



# AVICENNA INTERNATIONAL COLLEGE



## PHYSICS ACADEMIC CALENDAR

### SYLLABUS

#### MEASUREMENT

Session	Topic	Lecturer
1	Measures Direct and indirect measures Fundamental and derived quantities	
2	Physical dimensions of quantities knowledge of the metric system and the CGS System of Units Technical (or practical) (ST) and the International System (SI) of Units (names and relationships between fundamental and derived units), and multiples and submultiples (names and values)	

#### MECHANICS

Session	Topic	Lecturer
3	Kinematic quantities, various types of motion with particular regard to uniform and uniformly accelerating rectilinear motion	
4	Uniform circular motion, harmonic motion (for all motion: definition and relationships between measures)	
5	Dynamics Vectors and operations on vectors	
6	Forces, moments of forces about a point Vector composition of forces	
7	Definitions of mass and weight Acceleration due to gravity	
8	Density and specific gravity Law of universal gravitation, 1st, 2nd and 3rd laws of motion	
9	Linear momentum, impulse, collision	
10	Fluid mechanics, Pressure, and its units of measurement (not only in the SI system) Archimedes' principle. Pascal's principle. Stevino's law	

## ENERGY AND WAVES

Session	Topic	Lecturer
11	Work, kinetic energy, potential energy	
12	Principle of conservation of energy	
13	Simple harmonic oscillation, waves	
14	Wave properties, reflection, refraction, diffraction, interference	

## THERMODYNAMICS

Session	Topic	Lecturer
15	Thermodynamics	
16	Thermometry and calorimetry Specific heat, heat capacity. Mechanisms of heat propagation	
17	Changes of state and latent heat Kinetic theory and Ideal Gas Laws	
18	First and second laws of thermodynamics	

## ELECTROMAGNETICISM

Session	Topic	Lecturer
19	Electrostatics and electrodynamics Coulomb's law	
20	Field and electric potential Dielectric constant	
21	Capacitors Capacitors in series and in parallel	
22	Direct current Ohm's law Electrical resistance and resistivity, electrical resistors in series and in parallel	
23	Work, Power, Joule effect Generators	
24	Electromagnetic induction and alternating currents Effects of electrical currents (thermal, chemical and magnetic)	

## OPTICS, RADIATION

Session	Topic	Lecturer
25	Electromagnetic spectrum, wave properties of light	
26	Fundamentals of geometric optics	
27	Laser and X-rays	
28	Radioactivity, measurement of radiation and its importance in medicine	