

National Commission for Academic Accreditation & Assessment

Course Specification

Institution Dammam University

A Course Identification and General Information

1. Course title and code: General Physics (3) / 800163 - 201N
2. Credit hours 4
3. Program(s) in which the course is offered. (If general elective available in many programs indicate this rather than list programs) B.Sc. (Physics), (Mathematics)
4. Name of faculty member responsible for the course A specific team from the Physics Department
5. Level/year at which this course is offered 2 nd year
6. Pre-requisites for this course (if any) General Physics (1) / 101N
7. Co-requisites for this course (if any)
8. Location if not on main campus

B Objectives

1. Summary of the main learning outcomes for students enrolled in the course.

1- Understanding the nature of the simple harmonic motions and its applications in different examples

2- Discuss and Understanding the nature of different forms of waves and their motions with emphasis on their mathematical description

3-Understanding the concepts of waves superposition and interference

4- To know the basics of different phenomena such as resonance, standing waves and Doppler effect

5- To know the concepts of heat, heat capacity, temperature and its measuring tools

6- Understanding the laws of thermodynamics and their applications

2. Briefly describe any plans for developing and improving the course that are being implemented. (eg increased use of IT or web based reference material, changes in content as a result of new research in the field)

C. Course Description (Note: General description in the form to be used for the Bulletin or Handbook should be attached)

1 Topics to be Covered		
List of Topics	No of Weeks	Contact
Simple Harmonic Motion, The Block-Spring System Revisited, Energy of Simple Harmonic Oscillator, The Pendulum, Physical Pendulum, Torsional Pendulum, Comparing Simple Harmonic Motion with Uniform Circular Motion title	3	9
Basic Variables of Wave Motion, Direction of Particle Displacement, One-Dimensional Travelling Waves, Superposition and Interference, The Speed of Waves on Springs, Reflection and Transmission, Sinusoidal Waves, Rate of Energy Transfer by Sinusoidal Waves	2.7	8
Speed of Sound Waves, Periodic Sound Waves, Intensity of Periodic Sound Waves, Spherical and Plane Waves, the Doppler Effect	2.7	8
Superposition and Interference of Sinusoidal Waves, Standing Waves, Standing Waves in a String Fixed at Both Ends, Resonance, Standing Waves in Air Columns	2.6	8
Temperature and the Zero Law of Thermodynamics, Thermometers and the Celsius Temperature Scale, The Constant-Volume Gas Thermometer and the Absolute Temperature Scale, Thermal expansion of Solids and Liquids, Macroscopic Description of an Ideal Gas	2	6
Heat and Internal Energy, Heat Capacity and Specific Heat, Latent Heat, Work and Heat in Thermodynamic processes, the First Law of Thermodynamics, Some Applications of the First Law of Thermodynamics, Energy Transfer Mechanisms	2	6
Lab experiments related to course topics	15	15

2 Course components (total contact hours per semester):				
Lecture: 48 hours	Tutorial:	Laboratory: 16 hour	Practical/ Field work/ Internship	Other:

3. Additional private study/learning hours expected for students per week. (This should be an average

:for the semester not a specific requirement in each week)

4. Development of Learning Outcomes in Domains of Learning

For each of the domains of learning shown below indicate:

- A brief summary of the knowledge or skill the course is intended to develop;
- A description of the teaching strategies to be used in the course to develop that knowledge or skill;
- The methods of student assessment to be used in the course to evaluate learning outcomes in the domain concerned.

a. Knowledge

(i) Description of the knowledge to be acquired

1- Students should be able to discuss key fundamental concepts of simple harmonic motions and different forms of waves and their motions

2- Utilization of theories, rules and basics to interpret physical events

3- Solving problems related to course topics

4- Conduct and interpret experiments related to the course topics

(ii) Teaching strategies to be used to develop that knowledge

1- Lectures

2- Discussions

3- Practical Lab

<p>(iii) Methods of assessment of knowledge acquired</p> <ol style="list-style-type: none"> 1- Written mid-term and final exams 2- Homework assignments 3- Quizzes and MCQ's 4- Practical test
<p>b. Cognitive Skills</p>
<p>(i) Description of cognitive skills to be developed</p> <ol style="list-style-type: none"> 1- The ability of collecting information from relevant sources and using it in the discussion 2- Critical thinking and developing self learning 3- Ability to interpret experimental data in frame of the course topics
<p>(ii) Teaching strategies to be used to develop these cognitive skills</p> <ol style="list-style-type: none"> 1- Lectures 2- Discussions 3- Practical Lab
<p>(iii) Methods of assessment of students cognitive skills</p> <ol style="list-style-type: none"> 1- Quizzes and MCQ's 2- Regular exams
<p>c. Interpersonal Skills and Responsibility</p>
<p>(i) Description of the interpersonal skills and capacity to carry responsibility to be developed</p> <ol style="list-style-type: none"> 1- The ability to work independently and as a member of a team 2- Take the responsibility to do homework assignments 3- participate effectively in lab experiments performance and related discussions

<p>(ii) Teaching strategies to be used to develop these skills and abilities</p> <p>1-group assignments to write a report 2-problem solving assignments</p>
<p>(iii) Methods of assessment of students interpersonal skills and capacity to carry responsibility</p> <p>1-Group discussion in the class in in the lab 2-checking the problems solved</p>
<p>d. Communication, Information Technology and Numerical Skills</p>
<p>(i) Description of the skills to be developed in this domain. Not Applicable</p>
<p>(ii) Teaching strategies to be used to develop these skills</p> <p>Not Applicable</p>
<p>(iii) Methods of assessment of students numerical and communication skills</p> <p>Not Applicable</p>
<p>e. Psychomotor Skills (if applicable)</p>
<p>(i) Description of the psychomotor skills to be developed and the level of performance required</p> <p>Not Applicable</p>

(ii) Teaching strategies to be used to develop these skills

Not Applicable

(iii) Methods of assessment of students psychomotor skills

Not Applicable

5. Schedule of Assessment Tasks for Students During the Semester			
Assessment	Assessment task (eg. essay, test, group project, examination etc.)	Week due	Proportion of Final Assessment
1	Mid-term exam 1		15 %
2	Mid-term exam 2		15 %
3	Practical test		30 %
4	Final Exam		40 %
5			
6			
7			
8			

D. Student Support

1. Arrangements for availability of teaching staff for individual student consultations and academic advice. (include amount of time teaching staff are expected to be available each week)

Office hours are assigned for students support

E Learning Resources

1. Required Text(s)
2. Essential References 1- Fundamentals of Physics, D. Halliday and R. Resnick, John Wiley & Sons Inc. 2- Physics for Engineers and Scientists, Serway 5 th Edition 3- University Physics, Sears, Zemansky and Young
3- Recommended Books and Reference Material (Journals, Reports, etc) (Attach List)
4- Electronic Materials, Web Sites etc
5- Other learning material such as computer-based programs/CD, professional standards/regulations

F. Facilities Required

Indicate requirements for the course including size of classrooms and laboratories (ie number of seats in classrooms and laboratories, extent of computer access etc.)
1. Accommodation (Lecture rooms, laboratories, etc.) Classrooms with 35 seats, Physics Labs with 25 seats
2. Computing resources
3. Other resources (specify --eg. If specific laboratory equipment is required, list requirements or attach list)

G Course Evaluation and Improvement Processes

<p>1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching</p> <p>1-Students feedback through questionnaires</p>
<p>2 Other Strategies for Evaluation of Teaching by the Instructor or by the Department</p> <p>1-Departmental discussions</p>
<p>3 Processes for Improvement of Teaching</p> <p>1-Conducting workshops given by experts on teaching methodologies. 2-Periodical departmental revisions of the methods of teaching.</p>
<p>4. Processes for Verifying Standards of Student Achievement (eg. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution)</p> <p>1-Providing samples of all kinds of assessment and tests. 2-Assigning group of faculty members teaching the same course to grade same questions for various students.</p>
<p>5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement.</p> <p>1-The course material and learning outcomes are periodically reviewed for future improvements and changes.</p>