

DETAILED SYLLABUS OF 5 YEAR B.ARCH PROGRAMME

SEMESTER I

THEORY

AH113	Applied Mathematics	HR 3-0-0	CR-3
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Objective

The course is aimed to develop basic mathematical techniques required to support architectural and engineering concepts, and is also oriented to understand and analyse practical engineering problems. The course modules cover statistics and linear programming, which will enable the students to analyse field study data and formulate mathematical models.

Module I

GEOMETRY AND MEASUREMENTS

Proportion, Golden ratio, Euclidean geometry, Methods to calculate areas, surface areas of solids and volumes for various geometrical shapes (types of curves) and volumes (cube, sphere, cone, cylinder)

Module 2

CALCULUS & APPLICATIONS

Methods of differentiation. Calculus of one variable
Fundamentals of Integral calculus, Maxima and Minima for a function of one variable, Reduction Formulae, Calculation of areas using integrals: Area bounded by curve – Arc length of curve.

Module 3

MATRICES&BASICS OF LINEAR PROGRAMMING

Elementary rows & column transformation, Gauss elimination & solution of System of equations, Inverse matrix.
Formulation of Linear Programming, Graphical solution, Simplex method.

Module 4

STATISTICS

Measures of central tendency, Mean/ Median mode, measures of dispersion (Mean deviation/ Standard Deviation, Variance), Co-relation and Regression.

Module 5

Relevant mathematical topics as decided by the subject faculty

References

1. Kreyszig, E., Advanced Engineering Mathematics. Hoboken: John Wiley & Sons, 2007.
2. Grewal B.S., Higher Engineering Mathematics, 35th edition, Khanna Publishers, 2000.
3. Kapoor, V. K. and Gupta, S. C., Fundamentals of Mathematical Statistics, Sultan & Sons
4. Kalavathy, S., Operation Research, Vikas Publishing House Pvt. Ltd., 2009
5. Boucher, J. S., 1857, Mensuration, Plane and Solid, Longman, Brown, Green, Longmans and Robert, London.