Instructor:
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Office hours: TR 1330 – 1430, Sci 322; other times by appointment

Description of the course:
Following is the list of topics to be covered:
Review of infinite series, series of functions, and operations on series expansion of functions
Functions of complex variables with applications
Special functions: Legendre, Bessel, and Hermite functions
Some special partial differential equations
Fourier transform
Laplace transform

Course Prerequisites:
Physics 105B, 110B, 160, 163, and Math 133A.

Textbook:

Homework:
A weekly homework is assigned that should be turned in to the instructor in class on due date. No late homework is accepted. A minimum overall Homework Grade of 60% is required to pass the course.

Examinations:
There will be 2 midterm examinations and a comprehensive final examination.

Grading:
Semester numerical grade will be calculated according to the following format.

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Homework</td>
<td>20%</td>
</tr>
<tr>
<td>Midterm 1</td>
<td>25%</td>
</tr>
<tr>
<td>Midterm 2</td>
<td>25%</td>
</tr>
<tr>
<td>Final exam</td>
<td>30%</td>
</tr>
</tbody>
</table>
The table below shows the conversion from numerical grade to semester letter grade.

<table>
<thead>
<tr>
<th>Minimum Grade</th>
<th>A+</th>
<th>A</th>
<th>A-</th>
<th>B+</th>
<th>B</th>
<th>B-</th>
<th>C+</th>
<th>C</th>
<th>C-</th>
<th>F</th>
</tr>
</thead>
</table>
| 95            | 90 | 85 | 80 | 75 | 70 | 64 | 57 | 50 | <50 |}

All examinations are closed book and closed notes. A formula sheet will be provided in the final exam.

**Learning Objectives:**
Students who successfully complete this course will be able to:

- Calculate special integrals and sums using complex variable methods.
- Do differential and integral calculations involving Legendre, Bessel, and Hermite functions.
- Apply the properties of above functions in solving certain problems in quantum mechanics and electromagnetism.
- Solve special partial differential equations such as heat transfer and wave equations.
- Calculate Fourier and Laplace transform of functions and apply such transformation properties in solving differential equations and integrals important in certain classical and quantum mechanics problems.

**University Policies**
A. Academic Integrity Statement

“Your own commitment to learning, as evidenced by your enrollment at San Jose State University, and the University’s Integrity Policy, require you to be honest in all your academic course work. Faculty members are required to report all infractions to the Office of Student Conduct and Ethical Development. The policy on academic integrity can be found at: [http://sa.sjsu.edu/judicial_affairs/index.html](http://sa.sjsu.edu/judicial_affairs/index.html)

B. Campus policy in compliance with the Americans with Disabilities Act:

“If you need course adaptations or accommodations because of a disability, or if you need special arrangements in case the building must be evacuated, please make an appointment with me as soon as possible, or see me during office hours. Presidential Directive 97-03 requires that students with disabilities register with the DRC to establish a record of their disability.”