



# Delhi Public School Srinagar

## LESSON PLAN

### Session 2015-2016

<b>Class</b>	: 12th
<b>Subject</b>	: Physics
<b>For the Month of</b>	: November (first three weeks)
<b>Units</b>	: <i>Atoms and Nuclei And Communication system</i>
<b>Periods</b>	: 16

#### OBJECTIVES (CONCEPTS & SKILLS:) :

- *Alpha- Particle Scattering Experiment, Rutherford's Atomic Model, Bohr's Atomic Model and Hydrogen Spectrum.*
- *Composition, Size Of Nucleus and Nuclear Force.*
- *Mass-Energy Relation and Mass Defect.*
- *Binding Energy, Binding Energy Per Nucleon and Its Variation With Mass Number.*
- *Radioactivity-Alpha, Beta and Gamma Particles/Rays and Their Properties.*
- *Radioactive Decay Law.*
- *Nuclear Fission and Fusion.*
- *Elements of a communication system and bandwidth.*
- *Types of communication systems.*
- *Modulation.*
- *Basic ideas about internet, mobile telephony and global positioning system(GPS)*

#### ***The teacher will keep the following skills in view:***

- *Scientific Aptitude*
- *Thinking skills*
- *Reasoning Skills*
- *Attentiveness*
- *Listening Skills*

## **LEARNING OUTCOMES** :

**Make it sure that the student learns the concepts given below:**

- Impact parameter and scattering angle, Rutherford's model of atom and relative size of atom and nucleus.
- Stationary orbits, Bohr's quantum condition and frequency condition, radius of orbit, velocity and energy of an electron in an orbit.
- Energy levels of hydrogen atom and different series in hydrogen spectrum hydrogen spectrum
- Nucleons (protons and neutrons), mass no., radius of nucleus and relation between mass no. and radius.
- Nature of nuclear forces, binding energy per nucleon and stability of nucleus.
- Mass defect and its relation with binding energy.
- Radioactive substance, radioactive rays ( alpha, beta and gamma particles/rays) and their characteristics.
- Activity of a radioactive substance, Radioactive Decay Laws and Radioactive Displacement Laws.
- Half life and average life of a radioactive element and relation between the two.
- Nuclear energy and its source.
- Concept of communication, Transmitter, Communication channel(transmission medium) and Receiver.
- Bandwidth of different signals and transmission channels.
- Space communication and its types and Line communication.
- Concept of modulation, Amplitude modulation and Frequency modulation.
- *Basic ideas about internet, mobile telephony and global positioning system (GPS).*

**INSTRUCTIONAL TOOLS & REFERENCES:** Black board, chalk, duster, laptop and projector

***The References used :*** (1)PHYSICS (TEXT BOOK II FOR CLASS XII) (2)CONCEPTS OF PHYSICS BY H. C. VERMA

(3) PHYSICS FOR COMPETITIONS BY G. C. AGARWAL

### **PEDAGOGY:**

(i) Activating Prior Knowledge by Random Questioning.

(ii)Introducing the topic to be taught after getting the expected response from the students.

(iii)Developing hypothesis by (a) Lecture , (b) Discussion and (c) In Text Questions

**ACTIVITY/ASSIGNMENT/PROJECTS :** *The teacher will give Home Assignments and the areas of assessment will be:*

*Content of Knowledge, Presentation, Correctness, Time Management and Thinking skills.*

### **ASSESSMENT :**

*1.Checking the note making on given topic , 2.Asking questions related to topic , 3.Home work , 4.In text questions*

### **FA<sub>2</sub> & SA<sub>2</sub> SYLLABUS :**

**FA Syllabus:** Electromagnetic Induction and Alternating Current, Electromagnetic Waves and Optics.

**SA Syllabus:** All units

