

EAR743	Elective -I (iii) Space Syntax and Geometry of Forms	HRS 3-0-0	CR-3
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Obj

Objectives

To make the student understand the geometry of complex forms and to generate ideas for creative structural solutions. To introduce the concept and application of space syntax.

Module 1

Evolution of forms through different period of history; vaults, flying buttresses, tents, masted structures & bridges through ancient & medieval history; Post Industrial modular construction of large span & suspension structures in steel and concrete- examples of iconic projects.

Module 2

Properties and application of Platonic solids, Archimedean solids - different types of Polyhedra, pairs of related tetrahedral forms, Compounds of stellated dodecahedron; Prism and its specializations, Antiprism and Dipyramid.

Module 3

Thin shell structures - properties, construction materials and application, Geodesic dome; Tensile structures – types of pneumatic structures; Suspended cable structures – types of cable network systems, shapes of cable suspended systems; Ellipsoid, hyperboloids and parabolic intersections.

Module 4

Introduction to the concept of Space Syntax, application in analysing spatial configuration of buildings, settlements, and urban texture and geometry.

Module 5

Different Parametric form generation using simulation tools and techniques or model making as decided by the faculty.

References

1. Gasson, Peter C., Geometry of spatial forms, Ellis Horwood/John Wiley, Chichester/New York, 1983.
2. Al-Sayed, K., Turner, A., Hillier, B., Iida, S., Penn, A., Space Syntax methodology, UCL: London, 2014.