

Syllabus for Ph.D. admission Test 2021-22

Department of Instrumentation and Electronics Engineering:-

Part 1: Research Methodology

1. Research Ethics and Codes of Practice: Types of Ethical Issues; Plagiarism-Definition and names of popular tools.
2. Matrix algebra, systems of linear equations, Eigenvalues and Eigenvectors
3. Calculus: Mean value theorem, maxima, and minima,
4. Fourier series and Fourier Transform
5. Differential equations: First order equation (linear)
6. Statistics: Analysis of central tendency. Mean, median, mode, standard deviation; Probability, Sampling distribution; Estimation, Hypothesis testing & application; Correlation & regression analysis; Hypothesis testing; Test of Significance, 'p'-value, 't' test, chi-square test
7. Design of experiments – Methodology selection; Data collection and quantitative analysis of patterns - Orthogonal array, ANOVA.
8. Numerical methods –
 - a) Solution of algebraic equations: Newton Raphson method, Bisection method
 - b) Interpolation methods: Newton's forward and backward difference formula e.
 - c) Numerical integration: Numerical integration using Trapezoidal, Simpson's 1/3 rule
 - d) Fourth order Runge-Kutta method for solving first-order equations

Reference Books:

1. E. Kreyszig, Advanced Engineering Mathematics, John Wiley & Sons.
2. B. V. Ramana, Higher Engineering Mathematics, Tata McGraw-Hill Publishing Company Ltd.
3. R.K.Jain & S.R.K. Iyengar, Advance Engineering Mathematics, Narosa Publishing House.
4. B.S. Grewal, Higher Engineering Mathematics, Khanna Publishers.
5. Montgomery, Douglas C. (2007) 5/e, Design and Analysis of Experiments (Wiley India).
6. Montgomery, Douglas C. & Runger, George C. (2007) 3/e, Applied Statistics & probability for Engineers (Wiley India).
7. Roig, M. Avoiding plagiarism, self-plagiarism, and other questionable writing practices : A guide to ethical writing, (2006).
8. Vaughan, L. Statistical methods for the information professional: A practical, painless approach to understanding, using and interpreting statistics (Ed. 2), (2004) Information Today, Medford.
9. J.B. Scarborough: Numerical Mathematical Analysis.

Part 2: Syllabus of Instrumentation and Electronics Engineering

UG & PG syllabus of Instrumentation and Electronics Eng, JU

http://www.jaduniv.edu.in/upload_files/course_file/1609939485-1.pdf

http://www.jaduniv.edu.in/upload_files/course_file/1269515401-2.pdf.