LESSON PLAN: Engineering Mathematics-I		
Discipline :	**Computer Science and Engineering**	
Faculty :	**Mrs. Mamata Patel**	
Semester :	**1st Semester**	
Duration :	**15 WEEKS (15th September 2022 to 22nd December 2022)**	
Work Load :	**Lecture :**	**5 Lectures per week (50 minutes per Class)**
Week	**Week Day**	**Theory**
1st	1st	**Determinants** (Define Determinants of Second and Third order)
	2nd	**Determinants** (Explain Minor (M_{ij}) of a_{ij} , Co- factor (C_{ij}) of a_{ij}, Explain $C_{ij}=(-1)^{i+j}M_{ij}$)
	3rd	**Determinants** (Example Discussion about Minor and Co-factor of Determinants)
	4th	**Determinants** (Properties of Determinants)
	5th	**Determinants** (Example Discussion by using properties of Determinants)
2nd	6th	**Determinants** (Properties of Determinants)
	7th	**Determinants** (Example Discussion by using properties of Determinants)
	8th	**Determinants** (Cramer's Rule: Solution of simultaneous equations of two unknowns)
	9th	**Determinants** (Problems discussion on Cramer's Rule)
	10th	**Determinants** (Cramer's Rule: Solution of simultaneous equations of three unknowns)
3rd	11th	**Determinants** (Problems discussion on Cramer's Rule)
	12th	**Matrix** (Definition and its representation state its order)
	13th	**Matrix** (Types of Matrices with Examples)
	14th	**Matrix** (Equality of Matrices, Addition and its properties, product and its properties)
	15th	**Matrix** (Transpose and Adjoint of a Matrix with Example)
4th	16th	**Matrix** (Multiplicative inverse of a square Matrix with example)
	17th	**Matrix** (Solution of a system of Linear Equations by Matrix method)
	18th	**Matrix** (Example Discussion on solution of linear Equation by Matrix method)
	19th	**Trigonometry** (Preliminary ideas, Trigonometrical Functions, Circular Functions and their identity)
	20th	**Trigonometry** (Trigonometric Ratio and ASTC Rule with Example)
5th	21st	**Trigonometry** (Formula Discussion on Trigonometry)
	22nd	**Trigonometry** (Problem Discussion by using Trigonometric Formulae)
	23rd	**Trigonometry** (Discuss about addition and Subtraction Formula)
	24th	**Trigonometry** (Example Discussion by using Formula)
	25th	**Trigonometry** (Properties of Triangle, Sine, Cosine and Tangent and Projection Formula)
6th	26th	**Trigonometry** (Problem solving on Properties of Triangles)
	27th	**Trigonometry** (Napier's Formula/tangent Formula, Area of Triangle with Example)
	28th	**Trigonometry** (Introduction about Inverse function and Inverse Trigonometric Function)

	29th	**Trigonometry** (Domain and Range of Inverse Trigonometric Function)
	30th	**Trigonometry** (Properties of Principal Inverse Trigonometric Function)
7th	31st	**Trigonometry** (Example Discussion on Inverse Trigonometric Function)
	32nd	**Trigonometry** (Trigonometric Formulae Discussion)
	33rd	**Trigonometry** (Example Discussion)
	34th	**2 – Dimensional Co-ordinate Geometry** (Define Co-ordinate of a point on a plane in Cartesian rectangular co-ordinates)
	35th	**2-D** (Derive distance between two given points with Examples)
8th	36th	**2-D** (Division point in the ratio m:n between two given points both externally and internally with Examples)
	37th	**2-D** (Area of the Triangle whose vertices are given with Examples)
	38st	**2-D** (Define Slope of a line and angle between two lines, conditions of perpendicularly and parallelism of two lines with Examples)
	39th	**2-D** (Define Locus and Equations of Locus from the given conditions with Examples)
	40th	**2-D** (Derive standard forms of straight lines:1. Slope Intercept Form 2. Slope point form)
9th	41st	**2-D** (Derive standard forms of straight lines:3. Two Point Form 4. Intercept Form 5. Normal/Perpendicular form) with Examples
	42nd	**2-D** (Derive standard forms of straight lines: 6. General equation of straight line 7. Transformation of general form ax+by+c=0 into Slope intercept and normal Form)
	43rd	**2-D** (Determine point of intersection of two straight lines with Examples)
	44th	**2-D** (Derive Equation of straight lines: (a) Passing through a point and parallel toa line and perpendicular to a line with Examples)
	45th	**2-D** (Derive Equation of straight lines: (b) Derive equation of straight lines by passing through a point of intersection of two straight lines with Examples)
10th	46th	**2-D** (Determine perpendicular distance from a point to a line with Examples)
	47th	**Circle** (Find equation of Circle with given centre (h, k) and radius r with Examples)
	48th	**Circle** (General equation of a Circle and determination of its centre and radius)
	49th	**Circle** (Examples Discussion on Circles)
	50th	**Circle** (Find Equation of Circle passing through three non-colinear)
11th	51st	**Circle** (Examples Discussion on Circles)
	52nd	**Circle** (Find equation of a Circle with given end points of a diameter)
	53rd	**Circle** (Examples Discussion on Circles)
	54th	**3- Dimensional Geometry** (Introduction, Distance Formula, Division Formula)
	55th	**3- D** (Centroid of a Triangle and Example Discussion)

12th	56th	**3- D** (Direction Co-sines, Relation between direction co-sines)
	57th	**3- D** (Direction Ratios, Projections)
	58th	**3- D** (Example Discussion on 3- Dimensional Geometry)
	59th	**3- D** (To find Angle between two lines with Examples)
	60th	**3- D** (Conditions for Perpendicularity and Conditions for Parallelism)
13th	61st	**3- D** (Projection of a line segment)
	62nd	**3- D** (Example Discussion on 3- Dimensional Geometry)
	63rd	**3- D** (Introduction on Plane and Discuss Theorems on plane)
	64th	**3- D** (Number of constants in the equation of plane, Equation of plane through three non-colinear points, Intercept Form)
	65th	**3- D** (Problem Solving on 3-D)
14th	66th	**3- D** (Planes parallel and perpendicular to co-ordinate axes, Normal form of the equation of a plane, Transformation of the general equation of a plane to the normal form, Planes parallel to the Co-ordinate planes with Examples)
	67th	**3- D** (Angle between two planes, Plane through the intersection of two given planes, Posiyion of points with respect to a Plane, Distance of a point from a Plane, Bisector of the angles between two Planes)
	68th	**3- D** (Example Discussion on 3- Dimensional Geometry)
	69th	**Sphere** (Introduction about Sphere)
	70th	**Sphere** (General Equation of a Sphere)
15th	71st	**Sphere** (Examples Discussion on Sphere)
	72nd	**Sphere** (To find the equation of the Sphere if the co-ordinates of end point of a diameter of a Sphere are (x_1,y_1,z_1) and (x_2,y_2,z_2))
	73rd	**Sphere** (Problem solving related on Sphere)
	74th	**Sphere** (To find the equation of the Sphere through four given points (x_1,y_1,z_1), (x_2,y_2,z_2), (x_3,y_3,z_3) & (x_4,y_4,z_4))
	75th	**Sphere** (Examples Discussion on Sphere)