



COURSE SYLLABUS

I. CATALOG DESCRIPTION

PHYS 112 Physics II

3-0-3



**Rationale:** Homework and tests will include questions on electrostatics, D.C. and A.C. circuits, magnetism, electromagnetism, reflection, refraction, interference, diffraction, and radioactivity. Working on these questions and solving these problems will inform the learner about the topics in the course.

### III. COURSE OUTLINE

- A. Electrostatics (6 hours)
1. Coulomb's law
  2. Electric field
  3. Potential energy and potential
  4. Potential difference
  5. Capacitors

H. The nucleus (3 hours)

1. Nuclear structure & forces
2. Radioactive decay
3. Elementary particles
4. Ionizing radiation & safety
5. Nuclear fission & fusion

Three one hour exams (3 hours)

~~Two hour exam during exam week (2 hours)~~

## IX . BIBLIOGRAPHY

Bueche, F., Hecht, **Schaum's Outline of College Physics**, 11th Edition 2011, McGraw-Hill;

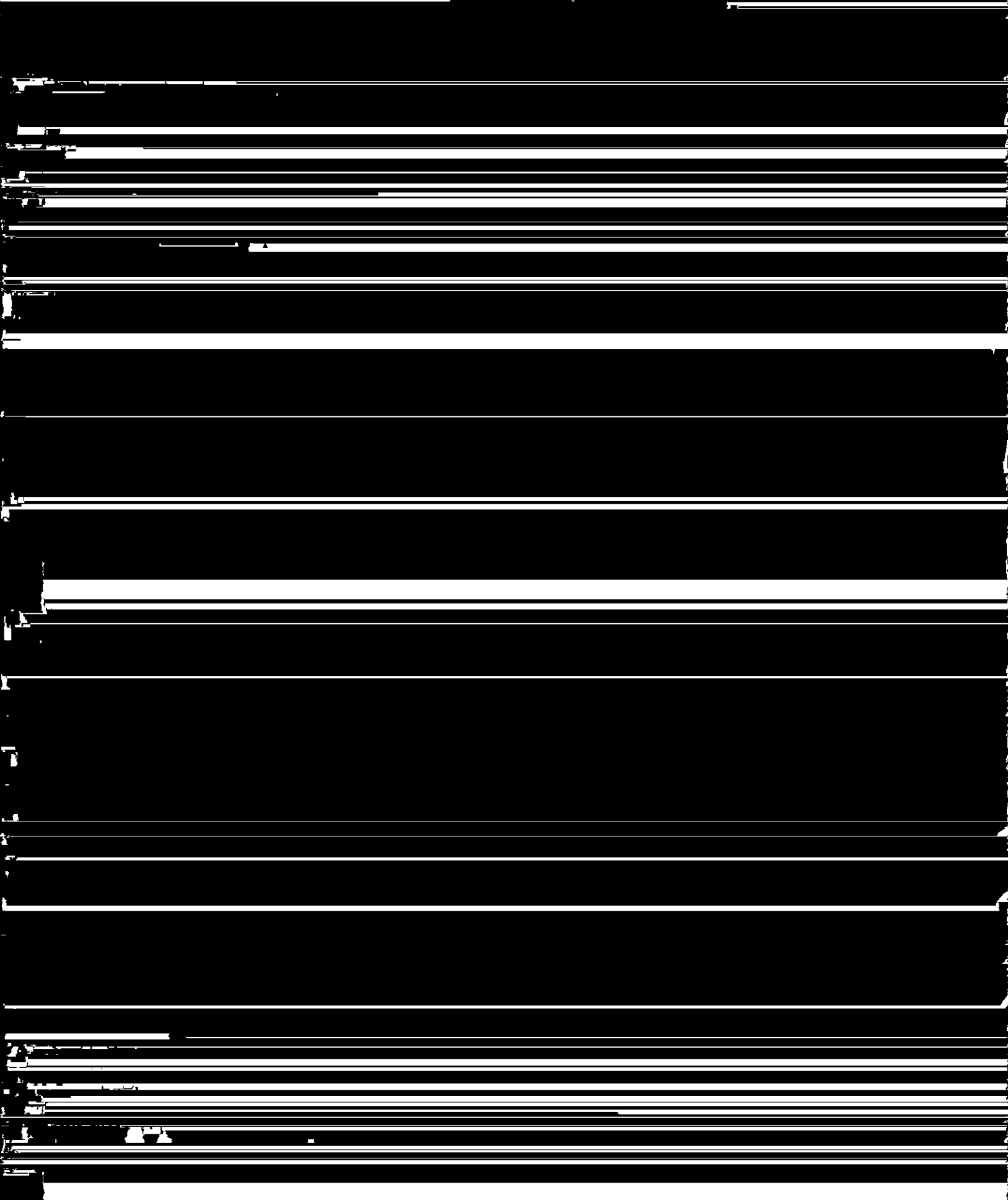
Giancoli, D., **Physics for Scientists and Engineers with Modern Physics**, 4<sup>th</sup> edition, 2008, Addison-

Knight, R., **Physics for Scientists & Engineers with Modern Physics**, 3rd Edition, 2013, Addison-Wesley

Serway, R., **Physics for Scientists & Engineers** 9<sup>th</sup> Edition, 2009, Brooks Cole

W. S. R. **Essential University Physics**, 2nd Edition, 2010, Addison-Wesley

**Liberal Studies Course Approval Checklist  
Instruction Sheet**

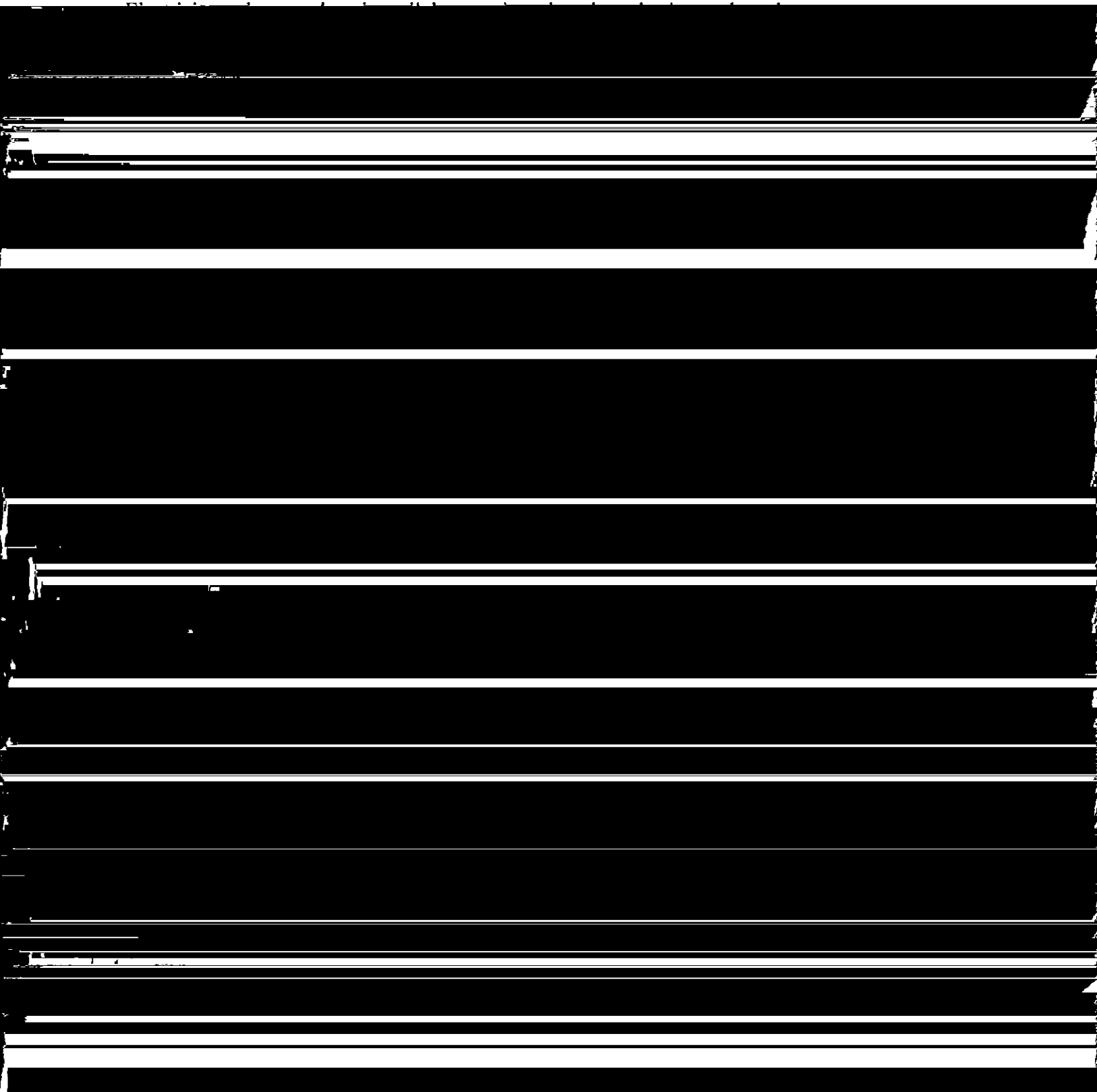


**OLD COURSE SYLLABUS**

CATALOG DESCRIPTION  
PHYS 112 Physics II Lecture

**3c-01-3cr**

Prerequisite: PHYS 111



5. Induced voltages; Faraday's law & Lenz's law
6. Inductors
7. Motors/ generators, & transformers
- D. A.C. circuits (3 hours)
  1. RC, RL and RCL alternating-current circuits
  2. Power & rms values in AC circuits
  3. Resonance
  4. Electrical safety



## VI. ATTENDANCE POLICY

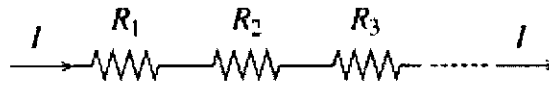
Students are expected to attend all lectures. Individual faculty members assigned to this course will determine the specific attendance requirements for this course. In certain situations, such as illness, personal emergency or active military duty, students will be excused for missing class if a written excuse or other proof of absence is provided to the instructor. Individual faculty members will determine how the assignments or other work will be made up in the event of an excused absence. Course attendance policy will not conflict with the University attendance

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Finding the equivalent resistance is relatively straight forward if the circuit contains only series and parallel connections of resistors.

An example of a **series connection** is shown in the diagram:

For such a connection, the current is the same for all individual resistors and the total voltage is the sum of the voltages across the individual



resistance is the sum of the reciprocals of the individual resistances.

Mathematically, these relationships can be written as:

$$V = V_1 = V_2 = V_3 = \dots$$

$$I = I_1 + I_2 + I_3 + \dots$$

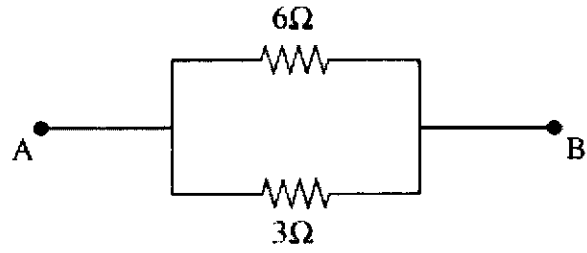
$$\frac{1}{R_{\text{eq-parallel}}} = \frac{1}{R_1} + \frac{1}{R_2} + \frac{1}{R_3} + \dots$$

*NOTE:* If you have already studied capacitors and the rules for finding the equivalent capacitance, you should notice that the rules for the capacitors are similar - but not quite the same as the ones discussed here.

In this problem, you will use the the equivalent resistance formulas to determine  $R_{\text{eq}}$  for

For the set-up shown, find the equivalent resistance between points A and B.

Express your answer in Ohms.



Deduct 3% credit for incorrectly answering any other type of question before the last attempt.

Students can view hints. There are questions within the hints which the student may answer for credit

Credit will be given for questions answered correctly in the hint.

Bonus credit of 2% will be given if the student does not open the hint