The TECHNICAL QUALIFYING EVALUATION (TQE): Instructions

Department of Electrical Engineering and Computer Science

Academic Year 2021-2022

New graduate students are expected to submit their TQE plan by February 1st, 2022.

To satisfy the TQE requirement, you must take four subjects from the grid found below. Two subjects must be selected from a single Group. The other two subjects must be selected from two other Groups. The approved TQE grid is found below with the subject titles and term offerings listed on the back.

TQE plans may be submitted online at: http://www.eecs.mit.edu/EECSgradrequirements.

Once you enter your TQE plan into the website, your graduate counselor will approve your submission online or offer other suggestions. Once agreed upon by you and your graduate counselor, your TQE plan will be recorded by the Graduate Office. If you later need to make changes to your submitted TQE plan, please see Janet Fischer in the EECS Graduate Office.

<table>
<thead>
<tr>
<th>Group 1: Systems in CS</th>
<th>Group 2: Theoretical CS</th>
<th>Group 3: Artificial Intelligence</th>
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<tbody>
<tr>
<td></td>
<td>(*see notes below)</td>
<td>[6.832 xor 6.843],</td>
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<td></td>
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<td>6.838, 6.839*, 6.871</td>
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<td></td>
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<td>[6.874 xor 6.878], 6.884</td>
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<tr>
<td>[6.251 xor 6.255],</td>
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<td>[6.437 xor 6.438],</td>
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<td>(Any 1 or 2 subjects allowed)</td>
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<tr>
<th>Group 7: Bioelectrical Engineering</th>
<th>Group 8: Electromagnetics</th>
<th>Group 9: Physical Science and Engineering</th>
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<tbody>
<tr>
<td>(Any 1 or 2 subjects allowed)</td>
<td>[6.640 xor 6.685], 6.561</td>
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Notes:
* 6.840 or 6.854 are recommended for students who plan to take only one subject in Group 2.
* For students with a strong background in the area, 6.841 may be substituted for 6.840—submit dept petition.
* 6.839 can be used as the second AI subject, but not the only subject.
IMPORTANT: CHECK ONLINE at http://student.mit.edu/catalog/m6a.html

NOT offered academic year
2021-2022
NOT offered academic year
2022-2023

Group 1: Systems in Computer Science
Spring 6.375 Complex Digital Systems Design
Fall 6.820 Foundations of Program Analysis
Spring 6.822 Formal Reasoning about Programs
Fall 6.823 Computer System Architecture
Spring 6.824 Distributed Computer Systems Engineering
Spring 6.825 Hardware Architecture for Deep Learning
Fall 6.829 Computer Networks
Spring 6.830 Database Systems
Fall 6.836 Multicore Programming
Spring 6.858 Computer Systems Security

Group 2: Theoretical Computer Science
Fall 6.840 Theory of Computation
Spring 6.841 Advanced Complexity Theory
Spring 6.850 Geometric Computing
Fall 6.852 Distributed Algorithms
Fall 6.854 Advanced Algorithms
Spring 6.856 Randomized Algorithms
Fall 6.875 Cryptography and Cryptanalysis

Group 3: Artificial Intelligence
Spring 6.345 Spoken Language Processing
Spring 6.437 Inference and Information
Fall 6.438 Algorithms for Inference
Spring 6.832 Underactuated Robotics
Spring 6.838 Shape Analysis
Fall 6.839 Advanced Computer Graphics
Fall 6.843 Robotic Manipulation
Spring 6.863 Natural Language and the Computer Representation of Knowledge
Fall 6.864 Advanced Natural Language Processing
Fall 6.866 Machine Vision
Fall 6.867 Machine Learning
Spring 6.869 Advances in Computer Vision
Spring 6.871 Machine Learning for Healthcare
Spring 6.874 Computational Systems Biology: Deep Learning in the Life Sciences
Fall 6.878 Advanced Computational Biology: Genomes, Networks, Evolution
Spring 6.884 Sensorimotor Learning

Group 4: System Science and Control Engineering
Spring 6.231 Dynamic Programming and Reinforcement Learning
Spring 6.241 Dynamic Systems and Control
Fall 6.251 Introduction to Mathematical Programming
Fall 6.255 Optimization Methods
Fall 6.341 Discrete-Time Signal Processing
Spring 6.344 Digital Image Processing
Spring 6.555 Biomedical Signal and Image Processing

Group 5: Circuits and Electronic Systems
Spring 6.334 Power Electronics
Fall 6.336 Introduction to Numerical Simulation
Fall 6.374 Analysis and Design of Digital Integrated Circuits
Spring 6.775 CMOS Analog and Mixed-Signal Circuit Design

Group 6: Information Science and Communication
Spring 6.262 Discrete Stochastic Processes
Fall 6.267 Heterogeneous Networks: Architecture, Transport, Protocols and Management
Fall 6.436 Fundamentals of Probability
Spring 6.437 Inference and Information
Fall 6.438 Algorithms for Inference
Fall 6.441 Information Theory
Fall 6.450 Principles of Digital Communication

Group 7: Bioelectrical Engineering
Fall 6.521 Cellular Neurophysiology and Computing
Spring 6.522 Quantitative Physiology: Organ Transport Systems
Fall 6.556 Data Acquisition and Image Reconstruction in MRI

Group 8: Electromagnetics
Fall 6.561 Fields, Forces, and Flows in Biological Systems
Fall 6.630 Electromagnetics
Fall 6.631 Optics and Photonics
Spring 6.634 Nonlinear Optics
Fall 6.640 Electromagnetic Fields, Forces and Motion
Spring 6.685 Electric Machines (next offering unknown)

Group 9: Physical Science and Engineering
Fall 6.720 Integrated Microelectronic Devices
Fall 8.728 Applied Quantum and Statistical Physics
Spring 8.730 Physics for Solid-State Applications