The TECHNICAL QUALIFYING EVALUATION (TQE)
Department of Electrical Engineering and Computer Science
Academic Year 2017-2018

Instructions for Graduate Counselors:

Entering graduate students must complete the Technical Qualifying Evaluation (TQE). Their TQE plan must be submitted by Feb. 1st of the spring term following entry into the program. Students are encouraged to complete the TQE by the third term as a graduate student (summer session is not included).

To satisfy the TQE requirement, four subjects are required from an approved TQE grid composed of 9 Groups. Two subjects must be selected from a single Group. The remaining two subjects must be selected from two other Groups. A minimum of three grades of A, and one grade of B must be obtained to pass the TQE outright.

The approved TQE grid is found below with the subject titles and their term offering listed on the following page.

<table>
<thead>
<tr>
<th>Group 1: Systems in CS</th>
<th>Group 2: Theoretical CS</th>
<th>Group 3: Artificial Intelligence</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.820, 6.824, 6.829, 6.830, 6.375, 6.823, 6.836, 6.858, 6.831 (see note below)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.840 (see note below), 6.841, 6.850, 6.852, 6.854, 6.856, 6.875</td>
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<tr>
<td>(Any 1 or 2 subject allowed)</td>
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<table>
<thead>
<tr>
<th>Group 4: System Science and Control Engineering</th>
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<table>
<thead>
<tr>
<th>Group 5: Circuits and Electronic Systems</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.334, 6.336, 6.374, 6.775</td>
</tr>
<tr>
<td>(Any 1 or 2 subject allowed)</td>
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</table>

<table>
<thead>
<tr>
<th>Group 6: Information Science and Communication</th>
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</table>

<table>
<thead>
<tr>
<th>Group 7: Bioelectrical Engineering</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.521, 6.522</td>
</tr>
<tr>
<td>(Any 1 or 2 subject allowed)</td>
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</table>

<table>
<thead>
<tr>
<th>Group 8: Electromagnetics</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.630, 6.631, 6.634, 6.561, 6.685</td>
</tr>
<tr>
<td>(Any 1 or 2 subject allowed)</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Group 9: Physical Science and Engineering</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.720, 6.728, 6.730</td>
</tr>
<tr>
<td>(Any 1 or 2 subject allowed)</td>
</tr>
</tbody>
</table>

Note: Students in Area II (CS) select subjects from Group 1, 2, 3 only (shaded boxes)
- 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.
- 6.831 can be the second subject in Group 1 or 3, but not the only subject in either group.
<table>
<thead>
<tr>
<th>Group 1: Systems in CS</th>
<th>Fall</th>
<th>Spring</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.820 Foundations of Program Analysis</td>
<td>6.824 Distributed Computer Systems Engineering</td>
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<tr>
<td>6.829 Computer Networks</td>
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<tr>
<td>6.830 Database Systems</td>
<td>6.375 Complex Digital Systems Design</td>
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<tr>
<td>6.823 Computer System Architecture</td>
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<tr>
<td>6.836 Multicore Programming</td>
<td>6.858 Computer Systems Security</td>
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<tr>
<td>6.831 User Interface Design and Implementation</td>
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</tbody>
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<thead>
<tr>
<th>Group 2: Theoretical CS</th>
<th>Fall</th>
<th>Spring</th>
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<tbody>
<tr>
<td>6.840 Theory of Computation</td>
<td>6.841 Advanced Complexity Theory</td>
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<tr>
<td>6.850 Geometric Computing</td>
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<tr>
<td>6.854 Advanced Algorithms</td>
<td>6.856 Randomized Algorithms</td>
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<tr>
<td>6.852 Distributed Algorithms</td>
<td>6.875 Cryptography and Cryptanalysis</td>
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<tr>
<th>Group 3: Artificial Intelligence</th>
<th>Fall</th>
<th>Spring</th>
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<tbody>
<tr>
<td>6.345 Automatic Speech Recognition</td>
<td>6.863 Natural Language and the Computer Representation of Knowledge</td>
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<tr>
<td>6.864 Advanced Natural Language Processing</td>
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<tr>
<td>6.866 Machine Vision</td>
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<tr>
<td>6.869 Advances in Computer Vision</td>
<td>6.437 Inference and Information</td>
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<tr>
<td>6.438 Algorithms for Inference</td>
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<tr>
<td>6.867 Machine Learning</td>
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<tr>
<td>6.832 Underactuated Robotics</td>
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<tr>
<td>6.831 User Interface Design and Implementation</td>
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<tr>
<td>6.839 Advanced Computer Graphics</td>
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<tr>
<td>6.874 Computational Systems Biology</td>
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<tr>
<td>6.878 Advanced Computational Biology: Genomes, Networks, Evolution</td>
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<th>Group 4: System Science and Control Engineering</th>
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<tbody>
<tr>
<td>6.231 Dynamic Programming and Stochastic Control</td>
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<tr>
<td>6.241 Dynamic Systems and Control</td>
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</tr>
<tr>
<td>6.251 Introduction to Mathematical Programming</td>
<td>6.341 Discrete-Time Signal Processing</td>
</tr>
<tr>
<td>6.255 Optimization Methods</td>
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</tr>
<tr>
<td>6.344 Digital Image Processing</td>
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<tr>
<td>6.555 Biomedical Signal and Image Processing</td>
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<tr>
<td>6.334 Power Electronics</td>
<td>6.336 Introduction to Numerical Simulation</td>
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<tr>
<td>6.436 Fundamentals of Probability</td>
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<tr>
<td>6.437 Inference and Information</td>
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<tr>
<td>6.438 Algorithms for Inference</td>
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<tr>
<td>6.441 Information Theory</td>
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<tr>
<td>6.450 Principles of Digital Communication</td>
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<td>6.453 Quantum Optical Communication</td>
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<th>Group 7: Bioelectrical Engineering</th>
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<tbody>
<tr>
<td>6.521 Cellular Neurophysiology</td>
<td>6.522 Quantitative Physiology: Organ Transport Systems</td>
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<tbody>
<tr>
<td>6.630 Electromagnetic Waves</td>
<td>6.631 Optics and Photonics</td>
</tr>
<tr>
<td>6.634 Nonlinear Optics</td>
<td>6.561 Fields, Forces, and Flows in Biological Systems</td>
</tr>
<tr>
<td>6.685 Electric Machines</td>
<td>6.720 Integrated Microelectronic Devices</td>
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<th>Group 9: Physical Science and Engineering</th>
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<tbody>
<tr>
<td>6.728 Applied Quantum and Statistical Physics Spring</td>
<td>6.730 Physics for Solid-State Applications</td>
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IMPORTANT: CHECK ONLINE at [http://student.mit.edu/catalog/m6a.html](http://student.mit.edu/catalog/m6a.html)

NOT offered academic year 2017-2018
NOT offered academic year 2018-2019