

Mymensingh Polytechnic Institute

Semester Plan

Technology : All , Semester:3rd , Shift:1st, Subject : Mathematics-3 , Code :25931

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week	Chapter	Description	Remarks
1	Mensuration (Area of triangle)	<p>1. Apply the concept of area of triangle.</p> <p>1.1 Find the area of triangle in the form,</p> <p>i) $A = \frac{\sqrt{3}}{4} a^2$, a = length of a side of equilateral triangle.</p> <p>ii) $A = \frac{c}{4} \sqrt{(4a^2 - c^2)}$, where a= length of equal sides,c= third side.</p> <p>iii) $A = \sqrt{s(s-a)(s-b)(s-c)}$, where a, b, c = length of the sides of a triangle and 2s is the perimeter of the triangle.</p> <p>1.2 Use formula in 1.1 to solve problems.</p>	
2	Mensuration (Areas of quadrilateral & Parallelogram)	<p>2A. Apply the concept of finding areas of quadrilateral & Parallelogram</p> <p>2.1 Define quadrilateral & Parallelogram.</p> <p>2.2 Find the areas of quadrilateral when off sets are given.</p> <p>2.3 Find the areas of a parallelogram.</p> <p>2.4 Solve problems using above formulae</p>	QT1
3	Mensuration (Areas of rhombus and trapezium.)	<p>2B. Apply the concept of finding areas of rhombus and trapezium</p> <p>2.5 Define rhombus & trapezium.</p> <p>2.6 Find the areas of rhombus when the diagonals are given.</p> <p>2.7 Find the areas of trapezium in terms of its parallel sides and the perpendicular distance between them.</p> <p>2.8 Solve problems related to rhombus & trapezium.</p>	CT1
4	Mensuration (Area of a regular polygon)	<p>3. Apply the Area of a regular polygon</p> <p>3.1 Define a regular polygon.</p> <p>3.2 Find the area of a regular polygon of n sides, when</p> <p>i) the length of one side and the radius of inscribed circle are given.</p> <p>ii) the length of one side and the radius of circumscribed circle are given.</p> <p>3.3 Find the area of a regular .a) hexagon b) octagon when length of side is given.</p> <p>3.4 Solve problems of the followings types: A hexagonal polygon 6 m length of each side has a 20 cm width road surrounded the polygon. Find the area of the road.</p>	
5	Mensuration (Areas of circle, Sector and Segment)	<p>4. Understand areas of circle , sector and segment.</p> <p>4.1 Define circle, circumference, sector and segment.</p> <p>4.2 Find the circumference and area of a circle when its radius is given.</p> <p>4.3 Find the area of sector and segment of a circle.</p> <p>4.4 Solve problems related to the above formulae</p>	
6	Mensuration (Area & Volume of a rectangular solid)	<p>5. Apply the concept of volume of a rectangular solid.</p> <p>5.1 Define rectangular solid and a cube.</p> <p>5.2 Find geometrically the volume of a rectangular solid when its length, breadth and height are given.</p> <p>5.3 Find the volume and diagonal of a cube when side is given.</p> <p>5.4 Solve problems with the help of 5.2 & 5.3.</p>	QT2
7	Mensuration (Surface area & volume of a prism)	<p>6.1 Define a prism.</p> <p>6.2 Explain the formulae for areas of curved surfaces of prism.</p> <p>6.3 Explain the formulae for volume of prism when base and height are given.</p> <p>6.4 Solve problems related to 6.2, 6.3</p>	CT2
8	Mensuration (Area & volume of Parallelepiped and cylinder)	<p>7.1 Define a parallelepiped and a cylinder.</p> <p>7.2 Explain the formulae for areas of curved surfaces of parallelepiped and cylinder.</p> <p>7.3 Explain the formulae for volume of parallelepiped and cylinder when base and height are given.</p> <p>7.4 Solve problems related to 7.1, 7.2, 7.3</p>	

9	Mensuration (Surface area & volume of pyramid)	8.1 Define pyramid. 8.2 Explain the formula for areas of curved surfaces of pyramid. Explain the formula for volumes of pyramid. 8.3 Solve problems related to 8.2, 8.3.	QT3
10	Mensuration (Surface area & volume of cone and sphere)	9.1 Define cone and sphere. 9.2 Explain the formula for areas of curved surfaces of cone and sphere. 9.3 Explain the formula for volumes of cone and sphere. 9.4 Solve problems related to 9.2, 9.3	CT3
11	GEOMETRY: Conic or conic sections:	10.1 Define Conic, Focus, Directorix and Eccentricity. 10.2 Find the equations of Parabola, Ellipse and Hyperbola. 10.3 Solve problems related to Parabola, Ellipse and Hyperbola	
12	CALCULAS: Differential Equations of first order and first degree	11.1 Define differential equation, ordinary & partial differential equation. 11.2 Define order and degree of differential equation. 11.3 Solve the differential equations of the form: Variable separable.	
13	Differential Equations of first order and first degree of homogeneous equations:	12.1 Define Homogeneous equation & Homogeneous differential equation. 12.2 Define order and degree of differential equation. 12.3 Solve the differential equations of the form: Homogeneous equation	
14	First order and first degree of Exact differential equations	13.1 Define Exact differential equation. 13.2 Define integrating factor. 13.3 Solve problems related to Exact differential equations	QT4
15	First order and first degree of Linear differential equations:	14.1 Define Linear differential equation. 14.2 Define integrating factor, Bernoulli's equation. 14.3 Solve problems related to Linear differential equations	CT4
16	Laplace Transformation	15.1 Define Laplace transformation in the form $F(s) = \int_0^{\infty} f(t)e^{-st} dt$ 15.2 Express the deduction of Laplace transformation of the following functions. (i) Constant (ii) t (iii) t^n (iv) e^{at} (v) $\sin at$ (vi) $\cos at$ (vii) $e^{at} t^n$ (viii) $e^{at} \sin bt$ (ix) $e^{at} \cos bt$ 15.3 Define inverse Laplace transformation 15.4 Solve problem related to 15.1, 15.2, 15.3	

Detailed Syllabus (Practical):

Sl	Experiment name with procedure	Remarks
1	Find out the area of triangle	
2	Find out the areas of quadrilateral, parallelogram, rhombus & trapezium	
3	Calculate the areas of regular polygon	
4	Calculate the areas of circle, sector and segment	
5	Find out the area & volume of a rectangular solid	
6	Calculate the surface area & volume of a prism	
7	Find out the area & volume of cylinder	
8	Calculate the surface area & volume of pyramid	
9	Find out the surface area & volume of cone and sphere	
10	Solve the problems related to conic sections & differential equation	

Necessary Resources (Tools, equipment's and Machinery):

Sl	Item Name	Quantity	Remarks
1	Scale	1 no	
2	Geometric Box	1 no	