM COMMITTEE
FROM: WILLIAM B HUDSON, CHAIR ECET DEPARTMENT
SUBJECT: PROPOSED COURSE CONTENT
DATE: 4/3/2006
CC: [CLICK [HERE](#) AND TYPE NAME]

The new course proposals list desired student course outcomes. These outcomes or student competencies are skills that a student will have as they successfully complete the course. It is the responsibility of the instructor to establish teaching strategies to accomplish these outcomes. The techniques and time devoted to each concept is thought to be an issue of academic freedom by the department and as such the department is reluctant to assign percentages of lecture time to each topic.

The courses proposed follow the guidance of the department's Industrial Advisory Board as to content. Our Industrial Advisory Board feels strongly that department courses need to emphasize hardware and applications of hardware. As such all of the courses being proposed will have very brief amounts of time devoted to programming – these proposals are in no way an effort to create programming focused courses.