At least twenty one units of industrial and systems engineering courses related to operations research.

Twenty one units must be at 500 level or above

Courses used toward a degree completed elsewhere may not be applied toward a master's degree at USC. If courses were not used toward a completed degree, the maximum number of transfer credits that may be applied towards a 30 unit master's degree, subject to departmental approval, is four units.

<table>
<thead>
<tr>
<th>Required Prerequisite Courses</th>
<th>Where Completed</th>
<th>Course #</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calculus I, II, III</td>
<td></td>
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<td></td>
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<tr>
<td>Linear Algebra</td>
<td></td>
<td></td>
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<tr>
<td>Programming</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Probability &amp; Statistics</td>
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<tr>
<td>Engr. Economy</td>
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<tr>
<td>System Simulation</td>
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</tbody>
</table>

**REQUIRED COURSES**

<table>
<thead>
<tr>
<th>Semester</th>
<th>Course</th>
<th>Prerequisite</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>*ISE 532 – Network Flows</td>
<td>ISE 330 or ISE 536</td>
</tr>
<tr>
<td></td>
<td>ISE 536 – Linear Programming and Extensions (3 units, FaSp)</td>
<td>MATH 225 or EE 441)</td>
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<td></td>
<td>ISE 538 – Performance Analysis Using Markov Models (3 units, FaSp)</td>
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<tr>
<td></td>
<td>ISE 580 – Performance Analysis with Simulation (3 units FaSp)</td>
<td>Recommended: ISE 220, 325, 435</td>
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<tr>
<td></td>
<td>ISE 582 – Web Technology for Industrial Engineering or</td>
<td>ISE 382</td>
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<tr>
<td></td>
<td>ISE 583 – Enterprise Wide Information Systems (3 units, FaSpSm)</td>
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</tbody>
</table>

*Replacement course ISE 632

Select at least 2 of the following 10 courses:

<table>
<thead>
<tr>
<th>Semester</th>
<th>Course</th>
<th>Prerequisite</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>CE 645 – Uncertainty Modeling and Stochastic Optimization</td>
<td></td>
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<td></td>
<td>ISE 513 – Inventory Systems (3 units, Sp)</td>
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<td></td>
<td>ISE 514 – Advanced Production Planning and Scheduling (3 units, FaSp)</td>
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<td></td>
<td>ISE 520 – Optimization: Theory and Algorithms (3 units, Fa)</td>
<td>MATH 225 or EE 441</td>
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<td>ISE 525 – Design of Experiments (3 units Sp)</td>
<td>ISE 225</td>
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<td></td>
<td>ISE 539 – Stochastic Elements of Simulation (3 units, Sp)</td>
<td>corequisite ISE 538</td>
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<td></td>
<td>ISE 562 – Decision Analysis (3 units, FaSp)</td>
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<td></td>
<td>ISE 563 – Financial Engineering (3units, FaSp)</td>
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<td></td>
<td>ISE 576 – Industrial Ecology:Technology-Environment Interaction (3 units, Sp)</td>
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<td></td>
<td>SAE 541 – Systems Engineering Theory and Practice (3 units, FaSpSm)</td>
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</table>

400- or 500-level computer science course, approved by faculty advisor (3 or 4 units)

<table>
<thead>
<tr>
<th>Semester</th>
<th>Course</th>
<th>Approval and date</th>
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</thead>
</table>

Adviser Approved Electives (6 units):

<table>
<thead>
<tr>
<th>Semester</th>
<th>Course</th>
<th>Approval and date</th>
</tr>
</thead>
</table>

**Master of Science in Operations Research**

**Total 30 units**