

COMPUTER ENGINEERING (CENG) SCREENING EXAM

The Computer Engineering Division's Screening Exam consists of the following steps:

- I) **The Written Exam**: Students should answer a number of written questions covering 4 basic (400 level) courses in 120 minutes.

A student chooses 4 courses at the 400 level as follows:

- Choose at least two out of the following three courses: **1)** EE465 (Probability), **2)** EE457 (Computer Architecture), **3)** CS402 (Operating Systems).
- Choose one or two more courses (to bring the total to exactly four courses) from the following courses: **1)** EE477 (VLSI), **2)** EE450 (Computer Networks), **3)** EE467 (Digital Communications).

Each exam in the 4 selected courses has the same weight (10 points out of a total of 40).

II) **The Filter**: Students who fail to get more than 50% (20/40) in the written exam will not be allowed to take the oral exam (III below) and will fail the screening exam. Even if a student does not fail the written exam, the score of the written exam will still be taken into account in the overall screening exam score.

III) **The Oral Exam**: up to 90 minute oral exam in front of a committee of 3 professors.

A student must choose two courses from one or two of the following areas (the list of eligible courses is provided at the end of this document):

- Computer Architecture
- Digital Systems Design (VLSI/CAD)
- Computer Networks

If the student chooses courses from two different areas, then he/she should designate one of these areas as a major area and the other as a minor area. In this case, two (out of three) examiners will be assigned from the designated major area, and one examiner will be assigned from the minor area.

Following is the list of eligible courses in each of the areas for the oral exam. A student should select two courses in this list. The committee will take these courses into consideration during the exam. But the questions can (and most probably will) go beyond the courses to test research capability.

Eligible courses at the 500/600 level for the oral PhD screening exam in Computer Engineering (CENG):

1) In the area of Computer Architecture:

EE 554 Real Time Computer Systems
EE 557 Computer Systems Architecture
EE 532 Wireless Internet and Pervasive Computing
EE 653 Advanced Topics in Micro-architectures
EE 657 Parallel Processing
EE 659 Interconnection Networks
EE 677 VLSI Architectures and Algorithms

2) In the area of Digital Systems Design (VLSI/CAD)

EE 552 Logic Design and Switching Theory

EE 577a VLSI System Design

EE 536a Integrated Circuit Analysis and Design

EE 658 Diagnosis and Design of Reliable Digital Systems

EE 680 Computer Aided Design of Digital Systems I

EE 681 Computer Aided Design of Digital Systems II

3) In the area of Computer Networks

EE 549 Queuing Theory for Performance Modeling

EE 550 Design and Analysis of Computer Communications

EE 555 Broadband Network Architectures

CSCI 551 Computer Communications