SYLLABI OF THIRD SEMESTER

EN04 301A ENGINEERING MATHEMATICS
(Common for all B.Tech. programme except CS and IT)

3 hours lecture and 1 hour tutorial per week

Module I

Linear Algebra: Vector spaces- linear dependence and impedance, and their computation- Bases and dimension- Subspaces- Inner product spaces- Gram-Schmidt orthogonalization process- Linear transformations- Elementary properties of linear transformations- Matrix of a linear transformation. (Proofs of theorems omitted)

Module II

Fourier Transforms: Fourier integral theorem (proof not required)- Fourier sine and cosine integral representations- Fourier transforms- Fourier sine and cosine transforms- Properties of Fourier transforms- Singularity functions and their Fourier transforms.

Module III

Probability Distributions: Random variables- Mean and variance of probability distributions- Binominal and Poisson distributions- Poisson approximation to binominal distribution- Hypergeometric and geometric distributions- Probability densities- Normal, uniform and gamma distributions.

Module IV

Theory of Inference: Population and samples- Sampling distributions of mean and variance- Point and interval estimations- Confidence intervals for mean and variance- Tests of hypotheses- Hypotheses concerning one mean, two mean, one variance and two variances- Test of goodness of fit.

TEXT BOOKS

For Module I

K. B. Datta, *Matrix and Linear Algebra for Engineers*, Prentice-Hall of India, New Delhi, 2003.
(Sections: 5.1, 5.2, 5.3, 5.4, 5.5, 5.8, 6.1, 6.2, 6.3)

For Module II

C R Wylie & L C Barrett, *Advanced Engineering Mathematics (Sixth Edition)*, McGraw Hill.
(Sections: 9.1, 9.3, 9.5)

For Module III

Richard A Johnson, *Miller & Freund's Probability and Statistics for Engineers*, Pearson Education, 2000.
(Sections: 4.1, 4.2, 4.3, 4.4, 4.6, 4.8, 5.1, 5.2, 5.5, 5.7)

For Module IV

Richard A Johnson, *Miller & Freund's Probability and Statistics for Engineers*, Pearson Education, 2000.
(Sections: 6.1, 6.2, 6.3, 7.1, 7.2, 7.4, 7.5, 7.8, 8.1, 8.2, 8.3, 9.5)

REFERENCES

1. Bernard Kolman & David R Hill, *Introductory Linear Algebra with Applications (Seventh Edition)*, Pearson Education, 2003.
2. Lipschutz S, *Linear Algebra – Schaum's Outline Series*, McGraw Hill
3. Erwin Kreyszig, *Advanced Engineering Mathematics (Eighth Edition)*, John Wiley & Sons.
4. Larry C Andrews & Bhimsen K Shivamoggi, *Integral Transforms for Engineers*, Prentice-Hall of India, 2003.
5. Ronald E Walpole, et al, *Probability and Statistics for Engineers and Scientists(Seventh Edition)*,

Pearson Education, 2004
6. Robert V Hogg & Elliot A Tanis, *Probability and Statistical Inference*, Pearson Education, 2003.
7. Chatfield C, *Statistics for Technology, Chapman & Hall*

Internal work assessment

60 % - Test papers (minimum 2)
30 % - Assignments/Term project/any other mode decided by the teacher.
10 % - Other measures like Regularity and Participation in Class.
Total marks = 50

University examination pattern

Q I - 8 short type questions of 5 marks, 2 from each module
Q II - 2 questions A and B of 15marks from module I with choice to answer any one
Q III - 2 questions A and B of 15marks from module II with choice to answer any one
Q IV - 2 questions A and B of 15marks from module III with choice to answer any one
Q V - 2 questions A and B of 15marks from module IV with choice to answer any one