**Lesson Plan**

Name of the Faculty : Mr. Jatin Sharma/ Ms. Deepika

Discipline : DAA

Year : 1st Year

Subject : APPLIED SCIENCE AND MATHEMATICS

Lesson Plan : 30 Weeks (From August 2018-April 2019)

Workload (Theory/Practical) per week (in hours): Theory-03

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| Week | Theory | |
| Lecture Day | Topic(Including assignment/test) |
| 1st | 1st | **UNIT-1** |
| Introduction to physics and mathematics. |
| 2nd | Units of measurement in S.I system and Problems based on S.I system. |
| 3rd | Dimensions and use of dimensional analysis and Problems related to dimensions. |
| 2nd | 4th | **UNIT-2(Force and motion)** |
| Newton’s laws. |
| 5th | Conservation of momentum. |
| 6th | Work and energy forms of energy and conservation of energy. |
| 3rd | 7th | Problems related to work and energy forms of energy and conservation of energy. |
| 8th | Problems related to Conservation of momentum. |
| Discuss Stress and Strain. |
| 9th | Problems related to Stress and Strain. |
| 4th | 10th | Discuss elastic modulii. |
| 11th | Revise unit-2 (all topics in short). |
| 12th | **UNIT-8(Algebra)** |
| Introduction to algebra and simple problems. |
| 5th | 13th | Logarithms, laws of logarithms (without proof). |
| 14th | Use of logarithms to solve problems of engineering nature. |
| 15th | Solution of three linear simultaneous equations by elimination. |
| 6th | 16th | Binomial Theorem (without proof) for positive integral index (expansion and general term). |
| 17th | Binomial theorem (without proof) for any index (expansion only). |
| 18th | Revise Binomial theorem and Logarithms. |
| 7th | 19th | **UNIT-3(Spring mass system)** |
| Introduction to Spring mass system. |
| 20th | Vibration of bodies; amplitude, frequency. |
| 21th | Energy of vibrations; free and forced vibrations. |
| 8th | 22th | Discuss Resonance theory. |
| Vibration of structural members. |
| 23th | Problems related to Vibration of bodies; amplitude, frequency. |
| 24th | Revise Energy of vibrations; free and forced vibrations. |
| 9th | 25th | Revise Resonance theory and Vibration of structural members. |
| 26th | **UNIT-9(Mensuration)** |
| Mensuration of Plane figures: Definition: Units of Measurement. |
| 27th | Definition and formulae of perimeter and area etc. in connection with plane figures: rectangle, square, triangle. |
| 10th | 28th | Definition and formulae of perimeter and area etc. in connection with plane figures: quadrilateral rhombus, trapezium (trapezoid), polygon. |
| 29th | Definition and formulae of perimeter and area etc. in connection with plane figures:circle, irregular figures (trapezoidal Rule and Simpson’s Rule) (simple problems). |
| 30th | Problems related to trapezoidal Rule. |
| 11th | 31th | Problems related to Simpson’s Rule. |
| 32th | Mensuration of Solids: Definition: Units: Volume: surface |
| 33th | Mensuration of Solids: including curved surface area and lateral surfaces areas of solids. |
| 12th | 34th | Rectangular or parallelopiped, Cubes, Cuboids |
| Prisms, Cylinders and Hollow Cylinder, Pyramid. |
| 35th | Frustum of right circular cone, sphere (simple problems). |
| 36th | Problems related to Mensuration of Solids. |
| 13th | 37th | Revise Mensuration of Solids. |
| 38th | **UNIT-4(Expansion of solids)** |
| Introduction to Thermal stresses. |
| 39th | Specific heat and heat capacity. |
| 14th | 40th | Concept of thermal time lag in buildings. |
| 41th | Laws of thermodynamics. |
| 42th | Principles of heat engines. |
| 15th | 43th | Principles of refrigeration |
| 44th | Principles of air conditioning systems. |
| 45th | Humidity and its control. |
| 16th | 46th | Revise all topics of unit-9. |
| 47th | **UNIT-10(Trigonometry)** |
| Introduction to trigonometry. |
| 48th | Measurement of angles in degrees and radians and their conversions. |
| 17th | 49th | Trigonometric ratios and their relations. |
| 50th | Allied angles (without proof). |
| 51th | Trigonometric tables and their use. |
| 18th | 52th | Trigonometric ratios of angles between 0 degree and 360 degrees. |
| 53th | Sum difference formulae and their applications. |
| 54th | Ratio of multiple and sub-multiple angles (2A, 3A, A/2). |
| 19th | 55th | Product formulae. |
| 56th | Statements of cosine rule, sine rule. |
| 57th | Napier’s analogy, solution of triangles (simple cases, excluding ambiguous case) |
| 20th | 58th | simple problems on heights and distances.  **UNIT-5(Acoustics)** |
| Introduction to Acoustic. |
| 59th | Acoustic of buildings. |
| 60th | Simple calculation of reverberation times. |
| 21th | 61th | Principles of acoustic modelling. |
| 62th | sources of sound. |
| 63th | Revise all topics of unit-5 shortly. |
| 22th | 64th | **UNIT-11(Differential Calculus)** |
| Meaning and scope of differentiation. |
| 65th | Graphical differentiation concept of  Limits. |
| 66th | Differentiation of xn, sin x, cos x |
| 23th | 67th | Differentiation of tan x, logax. |
| 68th | Differentiation of logex, ex. |
| 69th | Differentiation of sum, product and quotient of functions. |
| 24th | 70th | Differentiation of function of a function. |
| 71th | Problems related to Differentiation of function. |
| 72th | Revise problems related to Differentiation. |
| 25th | 73th | **UNIT-6** |
| Light as waves, solar energy. |
| 74th | solar cells and green house effects. |
| 75th | Colour :primary colours, colour mixing. |
| 26th | 76th | Radiant light flux, illumination. |
| 77th | Discuss luminar intensity, light efficiencies. |
| 78th | Standards of illumination. |
| 27th | 79th | **UNIT-12(Integral Calculus)** |
| Integration as inverse operation of differentiation. |
| 80th | Graphical integration. |
| 81th | Simple integration by substitution. |
| 28th | 82th | Integration by parts and by partial fractions. |
| 83th | Evaluation of definite integrals (simple problems). |
| 84th | Applications such as area. |
| 29th | 85th | **UNIT-7** |
| Electrical nature of matter. |
| 86th | Molecular forces - cohesive and adhesive forces. |
| 87th | Application to water proofing and wetting. |
| 30th | 88th | Revise Electrical nature of matter. |
| 89th | Revise Molecular forces - cohesive and adhesive forces. |
| 90th | Revise Application to water proofing and wetting. |