# OFFICIAL COURSE OUTLINE INFORMATION

Students are advised to keep course outlines in personal files for future use.

Shaded headings are subject to change at the discretion of the department and the material will vary - see course syllabus available from instructor

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<thead>
<tr>
<th>FACULTY/DEPARTMENT:</th>
<th>PHYSICS 452</th>
<th>PHYSICS</th>
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<tbody>
<tr>
<td>COURSE NAME/NUMBER</td>
<td>FORMER COURSE NUMBER</td>
<td>UCFV CREDITS</td>
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<tr>
<td>SOLID STATE PHYSICS</td>
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## CALENDAR DESCRIPTION:

Solid state physics is the application of quantum mechanics to the solid state. Topics include crystal structure, phonons, band theory, fermi surfaces, dielectrics, magnetism and glimpse of surface physics.

## PREREQUISITES:

Physics 222 (Electricity and Magnetism) Physics 231 (Thermodynamics) Physics 351 (Quantum Mechanics)

## COREQUISITES:

## SYNONYMOUS COURSE(S)

(a) Replaces: 

(b) Cannot take: 

## SERVICE COURSE TO:

## TOTAL HOURS PER TERM: 60

### STRUCTURE OF HOURS:

- Lectures: 60 Hrs
- Seminar: Hrs
- Laboratory: Hrs
- Field Experience: Hrs
- Student Directed Learning: Hrs
- Other (Specify): Hrs

### TRAINING DAY-BASED INSTRUCTION

LENGTH OF COURSE:

HOURS PER DAY:

### MAXIMUM ENROLLMENT:

35

EXPECTED FREQUENCY OF COURSE OFFERINGS:

WILL TRANSFER CREDIT BE REQUESTED? (lower-level courses only)

☐ Yes ☐ No

WILL TRANSFER CREDIT BE REQUESTED? (upper-level requested by department)

☐ Yes ☐ No

TRANSFER CREDIT EXISTS IN BCCAT TRANSFER GUIDE:

☐ Yes ☐ No

## AUTHORIZATION SIGNATURES:

Course Designer(s): R.W.M. Woodside, Ph.D.

Chairperson: H. Speer, Ph.D. (Curriculum Committee)

Department Head: R.W.M. Woodside, Ph.D.

Dean: PAC Approval in Principle Date:

PAC Final Approval Date: May 3, 1995
LEARNING OBJECTIVES / GOALS / OUTCOMES / LEARNING OUTCOMES:
To introduce the student to the ideas and methods of solid state physics.

METHODS:
This course will be taught using lectures, demonstrations, and computer simulations. Problems will be assigned on a regular basis.

PRIOR LEARNING ASSESSMENT RECOGNITION (PLAR):
Credit can be awarded for this course through PLAR (Please check:) ☐ Yes ☐ No

METHODS OF OBTAINING PLAR:

TEXTBOOKS, REFERENCES, MATERIALS:
[Textbook selection varies by instructor. An example of texts for this course might be:]

SUPPLIES / MATERIALS:

STUDENT EVALUATION:
[An example of student evaluation for this course might be:]
Assignments 25%
Midterm 30%
Final Exam 45%

COURSE CONTENT:
[Course content varies by instructor. An example of course content might be:]

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<tr>
<th>Week</th>
<th>Topic</th>
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<td>Crystal Structure</td>
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<td>Reciprocal Lattice</td>
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<td>Crystal Binding</td>
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<td>Phonons</td>
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<td>5</td>
<td>Thermal properties of phonons</td>
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<td>Free electron Fermi gas</td>
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<td>Dielectrics and Ferroelectrics</td>
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<td>Diamagnetism and Paramagnetism</td>
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<td>Ferromagnetism and anti-ferromagnetism</td>
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<td>Surface and interface physics</td>
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