1. BRIEF EXPLANATION OF PROPOSED CHANGE:

The University of Kentucky requests that we offer the Electrical Circuits 1 course for our pre-engineering majors, especially the electrical engineering majors. This is a new course designed after the course offered at the University of Kentucky. The course is PHY 350: Electrical Circuits 1.

2. CHECK ITEM(s) BELOW FOR CHANGES DESIRED:

- New Degree Certification
- Deletion of Degree or Certification
- New or Revised Major
- Deletion of Course
- New or Revised Minor
- Revised Degree or Certification
- X New Course(s)
- Revised Course
- Course Level (number) Change
- Other (specify below):

I. Dean's Action:
   - Approved
   - Disapproved
   - Returned for Recommended Change
   Date: 4/16/13
   (Signature)

II. Curriculum Committee Action:
   - Approved
   - Disapproved
   - Returned for Recommended Change
   Chairperson: (signature): Date: 4/23/2013

III. Faculty Senate Action:
   - Approved
   - Disapproved
   - Returned for Recommended Changes
   Senate President (signature): Date: 4/25/13

IV. Provost/Vice President Academic Affairs (not required for courses):
   - Approved
   - Disapproved
   - Returned for Recommended Change
   Provost/VPAA (Signature): Date: 5/11/13

V. President's Action (not required for courses):
   - Approved
   - Disapproved
   - Returned for Recommended Change
   President (Signature): Date: 5/11/13

Final Faculty Senate Approve form As Of 9/15/06
1. NEW COURSE NUMBER: PHY 350

2. NEW COURSE TITLE: Electrical Circuits

3. CAPSULE STATEMENT OF COURSE CONTENT FOR CATALOG:

PHY 350: Electrical Circuits I 4 hours

Prerequisite: PHY 212 and MAT 132 or consent of instructor. Fundamental laws and principles for linear circuits whose elements consist of passive and active components used in present day engineering practice. Determination of sinusoidal steady state responses using algebra of complex numbers. Lecture 3 hours laboratory 2 hours.

4. DESCRIPTION OF COURSE CONTENT FOR COURSE SYLLABUS:

Ability to analyze linear circuits excited by steady state sinusoidal sources and compute phaser and instantaneous voltages and currents and complex and time-average power. Ability to derive transfer functions, two-port parameters, and frequency response from circuits containing independent sources, dependent sources, resistors, capacitors, inductors, operational amplifiers, transformers, and mutual inductance elements. Ability to analyze the step response of linear circuits using Laplace transform theory. The ability to use SPICE for determining circuit voltages and currents given sinusoidal or transient sources. Ability to describe a solution with functional block diagrams (top-down design approach). Ability to work as a team to formulate and solve an engineering problem. Ability to use computer programs (such as MATLAB and SPICE) for optimizing design parameters and verify design performance.

Final Faculty Senate Approved Form as of 10/4/89
5. **PREREQUISITES:** PHY 212 and MAT 132 or consent of instructor.

6. **REQUIRED COURSE:** X Yes ___ No

7. **CREDITS:** (a) Number ___ 4__

   (b) Variable credit Explanation: _____________________________________________

   (c) Will course be repeatable for credit: _Yes _X No

   (d) Grading systems permitted: _X_ A-F ___ P/F ___ Credit/No Credit

     Exceptions: _____________________________________________

8. **Course Level:** ___ Elementary

   ___ Intermediate

   ___ Intermediate/Advanced

   _X_ Advanced

9. **CROSSLISTING DEPARTMENTS** (attach supporting letters):

10. **SCHEDULING PLAN:** ___ Each semester

    _X_ Annually

    ___ Biennially

    ___ Occasionally

11. **STARTING WITH:**

    ___ Fall, _X_ Spring, ___ Summer: 2013/2014 Academic Year

12. **IS THIS A “SPECIAL TOPICS” COURSE?** ___ Yes _X_ No

13. **EXPLANATION OF NEED FOR THE SPECIFIC COURSE:**

    The University of Kentucky has asked us to modify our pre-engineering curriculum by replacing our current electronics class with a course in electrical circuits.

14. **RELATIONSHIP TO OTHER LIKE COURSES IN THE DISCIPLINE/UNIVERSITY:**

    This course is a requirement in several engineering majors and is an approved elective for all other engineering majors.

15. **COURSE WHICH MAY BE DROPPED AS A RESULT OF THIS PROPOSAL:** PHY 305

16. **INSTRUCTIONAL STAFF** (if non-faculty, attach Vita): Instructors hold faculty status.

17. **COURSE SYLLABUS AND TEXT REFERENCE:**
Kentucky State University  
Division of Mathematics and Sciences  
Department of Mathematics and Physics  
Course: PHY-350  
Course Title: Electrical Circuits I (4 credit hours)  
Syllabus

PROFESSOR: Dr. Robert C. Mania Jr.  
OFFICE: Carver Hall Room 109  
OFFICE PHONE: (502) 597-6071  
FAX: (502) 597-6826  
E-MAIL: robert.mania@kysu.edu

SEMESTER:  
CLASS TIME:  
CLASSROOM: CH 105  
OFFICE HOURS:

I. MISSION STATEMENTS: The Objectives and Learning Outcomes of this course directly support the Mission of the University, College, and Division, and may be found at: The Objectives and Learning Outcomes of this course directly support the Mission of the University, College, and Division, and may be found at: www.kysu.edu/about; www.kysu.edu/academics/collegesAndSchools/default.htm; www.kysu.edu/academics/collegesAndSchools/collegeofmathematicssciencestechnologyandhealth/default.htm; www.kysu.edu/academics/collegesAndSchools/collegeofmathematicssciencestechnologyandhealth/mathematicsandsciences/default.htm; www.kysu.edu/academics/collegesAndSchools/collegeofmathematicssciencestechnologyandhealth/mathematicsandsciences/mathematicsandphysics.htm.

II. NOTICE TO STUDENTS WITH DISABILITIES:  
Any student who requires an accommodation due to a documented disability may contact the Disability Resource Center (DRC) at (502) 597-5076, or visit Hill Student Center, Suite 220C, to arrange for reasonable accommodations. The student is required to obtain verification from the DRC and deliver the signed DRC document to the instructor specifying the accommodations. The student is encouraged to complete this process at the beginning of the semester since an approval for accommodations is not retroactive. The accommodations become effective upon receipt of the DRC approval by the faculty member from the student. Additional information concerning the DRC and accommodations can be found at http://www.kysu.edu/about/divisions/studentAffairsAndEnrollment/disabilityResourceCenter.htm.

III. COURSE DESCRIPTION – COURSE RATIONALE:  
Prerequisite: PHY 212 and MAT 132 or consent of instructor. Fundamental laws and principles for linear circuits whose elements consist of passive and active components used in present day engineering practice. Determination of sinusoidal steady state responses using algebra of complex numbers. Lecture 3 hours laboratory 2 hours.

IV. COURSE OBJECTIVES:
The objectives of this course are intended to indicate the general level of achievement to be attained by the average engineering student. Through progress of the course, the student will: a better understanding of science principles; to understand how these laws allow an understanding of the electronic devices; to make knowledgeable decisions regarding appropriate devices to use in engineering design. Physics 350 helps to reinforce numbers 2, 4, 5, and 12 of the Kentucky State University Liberal Studies Curriculum.

V. STUDENT LEARNING OBJECTIVES/OUTCOMES:
Course Objectives: Successful students will
1. Ability to analyze linear circuits excited by steady state sinusoidal sources and compute phaser and instantaneous voltages and currents and complex and time-average power.
2. Ability to derive transfer functions, two-port parameters, and frequency response from circuits containing independent sources, dependent sources, resistors, capacitors, inductors, operational amplifiers, transformers, and mutual inductance elements.
3. Ability to analyze the step response of linear circuits using Laplace transform theory.
4. The ability to use SPICE for determining circuit voltages and currents given sinusoidal or transient sources.
5. Ability to describe a solution with functional block diagrams (top-down design approach).
6. Ability to work as a team to formulate and solve an engineering problem.
7. Ability to use computer programs (such as MATLAB and SPICE) for optimizing design parameters and verify design performance.

Supplemental Texts: Instructor Handouts
Additional Readings: None
The Library and the Media Center: None

VII. BLACKBOARD: Supplemental materials and all other course documents will be on blackboard. There will also be a variety of homework and tests on blackboard which will be graded by blackboard.

VIII. COURSE SPECIFIC REQUIREMENTS, EXPECTATIONS, POLICIES:
1) There will be no make up of a missing test. The missing test will be recorded as a grade of zero. The lowest test will be dropped in the determination of the grade for the class.
2) A missing final exam will result in a grade of F in the class. No make ups will be given for the final exam.
3) All assignments are due on the date and time given. If not turned in then, they will not be accepted and a grade of zero will be recorded. All will be turned in on blackboard or by email as appropriate.
4) All policies on grading will be followed, please see KSU Catalogue.

IX. EVALUATION PROCEDURES:
Grading Policy: Your grade will be based on:

<table>
<thead>
<tr>
<th>Exam</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 Exams</td>
<td>400</td>
</tr>
<tr>
<td>Final Exam</td>
<td>300</td>
</tr>
</tbody>
</table>

Laboratory 200 points  Homework 100 points  Final

90 – 100% = A  80 – 89% = B  70 – 79% = C  60-69% = D

Below 60% = F
X. COURSE CALENDAR/SCHEDULE:
*The instructor reserves the right to make changes to (delete, add, or modify) this Syllabus as the semester progresses.
EE 221 Topical Schedule - Spring 2013

Part One: Phasors and AC Circuits

Part Two: Average and Complex Power

Part Three: Network Functions of Circuits

Part Four: Resonant Circuits and Frequency Response

Part Five: Electronic Filters

Part Six: Three Phase and Delta Circuits

Part Seven: Two Port Networks

Final Exam

Student Acknowledgment of Receipt of Course Information

My signature below indicates that I have received a course syllabus for the following course, PHY 350-01, and I have been notified that the common policies for all courses at KSU can be found throughout the University Catalogue at:
http://www.kysu.edu/about/divisions/studentAffairsAndEnrollment/enrollmentManagement/registrar/Kentucky+State+University+Catalogue.htm

I agree to read these documents, and I agree to sign and deliver this copy of the “Student Acknowledgment” form within two (2) weeks of the start of the semester. I understand that the policies contained within these documents apply directly to me and to all students in the class. I agree to abide by these policies, and recognize that not abiding by these policies could result in dismissal from this class and/or affect my standing as a student at KSU as per Section 2.C. of the Student Handbook and Section XIX.G.1. of the University Catalogue.

Name (please print): ____________________________________________

CWID: ________________________________________________________

Signature: ____________________________________________________

Date: _________________________________________________________

Contact information (please PRINT clearly):

Local Address: ________________________________________________

Local Phone: _________________________________________________

E-Mail: _______________________________________________________