

The University Senate of Michigan Technological University

PROPOSAL 14-06

(Voting Units: Academic Departments)

Proposal for a **MINOR IN ELECTRICAL ENGINEERING** Department of Electrical and Computer Engineering

Introduction

This proposal recommends establishing a “Minor in Electrical Engineering”. The Electrical and Computer Engineering Department is making this recommendation at this time because of recent student requests for such a Minor. Within the past year, students not majoring in Electrical Engineering have requested an established path of study in Electrical Engineering which does not require as much course work as a double major or a second degree.

I. Title of Minor

Minor in Electrical Engineering

II. Catalog Description

Electrical engineering is the application of the theory of electricity and electromagnetism to solve the problems of everyday life. The two broad areas of application are the sensing, storing, transmitting, and processing of information and the sensing, storing, transmitting, and processing of energy. The electrical engineering minor will provide students with a broad understanding of these electrical technologies. This minor is open to all students except those majoring in Electrical Engineering and Computer Engineering

III. Rationale

Presently there is not a recognized plan of study in Electrical Engineering for non Electrical Engineering majors other than the completion of a double major or a second degree. The double major is only realistic for Computer Engineers; other majors need to complete at least 40 extra credits to fulfill all the degree requirements. The Electrical and Computer Engineering department proposes this Minor in Electrical Engineering for students desiring a course of study in Electrical Engineering short of a second degree.

IV. List of Courses

Required Courses (5 credits):

EE2150	Introduction to Signal Processing	3
EE2171	Digital Logic	2

Elective Courses (9 Credits)

Choose 3 credits from the list below:

EE3010	Circuits and Instrumentation	3
EE3120	Introduction to Energy Systems	3
EE3130	Electronics	3
EE3160	Linear Systems and Controls	3

Choose 6 credits not taken above from the list below:

EE3120 Introduction to Energy Systems	3
EE3130 Electronics	3
EE3140 Electromagnetics	3
EE3160 Linear Systems and Controls	3
EE3170 Microcontroller Applications	3

Choose 3 additional credits from:

EE3190 Optical Imaging and Sensing	3
EE3221 Introduction to Motor Drives	4
EE4221 Power System Analysis 1	3
EE4231 Physical Electronics	3
EE4232 Electronic Applications	3
EE4240 Introduction to MEMS	4
EE4250 Communication Theory	3
EE4252 Two Dimensional Signal and Image Processing	4
EE4261 Classical Control Systems	3
EE4271 VLSI Design	4
EE4272 Computer Networks	3
EE4441 The Laser	3

Total Requirements 17 credits

The following courses listed in the Electrical Engineering Minor have prerequisites not included above (shown in parenthesis):

EE2150 (MA2160, CS1121)

EE2171 (CS1121)

EE3140 (PH2200, MA3160)

EE3160 (EE2110, MA2321, MA3521)

EE3190 (EE2190)

EE4250 (MA3720)

EE4272 (MA3710)

V. Estimated Costs

There is no additional cost in introducing a Minor in Electrical Engineering. All courses identified above are either required or elective courses available to all students who satisfy course prerequisites. All courses are offered at least once a year.

Approved ECE Dept. Chair: 10/20/05

Introduced in Senate: 18 January 2006

Adopted by Senate: 1 February 2006

Approved by Administration: 6 February 2006