APPLICATİON FOR NEW COURSE

1. Submitted by College of Engineering Date 3/13/02
   Department/Division offering course Electrical and Computer Engineering

2. Proposed designation and Bulletin description of this course
   a. Prefix and Number EE 663
   b. Title* Optoelectronic Devices
   NOTE: If the title is longer than 24 characters (including spaces), write
      A sensible title (not exceeding 24 characters) for use on transcripts
   c. Lecture/Discussion hours per week 3/week
   d. Laboratory hours per week N/A
   e. Studio hours per week N/A
   f. Credits 3.0
   g. Course description
      Theory and applications of photodetectors, solar cells, semiconductor lasers and
      LED's, display devices, and charge transfer devices; nanocrystalline structure
      applications in optoelectronic devices; organic semiconductor applications in
      h. Prerequisites (if any) optoelectronic devices.
      MSE 212, instructor's permission, and/or graduate standing.

i. May be repeated to a maximum of (if applicable)

4. To be cross-listed as MSE 663
   Prefix and Number
   Signature, Chairman, cross-listing department

5. Effective Date Fall 2003 (semester and year)

6. Course to be offered [ ] Fall [ ] Spring [ ] Summer

7. Will the course be offered each year? (Explain if not annually)
   [ ] Yes [ ] No

8. Why is this course needed?
   Optoelectronic devices are at the heart of the communication, control and computer systems
   that drive the information age. Some examples are lasers and photodetectors used in
   fiber-optic communication systems. There is a great demand from the industry and student
   for knowledge and skills in this area.

9. a. By whom will the course be taught? Drs. Vijay Singh, Zhi Chen, Janet Lumpp, and Art Radun
   b. Are facilities for teaching the course now available? If not, what plans have been made for providing them?
      [ ] Yes [ ] No
10. What enrollment may be reasonably anticipated? 20

11. Will this course serve students in the Department primarily? 
   Will it be of service to a significant number of students outside the Department? 
   If so, explain.
   □ Yes □ No
   □ Yes □ No

   Materials (Chemical and Materials Engineering)

   Will the course serve as a University Studies Program course? 
   □ Yes □ No

   If yes, under what Area?

12. Check the category most applicable to this course
   □ traditional; offered in corresponding departments elsewhere;
   □ relatively new, now being widely established 
   □ not yet to be found in many (or any) other universities

13. Is this course part of a proposed new program:
   If yes, which? 
   □ Yes □ No

14. Will adding this course change the degree requirements in one or more programs?*
   If yes, explain the change(s) below
   □ Yes □ No

15. Attach a list of the major teaching objectives of the proposed course and outline and/or reference list to be used.

16. If the course is a 100-200 level course, please submit evidence (e.g., correspondence) that the Community College System has been consulted.

17. Within the Department, who should be contacted for further information about the proposed course?
   Name Dr. Vijay Singh
   Phone Extension 257-8042

*NOTE: Approval of this course will constitute approval of the program change unless other program modifications are proposed.
Signatures of Approval:

\[\text{Signature} \quad \text{Date} \quad \text{Comment}\]

Department Chair
Dean of the College

*Undergraduate Council

*University Studies

*Graduate Council

*Academic Council for the Medical Center

*Senate Council (Chair)

*If applicable, as provided by the Rules of the University Senate

ACTION OTHER THAN APPROVAL

Rev 11/98
EE 663
Optoelectronic Devices

Fall 2003

Proposed Course Description:

Theory and applications of photodetectors, solar cells, semiconductor lasers and LED’s, display devices, and charge transfer devices; nanocrystalline structure applications in optoelectronic devices; organic semiconductor applications in optoelectronic devices. Prereq: MSE 212, instructor’s consent, and/or graduate standing.

Instructor: Dr. Vijay P. Singh

Office: 453 Anderson Hall

E-mail: vsingh@engr.uky.edu

Web: http://www.engr.uky.edu/~vsingh

EE663 URL: http://www.engr.uky.edu/~vsingh/class.htm

Office hours: TR 2-4 p.m., or by appointment

Meeting Time: The course will meet MWF


Grading Policy: Your grade will be based on:

<table>
<thead>
<tr>
<th>Component</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Homework Assignments</td>
<td>10%</td>
</tr>
<tr>
<td>Quizzes</td>
<td>40%</td>
</tr>
<tr>
<td>Final Exam</td>
<td>20%</td>
</tr>
<tr>
<td>Project</td>
<td>30%</td>
</tr>
</tbody>
</table>

- Homework will be assigned almost every week. Problem solutions must show a clear systemic method for arriving at the correct solution for full credit. Points will be taken off for incorrect solutions or work that is difficult to follow.
- Failure to take an exam during the assigned class period will result in a grade of zero for that test. Student, in that case, should see the instructor to explain the circumstances.
- The student is responsible for all business conducted during any scheduled class period. Any revision to the test dates, homework assignments, etc. will be announced during the class period.
- The detected use of unethical tactics on a quiz, test, or homework will result in an E for the course. This includes copying another person’s work, or making your work
available for others to copy. Appropriate actions will be taken in accordance with the university policies on cheating and plagiarism.

- The student is expected to read the text and is responsible for all material in the reading assignments. The sections of the text should be read prior to the class meetings covering the material.

**Major Teaching Objectives:**

To impart an understanding of basic principles, theory, design issues and current research in the following topics:

- Photodetectors
- Solar cells
- Semiconductor Lasers and LED’s
- Display Devices
- Charge Transfer Devices
- Nanocrystalline Structure Applications in Optoelectronic Devices
- Organic Semiconductor Applications in Optoelectronic Devices

After taking this course, The student is expected to have skills needed for initiating and conducting a research program in the area of optoelectronic devices.

**Homework policy:** Homework will generally be assigned each week. The homework assignments will be distributed in the Class and/or Web. The homework is to be turned in at the beginning of the class period. No late homework will be accepted.

**Attendance:** If a student is to be absent from class for an extended period of time (two classes or more), the Instructor must be notified in advance, if possible, or by the second class of the absence.

**Final Exam:** Any student having a legal conflict on that exam day will need to notify the instructor no later than the last week of classes. Anyone failing to notify the instructor after this time will have to take the exam during the scheduled time.

**Grading Assignment** will be based on your final grade for the course based on the homework, midterm exams, project and final exam, as outlined above. The letter grade assignment will then be calculated according to the table below.

<table>
<thead>
<tr>
<th>Final Grade</th>
<th>Letter Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>85-100 %</td>
<td>A</td>
</tr>
<tr>
<td>70-85 %</td>
<td>B</td>
</tr>
<tr>
<td>55-70 %</td>
<td>C</td>
</tr>
<tr>
<td>45-55%</td>
<td>D</td>
</tr>
<tr>
<td>Below 45%</td>
<td>E</td>
</tr>
</tbody>
</table>