

**Lesson Plan Format**  
**18 weeks (From January 2018 to April 2018)**

Name of Assistant /Associate Professor : JYOTI VARWAL  
 Class and Section : M.Sc. Physics Sem IV  
 Subject : Nuclear and Particle Physics

<b>Week 1(January 1-6)</b>	
<b>Chapter 1</b>	Unit-I Two nucleon problem and nuclear Forces.
01/01/2018	The deuteron : binding energy
02/01/2018	Binding energy
03/01/2018	dipole moment
04/01/2018	dipole moment
05/01/2018	Quadrupole moment
06/01/2017	Evidence of non-central force
<b>Week 2(January 8-13)</b>	
<b>Chapter</b>	
08/01/2018	spin dependence of nuclear force
09/01/2018	spin dependence of nuclear force
10/01/2018	spin dependence of nuclear force
11/01/2018	spin dependence of nuclear force
12/01/2018	spin dependence of nuclear force
13/01/2018	spin dependence of nuclear force
<b>Week 3(January 15-20)</b>	
<b>Chapter</b>	
15/01/2018	Test of Half Unit
16/01/2018	Nucleon-nucleon scattering
17/01/2018	" " "
18/01/2018	" " "
19/01/2018	s-wave effective range
19/01/2018	" " "
20/01/2018	" " "
<b>Week 4(January 22-27)</b>	
<b>Chapter</b>	
22/01/2018	Vasant Panchami
23/01/2018	charge impedance of Nuclear forces
24/01/2018	Dr. Chhotu Ram Jayanti
25/01/2018	charge symmetry of nuclear forces
26/01/2018	Re Public Day

27/01/2018	charge symmetry of nuclear forces
Week 5 (January 29- Feb 3)	
Chapter	
29/01/2018	iso-spin formalism
30/01/2018	iso-spin formalism
31/01/2018	Test of Full 1st Unit
01/02/2018	Unit-2:- liquid drop model
02/02/2018	liquid drop model
03/02/2018	stability of nuclei
Week 6 (Feb 5-10)	
Chapter	
05/02/2018	stability of nuclei
06/02/2018	Fission
07/02/2018	evidence of shell structure
08/02/2018	evidence of shell structure
09/02/2018	the shell model
10/02/2018	spin & parity
Week 7 (Feb 12-17)	
Chapter	
12/02/2017	Test
13/02/2017	Maha Shivratri
14/02/2017	spin parity
15/02/2017	magnetic moment in extreme
16/02/2017	single particle model
17/02/2017	magnetic moment in extreme single particle model
Week 8 (Feb 19-24)	
Chapter	
19/02/2018	Evidence of collective excitations
20/02/2018	" " " "
21/02/2018	" " " "
22/02/2018	collective vibration of a spherical
23/02/2018	liquid drop
24/02/2018	" " " "
Week 9 (Feb 26-March 03)	
Chapter	
26/02/2018	Revision of 2nd Unit " "
27/02/2018	Test
28/02/2018	Holiday
01/03/2018	Holiday

02/03/2018	
03/03/2018	Holidays
<b>Week 10 (March 5-10)</b>	
<b>Chapter</b>	Unit-IV Nuclear decays & nuclear reactions
05/03/2018	Alpha decays
06/03/2018	" "
07/03/2018	Beta decays
08/03/2018	" "
09/03/2018	Gamma decays
10/03/2018	" "
<b>Week 11 (March 12-17)</b>	
<b>Chapter</b>	
12/03/2018	Selections rules
13/03/2018	Fermi's theory of beta decay
14/03/2018	" "
15/03/2018	selections rules
16/03/2018	Comparative half lives
17/03/2018	" "
<b>Week 12 (March 19-24)</b>	
<b>Chapter</b>	
19/03/2018	Kurie plot
20/03/2018	Fermi's theory
21/03/2018	Gamow - Teller Transitions
22/03/2018	Parity non-conservation in beta decay
23/03/2018	Shahedi Diwas
24/03/2018	Parity non-conservation in beta decay
<b>Week 13 (March 26-31)</b>	
<b>Chapter</b>	
26/03/2018	Reaction cross-section
27/03/2018	Compound nuclear reactions
28/03/2018	the direct reaction
29/03/2018	Mahavir Jayanti
30/03/2018	the optical model
31/03/2018	Breit - Wigner resonance formula for $l=0$
<b>Week 14 (April 02-07)</b>	
<b>Chapter</b>	Unit-V Elementary Particle
02/04/2018	Basic interactions in nature
03/04/2018	Gravitational Electromagnetic
04/04/2018	Weak and strong

05/04/2018 classification of elementary particles  
06/04/2018 leptons, Hadrons  
07/04/2018 Mesons, Baryons.

Week 15 (April 09-14)

Chapter

09/04/2018 Conservation laws for Elementary Particle  
10/04/2018 Baryon no.  
11/04/2018 Lepton no.  
12/04/2018 Muon number.  
13/04/2018 Strangeness.

14/04/2018 Ambedkar Jayanti

Week 16 (April 16-21)

Chapter

16/04/2018 Hypercharge.  
17/04/2018 Test  
18/04/2018 Parshu Ram Jayanti  
19/04/2018 Gellman - Nishijima. formula  
20/04/2018  
21/04/2018 Quark model

Week 17 (April 23-28)

Chapter

23/04/2017 Quark model.  
24/04/2017  $SU(2)$  symmetries  
25/04/2017  $SU(3)$   
26/04/2017 Parities of subatomic particles.  
27/04/2017 charge conjugation  
28/04/2018 Time reversal.

Week 18 (April 29-30)

Chapter

30/04/2018 Test.