

**Department of Engineering Design
Indian Institute of Technology Madras
Guidelines for conducting the Ph.D. Comprehensive Examination
In effect from July 2017 to June 2019**

The Comprehensive Examination (CE) will consist of the following three components:

- a) Core written exam (3 hours, 20 marks),
- b) Elective written exam (3 hours), and
- c) Viva voce (40 marks).

The written exams (a and b) will be held on separate days and the viva voce will be conducted on a different day.

The candidate is expected to choose one of the following topics for the core written examination:

Mechanical Science:

1. Mechanics of Rigid Bodies
2. Mechanics of Deformable Bodies
3. Machine Design
4. Manufacturing Science

Electrical Science:

5. Analog Circuits
6. Digital Circuits
7. Microprocessor and Microcontroller
8. Signals and Systems

Computer Science:

9. Data Structures and Algorithms

The comprehensive exams will be conducted in February and August of each year. The HOD will announce the date of the written exam every semester and all the candidates are expected to take the written exams on this date.

The candidate cannot bring any material (written/printed) to the exam.

Conduct of viva voce: The candidate will be given a research paper (by his/her guide(s)) at least 2 weeks before the viva voce to prepare a critique of the same. This critique constitutes the viva voce presentation. This presentation should not exceed 10 slides with only one slide allotted for the proposed area of research. The candidate is expected to present a critical overview of this paper in the following aspects: problem definition, methodology adopted, results obtained, potential contributions and shortcomings. The candidate is expected to make this presentation within 10 minutes.

Pass Criteria: A research scholar is considered to pass the comprehensive examination if

1. *He/she secures a minimum of 60 marks (out of 100 marks) in the sum of the marks of the written exams and the viva voce, AND*
2. *He/she secures a minimum of 50 % in each of three components (i.e., at least 10 out of 20 in the core exam, 20 out of 40 in the elective exam and 20 out of 40 in the viva voce).*

Responsibilities of the Research Scholar:

1. Contact the guide(s) in November/May to discuss the written exams.
2. Inform the ED office regarding the choice of the core and elective paper.
3. Contact the guide(s) periodically to receive the elective exam syllabus by December/June.
4. Obtain the research paper for critiquing at least 2 weeks before the date of viva voce.
5. Prepare the viva voce presentation conforming to the instructions given.

This set of regulations will be followed for 2 years from July 2017 to June 2019.