PHYS100- Introduction to Physics (4 Cr.)

Pre-requisite: This course is not recommended for students who have passed physics in Intermediate/ A–levels or equivalent. Knowledge of elementary mathematics/pre–calculus is preferable.

Instructor: Dr. Khalid Javed (kjaved@fccollege.edu.pk)

Office: S001

Lecture days/time: 14:00 –15:15 (T & R) S027 & **Lab:** 14:00 – 15:50 (W) S-029

Office hours: (M, W, F) 10:00 -11:00 & (T, R) 11:00 -12:00

Course content:

Introduction to physics, lays emphasis on basic concepts that can be treated with elementary mathematics. These include applications of physics in everyday life to which the student can relate with. Concepts to be taken up are Scope of Physics; Communications; Basic Electricity; from ideas to implementation; Medical Physics and Elements of Astrophysics. This course is designed to provide students with a working knowledge of the elementary physics principles, as well as their applications, and to enhance their conceptual understanding of physical laws in the above areas.

Learning Outcomes:

By the end of this course, it is hoped that students will be able to

1. Understand and appreciate that most of the natural phenomena can be explained using fundamental laws of Physics.
2. Develop understanding of the material studied by solving applicable problems.
3. Become familiar with physics principles applicable in other fields of science.
4. Become familiar with the techniques used in measurement and measuring instruments.

Recommended books:

1. **Physics in Context**, W. J. Zealney, M. Hynoski et al, Oxford University Press (ISBN: 0 19550776 2) [2 vol. set]
2. **Fundamentals of Physics** Extended version, David Halliday, Robert Resnick and Walker,Jearl, (7^{th} Edition) John Wiley & Sons, 2002
3. **University Physics with Modern Physics,** Hugh D. Young, Roger A. Freedman, (11^{th} edition) (ISBN 81-297-0464-1) Pearson Education Ltd. [LPE] Addison-Wesley, .2004

Attendance:

Students are required to attend all the lectures. Those students whose attendance falls below 70% in theory and in lab work will not be allowed to sit in the final examination.

Syllabus and Tentative schedule

Weeks		Chapter	Topics	
Fall/ Spring	**Summer**			
1 – 2	1	Introduction and Breadth of Physics	Vol I chapter 1	Quiz/ Assignment
3 – 5	2	Communication Physics	Vol I chapter 2	Quiz/ Assignment
6 – 8	3	Elements of electricity	Vol I chapter 3	Quiz/ Assignment
8	**Mid Term Examination**			
9 – 10	4	Elements of electricity	Vol I chapter 3	Quiz/ Assignment
11 – 15	5 - 6	Motion and kinetics or Medical Physics / Revision	Vol I chapter 4 or Vol II chapter 4	Quiz/ Assignment
Final Examination				

Required Work:

1. Appear in all classes. Reach on time and stay the entire period.
2. Perform all laboratory work and submit all homework assignments on time.
3. Take the quizzes and both exams.
4. Explore, be attentive, interact – pose questions to me or to each other and figure things out.

Course evaluation:

- Quizzes/ Assignments (30%), Mid-term exam (20%), Final exam (25%), Lab (15%) and Attendance/Participation (10%).
- Grades would be calculated as per the University criteria (given in the student handbook/catalogue)