

The PhD Qualifying Exam

The *PhD Qualifying Exam* is administered according to the Middle East Technical University Rules and Regulations for the Graduate Studies that are stated in the following link:

<http://oidb.metu.edu.tr/en/middle-east-technical-university-rules-and-regulations-governing-graduate-studies-0>

The **Article 42** of the Rules and Regulations --that is restated below-- is pertinent to the *PhD Qualifying Exam*.

Article 42 – The doctoral comprehensive examination (the PhD Qualifying Exam)

- (1) The doctoral comprehensive examination (DCE) is the assessment of the students' knowledge of the basic subjects and concepts in their field, and of whether they possess the depth of scientific research related to doctoral work.
- (2) In order to be eligible to take the DCE, students should successfully complete the courses and the seminar course, and their Cumulative Grade Point Average should be at least 3.00.
- (3) A student may take the DCE twice the most.
- (4) The DCE is administered twice a year, in May and November. The names of applicants for the DCE are submitted by the chair of the GSD to the concerned GS one month prior to the exam.
- (5) Students in Ph.D. programs must take the DCE latest by the end of the fifth semester, and students in Ph.D. on Bachelor's degree programs must take it latest by the end of the seventh semester.
- (6) Comprehensive examinations are arranged and administered by a Doctoral Comprehensive Board of five faculty members from the concerned GSD who are assigned for a three-year term by recommendation of the chair of the GSD and approval of the concerned GSAB. The Board sets up examination juries in order to prepare exams in varied fields, and administer and evaluate these exams. An examination jury comprises five members, at least two of whom are from outside the University and one of whom is the student's thesis supervisor. The supervisor has a right to vote. The DCE meetings may be open to instructors, graduate students and experts in the field. However, the audience is asked to leave the room during the decision phase.
- (7) The DCE consists of written and oral examinations that will assess the students' competence in the related field and their disposition towards research. The DCE is conducted in English in its entirety.
- (8) Students who succeed in the written examination take an oral examination. The exam format and weight, success criteria and the calculation of the exam grades are determined by the Doctoral Comprehensive Board. The jury decides, by absolute majority, whether a student is to be deemed "successful" or "unsuccessful" by evaluating the results of the written and oral components of the exam. The concerned GS is notified of this decision latest within three days in an official report approved by Doctoral Comprehensive Board.

- (9) The DCE jury may require a student who is successful in the DCE to take a course / courses additional to those taken even if the course load requirements have been fulfilled. Upon approval by the Doctoral Comprehensive Board, the concerned GS is notified of these courses through the concerned GSD chair. The student must earn the letter grade BB minimum in the specified courses. These courses are taken in NI status and are not counted in the Cumulative Grade Point Average. A student who cannot successfully complete these courses within the maximum period may not defend her/his thesis before a jury and is dismissed from the program.
- (10) Students who fail their first exam re-sit the exam in the ensuing semester. If a student is deemed unsuccessful once again, then she/he is dismissed from the program.
- (11) Students who fail to sit any phase of the DCE are considered to have exercised their right to take that exam and are deemed unsuccessful in that phase.

The Written and Oral Exams for the IE and OR Students

As declared in Article 42 (7) of the rules and regulations, the ***PhD Qualifying Exam*** consists of a ***Written Exam*** and an ***Oral Exam***.

For the IE and OR students, the ***Written Exam*** consists of two parts: ***In-Class Exam*** and ***Take-Home Exam***.

In-Class Exam consists of the following four core courses:

1. IE553 Linear Optimization
2. IE561 Stochastic Processes I
3. One of the following two courses based on the choice of the student
 - IE554 Discrete Optimization
 - IE555 Nonlinear Optimization
4. One of the following three courses based on the choice of the student
 - IE562 Stochastic Processes II
 - IE566 The Design and Analysis of the Experiments
 - IE568 Statistical Applications in Engineering

A list of books --that can be used in the exam-- is provided prior to the exam date.

Take-Home Exam includes questions of ***two*** topics from the courses that the student has taken during his/her graduate studies. ***Two*** days are given to complete the take-home exam.

Oral Exam is publicly open. Any jury member or lecturer may ask questions related with the written exam or from the field of industrial engineering and/or operations research.