**Adv.M.N.Deshmukh Art’s Science & Commerce College, Rajur**

**Annual Planning for the Year 2015-2016**

F. Y. BSc. Mathematics Paper-I

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| Sr. No. | Month | Total Lectur | Name of the Topic |
|  | Term-I |  | Algebra |
| 1 | June 2015 | 03 | **Ch-1 Integer.**  **1.1** Well ordering principle for N. Principle of Mathematical induction(Strong form) |
| 2 | July 2015 | 09 | **1.2** Divisibility in Z: Definition and elementary properties. Division Algorithm. Euclidean Algorithm(Without proof). G. C. D. and L. C. M. of integer. Relatively prime integers. Definition of prime. Euclid’s Lemma. Basic properties of G. C. D., G.C.D of any two integers “a” and “b” if it exists is unique and can expressed in the form ax + by , where x , y ϵ Z |
| 3 | Aug 2015 | 10 | **1.3** Equivalence Relation, Equivalence classes properties of Equivalences classes , Definition of Partition ,every partition gives an equivalence relation and vice-versa , Definition of congruence , Congruence as equivalence relation on Z , Residue classes , Partition of Z , Addition modulo n ,Multiplication modulo n. |
| 4 | Sep 2015 | 10 | **Ch-2 Polynomial 2.1** Definition of polynomial , Degree of polynomial Algebra of polynomial , Division algorithm (without proof) G.D.C of two polynomials(without proof) **2.2** Remainder Theorem , Factor Theorem. **2.3** Relation between the roots and the coefficients of polynomials, Examples.  **CH-3 Matrices** **and System of linear** **equation.**  **3.1** Echelon and Reduced Echelon form of Matrix, Reduction of Matrix to its echelon form ,Definition of rank of matrix by using echelon form.  **3.2** System of linear equation , Matrix form of system of linear equation ,Homogeneous and non- homogeneous system of linear equation ,Gauss Elimination and Gauss Jordan method. |
| 5 | Oct 2015 | 4 | **3.3** Consistency of a system of linear equation , condition of consistency(without proof). **3.4** Eigenvalues,Eigen vectors, characteristic equation of matrix of order 3×3.  **3.5** Statement of Cayley Hamilton theorem and its use to find the inverse of a matrix. |
|  | Term-II |  | Geometry |
| 6 | Dec 2015 | 6 | **Ch-4 Analytical Geometry of two dimensions**. **4.1** Changes of axes , Translation and rotation. **4.2** Conic Section :General equation of second degree in x and y . |
| 7 | Jan 2016 | 12 | **4.2** Centre of conic ,Nature of conic , Reduction to standard form. **Ch-5 Planes in 3-dimension** Revision **:** Equation of the line , equationof the degree in x, y, z , Transformation to the normal form ,determination of plane under given conditions , Equation of the plane through three given points. **5.1** Systems of planes , two sides of plane ,bisectors of angles between two planes . **5.2** Length of the perpendicular from a point to a plane , bisectors of angles between two planes. **Ch-6 Lines in 3-dimension** Revision: Equation of a line ,equation of a straight line in terms of its cosines and the co-ordinates of point on it , equation of two lines through two points , Symmetrical and unsymmetrical forms of the equation of a line , transformation of the equation of a line to the symmetrical form .Angle between a line and a plane. |
| 8 | Feb 2016 | 12 | **6.1** Thecondition that a given line may lie in a given plane , the condition that two given lines are coplanar. **6.2** Number of arbitrary constant in the equations of the straight line , sets of conditions which determine a line. **6.3** The shortest distance between two lines , the length and equation of the line of shortest distance between two straight lines , length of perpendicular from a given point to a given line. **Ch-7 Sphere** **7.1** Definition and equation of the sphere in various forms. **7.2**  Plane section of a sphere , intersection of two spheres . **7.3** Equation of a circle , sphere through a given circle intersection of a sphere and a line . **7.4** Equation of a tangent plane. |
| 9 | Mar 2016 | 6 | **Ch-8 Cones and Cylinders 8.1**  Definition of cone and cylinder . **8.2** Equation of cone and cylinder with vertex at origin and (x, y, z). **8.3** The right circular cone , equation of right circular cone. **8.4** The right circular cylinder , equation of a right circular cylinder. |