TO: The Engineering Faculty
FROM: The Faculty of the School of Electrical and Computer Engineering
RE: New Dual-Level Course

The faculty of the School of Electrical and Computer Engineering has approved the following new course. This action is now submitted to the Engineering Faculty with a recommendation for approval.

ECE 517 Visualization Techniques
Sem. 1. Class 3, cr. 3. (Offered in alternate years.)
Prerequisites: ECE 368 and ECE 369.

Topics in and algorithms for visualization: scientific visualization, medical visualization, information visualization, and volume rendering techniques. Fundamental algorithms, advanced techniques, design criteria, and application specific issues will be explored.

Reason:

Visualization has become a fundamental tool for engineering and science. This course will prepare computer engineering students, as well as engineering and science students to effectively use, evaluate, design, and develop visualizations and visualization software. Computer graphics and visualization are important, fundamental components of modern computer engineering. Therefore, we need this course to educate our students on the basic algorithms, techniques, and tools of this field. This course was offered in Fall 2001 and Fall 2002 with 13 and 18 students, respectively.

Mark J. T. Smith
Professor and Head

Supporting Documentation:

1. Level: Dual Level

2. Course Instructor: David S. Ebert

3. Course Outline:

	Topics	*Lectures*
1.	Introduction to visualization and course material	1
2.	Fundamental graphics techniques and capabilities	2
3.	Data characteristics and scalar techniques	3
4.	Volume visualization techniques	6
5.	Fundamentals of perception	3
6.	Visualization design principles	3
7.	Flow visualization	6
8.	Review of the latest visualization research	3
9.	Medical visualization	6
10.	Information visualization techniques and applications	6
11.	Advanced display techniques and virtual reality	3
12.	Future trends and project results	2
	Total	44

4. Text: The Visualization Toolkit, 2nd Edition, W. Schroeder, M. Martin, and W. Lorenson, Prentice Hall Computer Books, 1997. ISBN 0139546944.