

Syllabus for Ph.D. Admission Test 2021-22

Department of Electrical Engineering:-

Part-I - Research Methodology (50% of total marks of the Entrance Examination)

Part-II – Subject Specific (Electrical Engineering) (50% of total marks of the Entrance Examination)

Part-I - Research Methodology

Motivation and objectives: Definition of research problem, identifying research gaps from literature and research database, development of working hypothesis, selecting a problem.

Research Design: Method and tool selection, fundamental concepts and basic ideas related to Electrical Engineering research, data acquisition, simulation and analysis methods.

Conducting the Research work: Basic knowledge of research tools, application of practical experimental procedures, simulation studies and use of instruments related to Electrical Engineering, use of computers and programming languages (mainly C, C++), numerical computation methods (curve fitting, parameter estimation, optimization). Basic ideas of signal/data processing, transforms and analysis strategies. Elementary mathematical and statistical concepts, mean, median, standard deviation, normalization, standardization, distribution functions, error analysis. Graphical representation of data.

Research Ethics, Scholarly Publishing and Report writing: Basic ideas of ethical issues, plagiarism, scholarly publishing- various modes, Impact of publishing, design of research paper, citation and acknowledgement.

Suggested readings:

1. C.R. Kothari, Research Methodology: Methods and Techniques. Second Edition. New Age International Publishers, New Delhi.
2. B.S. Grewal. Higher Engineering Mathematics. Khanna Publishers

Part -II - Subject specific (As per **Electrical Engineering** syllabus for Graduate Aptitude Test in Engineering (**GATE**) examination of current year- 2021)

Note: i) The screening process of the applicants appearing in the entrance test also includes an interview apart from the examination. The syllabus of the interview is same as that of the entrance test. The weightage of the obtained marks in the entrance test and that of the interview will be 50% each for this preliminary screening.

ii) Applicants selected through the above-mentioned screening and all of the CSIR-NET/UGCNET/GATE/GPAT/SET/QIP qualified applicants will have to appear for a presentation cum viva-voce for final selection. Presentation should be on the proposed research plan.