MUNI
MED

Physics Structure Programme

Online Foundation Course

Week	Topic	Teacher
1	Quantities, units, particle motion. Physical quantities in SI system Scalars and vectors Description of a particle and its motion Circular motion Momentum torque potential and kinetic energy, Work	Mornstein
2	**Mechanics of solid body** Acceleration Forces and motions of solid body Newton´s laws Field of gravity, Free fall	Staffa
3	**Mechanics of fluids** Adhesive and cohesive forces Pascal´s principle Archimedes´ principle Hydrostatic pressure Buoyancy Bernoulli´s principle	Bernard
4	**Overview of thermodynamics** Thermodynamic system and its description Heat, temperature and work Thermodynamic processes Ideal gas equation and its importance 1st law of thermodynamics Calorimetry	Mornstein

5	**Electrostatics and electric current, magnetism** Electric chargé Conductors and insulators Coulomb´s law, electrostatic force Electric field strength Electric potential Voltage Electric current Ohm´s law Resistance Capacitors Series and parallel circuits Properties of magnets Magnetic field Magnetic force	Bernard
6	Oscillatory motion, alternating currents Periodic motion Pendulums Electromagnetic induction Generators Transformers	Staffa
7	**Wave motion, electromagnetism** Wave properties and behaviour. Mechanical wave and sound wave. Electromagnetic wave and spectrum. Production and receiving electromagnetic wave.	Vlk
8	**Overview of optics** Propertiies of the light. Reflection, refraction, dispersion, diffraction interference of the light. Mirrors and lenses	Vlk
9	**Physics of the electron shell, X-rays, laser** Structure of the electron shell. Electron orbitals and quantum numbers. Quantized energy. Excitation (absorption) and deexcitation (emission). X-rays production and properties. Laser production and properties. Ionisation.	Vlk
10	**Physics of atom nucleus, radioactivity, test** Structure of atom nukleus Properties of elementary particles Radioactivity Law of radioactive decay	Mornstein