

TRIGOMETRY SYLLABUS

1. **Trigonometric Angles**

Sign conventions. Angular measurement systems: Sexagesimal, centesimal, radians.
Degree-minute-second conversions.

2. **Arc Length & Circular Sectors**

Arc length calculations. Sector area. Circular trapezoids. Wheel rotation problems.

3. **Trigonometric Ratios of Acute Angles**

Special triangles (30-60-90, 45-45-90). Reciprocal/complementary ratios.
Vertical/horizontal angles.

4. **Right Triangle Solutions**

Solving right triangles using trigonometric ratios.

5. **Standard Position Angles**

Quadrantal/coterminal angles. Signs of trig functions by quadrant.

6. **Reference Angle Reduction**

Reducing angles to first quadrant. Complementary/supplementary relations.

7. **Unit Circle**

Arc coordinates. Trigonometric lines. Polygon areas using trig functions.

8. **Fundamental Identities**

Pythagorean, quotient, and reciprocal identities.

9. **Compound Angle Identities**

Sum/difference formulas.

10. **Multiple Angle Identities**

Double/triple/half-angle formulas.

11. **Product-Sum Formulas**

Converting products to sums and vice versa.



12. Trigonometric Functions I

Sine/cosine/tangent: Domain, range, periodicity.

13. Trigonometric Functions II

Cotangent/secant/cosecant. Versine/coversine/exsecant.

14. Inverse Trig Functions

Arcsine/arccosine/arctangent domains and properties.

15. Trigonometric Equations

General/particular solutions. Unit circle solutions.

16. Trigonometric Inequalities

Graphical/analytical solving methods.

17. Oblique Triangles

Law of Sines/Cosines. Brocard points.

18. Analytic Geometry

Distance formula. Line equations.

19. Conic Sections I

Lines/circles/parabolas.

20. Conic Sections II

Ellipses/hyperbolas.

21. Coordinate Transformations

Axis translation/rotation.

22. Spherical Trigonometry

Polar triangles. Spherical right triangles.

23. Polar Coordinates

Conversion to rectangular coordinates.

24. Complex Numbers

Polar/exponential forms. De Moivre's Theorem.

25. Trigonometric Series

Summation of cosine series.



26. Trigonometric Limits

Fundamental limit properties.

27. Derivatives

Basic differentiation of trig functions.

