

SYLLABUS – NPAT ENGINEERING

Section 1: Mathematics (Time : 30 Minutes)	
Topic	
Sets and Functions	
Complex Number and Quadratic equation	
Matrices and Determinants	
Permutation and Combination	
Mathematical Induction	
Binomial theorem and its Application	
Sequence and Series	
Limit , Continuity and Differentiability	
Integral Calculus	
Coordinate Geometry	
Three Dimensional Geometry	
Vector Algebra	
Statistics and Probability	
Trigonometry	

Section 2: Physics (Time : 30 Minutes)	
Topic	
Physics and measurement	
Kinematics	
Thermodynamics	
Work, energy and power	
Rotational motion	
Gravitation	
Laws of motion	
Properties of solids and liquids	
Electronic devices	
Kinetic theory of gases	
Oscillations and waves	
Current electricity	
Magnetic effects of current and magnetism	
Electromagnetic induction and alternating currents, Electromagnetic waves	
Optics	
Electrostatics	

Section 3: Chemistry (Time : 30 Minutes)	
Topic	
Physical Chemistry	
Some basic concepts in chemistry, States of matter	
Atomic structure	
Chemical bonding and molecular structure	
Chemical thermodynamics	
Solutions, Equilibrium	
Redox reactions and electrochemistry	
Chemical kinetics	
Organic Chemistry	
Purification and characterization of organic compounds	
Hydrocarbons	
Chemistry in everyday life	
Principles related to practical chemistry	
Organic compounds containing halogens, Oxygen & Nitrogen	
Polymers	
Inorganic Chemistry	
Classification of elements and periodicity in properties	
Block elements (alkali and alkaline earth metals)	
P Block elements group 13 to group 18 elements, d- and f - block elements	
Co-ordination compounds	
Environmental chemistry	
General principles and processes of isolation of metals	

Section 4: Logical Intelligence (20 minutes)	
Constructs	
Critical Thinking:	
Decision Making (Take into cognizance various rules/ conditions and take decisions based upon those rules / conditions) Problem Solving (To analyse the given information and condense all the information in a suitable form and answer the questions asked)	
Verbal-logical reasoning:	
Derive conclusions from logical premises or assess the validity of arguments based on statement of facts	
Numerical reasoning:	
Venn Diagram (Identify the class-sub class relationship among given group of items and illustrate it diagrammatically)	
Mathematical Equalities	
Data Interpretation:	
Be able to use the information given in graphs and charts to answer questions	

Section 5: Proficiency in Language (Time: 10 minutes)	
Constructs	
Error Recognition:	
Recognising grammatical structure and usage.	
Applied Grammar:	
Using prepositions, determiners, connectives, tenses appropriately.	
Contextual Usage:	
Using appropriate words in the given context	
Sequencing of Ideas:	
Putting ideas into logical sequence by putting jumbled sentences in the correct order	
Reading Comprehension (1 Passages of maximum 350 words with 4 items):	
Locating Information, grasping ideas, identifying relationships, interpreting ideas, moods, characteristics of characters, tone of passage, inferring, getting the central theme, evaluating	