



**TRINITY COLLEGE FOR WOMEN  
NAMAKKAL  
Department of Mathematics**

**ANALYTICAL GEOMETRY OF 2D & 3D  
23UMA03 - EVEN Semester**

**Applications of 2D & 3D**

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# Analytical geometry

Analytic geometry is a branch of mathematics that uses algebraic methods and symbolism to study geometry using a coordinate plane.

It is also known as Cartesian geometry or coordinate geometry.

It is used in many fields including physics, engineering, aviation, rocketry, space science and space flight.

# Real life applications of 2D

## Computer Graphics

Geometry gives a realistic look to the characters and landscapes in the virtual world.

## Jewelry

Geometric shapes like circles, squares, and triangles are used in the design of rings, pendants and earrings.

## Video Games

Geometric computations are used to design the graphics in a game's world

## Interior design

Geometry is used to transform homes, offices, malls, playgrounds and more into aesthetic spaces.

## Astronomy

Geometry is used to map the stars, planets and moon, including their orbits, distances and placements

## GPS

Geometry is used to map longitudes and latitudes, which allows us to use GPS to navigate from one place to another

# Application of 3D

## Architecture

3D geometry is used in the construction of buildings, dams, roads and temples.

for example

the Bank of China Tower in Hong Kong uses a triangular base to reinforce the tower against strong winds

## Map projection

3D curved objects can be projected onto a flat 2D surface using a projected coordinate system.

this is used to display maps on computer screens.

## Art

Artists use geometry to design paintings, apparel and accessories

## Sports

The pitches of sports like rugby take geometrical considerations into account, such as the presence of oval and circular arcs

## Robotics

3D geometry is applied to basic concepts in robotics



## Computer Graphics

3D geometry is used in the art and creativity of audiovisual presentations for education and entertainment.

## Astronomy

Astronomers use geometry to measure the orbits and distance between planets and satellites

# THANK YOU

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