Ten courses are required for the SSE degree, at least three of which must be 700-level. Students must complete the five core courses listed below and five electives. All courses must be completed within five years.

The student’s Advisor will consider special requests to enroll in alternate electives on a case-by-case basis.

Prerequisites below will generally apply but may be waived in special circumstances. Contact the instructor and your Advisor.

**Course offerings vary by semester or format. VL is Virtual Live.**

For a description of Virtual Live refer to [https://ep.jhu.edu/programs-and-courses/program-pathways/on-site](https://ep.jhu.edu/programs-and-courses/program-pathways/on-site)

Courses are subject to cancellation for insufficient enrollment.


If a course you plan to take is not listed in the schedule, consult your Advisor.

As of summer 2018, all 400-level EP courses were renumbered to 600-level, e.g. 675.401 became 675.601. This change allows EP courses to conform to the JHU Whiting School numbering system. These changes are incorporated below.

<table>
<thead>
<tr>
<th>Number</th>
<th>Course Title</th>
<th>Prerequisites (As listed or with advisor approval)</th>
</tr>
</thead>
<tbody>
<tr>
<td>675.600</td>
<td>Systems Engineering for Space</td>
<td>Admission into program</td>
</tr>
<tr>
<td>675.601</td>
<td>Fundamentals of Engineering Space Systems I</td>
<td>675.600</td>
</tr>
<tr>
<td>675.602</td>
<td>Fundamentals of Engineering Space Systems II</td>
<td>675.600, 675.601</td>
</tr>
<tr>
<td>675.701</td>
<td>Applications of Space Systems Engineering</td>
<td>675.600, 675.601 &amp; 675.602</td>
</tr>
<tr>
<td>675.710</td>
<td>Small Satellite Development &amp; Experimentation</td>
<td>675.600, 675.601 &amp; 675.602</td>
</tr>
</tbody>
</table>

675.600 is offered each semester. 675.601, 675.602, and 675.701 are offered fall and spring only. 675.710 is currently offered only fall and spring, it will be offered in sum 2021

### SSE PROGRAM ELECTIVES

<table>
<thead>
<tr>
<th>Number</th>
<th>Course Title</th>
<th>Prerequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>675.621</td>
<td>Space Environmental Effects (new for fall 2020)</td>
<td>675.600, 675.601</td>
</tr>
<tr>
<td>675.622</td>
<td>Spacecraft Hardware Design and Considerations (new for fall 2020)</td>
<td>N/A</td>
</tr>
<tr>
<td>675.640</td>
<td>Satellite Communications Systems</td>
<td>See course homepage</td>
</tr>
<tr>
<td>675.650</td>
<td>Mathematics for Space Systems</td>
<td>See course homepage</td>
</tr>
<tr>
<td>675.691</td>
<td>Electro-Optical Space Systems</td>
<td>N/A</td>
</tr>
<tr>
<td>675.711</td>
<td>Ground System Engineering &amp; Mission Operations</td>
<td>675.600, 675.601</td>
</tr>
<tr>
<td>675.712</td>
<td>Space Mission Formulation (new for spring 2021)</td>
<td>675.600, 675.601</td>
</tr>
<tr>
<td>675.713</td>
<td>Fault Management &amp; Autonomy: Improving Spacecraft Resilience (new for fall 2020)</td>
<td>675.600, 675.601</td>
</tr>
<tr>
<td>675.731</td>
<td>Spacecraft Propulsion</td>
<td>675.600, 675.601</td>
</tr>
<tr>
<td>675.740</td>
<td>Space Mission Assurance (under development x-list 595.740, new spring 2021)</td>
<td>675.600, 675.601</td>
</tr>
<tr>
<td>675.741</td>
<td>Passive Emitter Geo-Location (x-list 525.744)</td>
<td>675.600, 675.601, 525.614</td>
</tr>
<tr>
<td>675.751</td>
<td>Space Weather and Space Systems</td>
<td>See course homepage</td>
</tr>
<tr>
<td>675.752</td>
<td>Attitude Determination &amp; Control of Space Systems</td>
<td>675.600, 675.601 and 675.650</td>
</tr>
<tr>
<td>675.753</td>
<td>Spacecraft Avionics and Power Systems (new for spring or sum 2021)</td>
<td>675.600, 675.601</td>
</tr>
<tr>
<td>675.754</td>
<td>Flight Software for Space Systems</td>
<td>675.600, 675.601</td>
</tr>
<tr>
<td>675.755</td>
<td>Antenna Design for Space Systems</td>
<td>See course homepage</td>
</tr>
<tr>
<td>675.757</td>
<td>Space-Based Radar Systems (new for fall 2020)</td>
<td>675.600, 675.601 and 675.650</td>
</tr>
<tr>
<td>675.761</td>
<td>Reliability Engineering &amp; Analysis for Space Missions</td>
<td>675.600, 675.601</td>
</tr>
<tr>
<td>675.768</td>
<td>Spacecraft Integration and Test (new for fall 2020)</td>
<td>675.600, 675.601</td>
</tr>
<tr>
<td>675.769</td>
<td>Space Mechanical Systems Design and Analysis (new for spring or sum 2021)</td>
<td>675.600, 675.601</td>
</tr>
<tr>
<td>675.771</td>
<td>Space Mission Design and Navigations (new for fall 2020)</td>
<td>675.600, 675.601 and 675.650</td>
</tr>
<tr>
<td>675.772</td>
<td>Verification and Validation of Space Systems (new for summer 2020)</td>
<td>675.600, 675.601</td>
</tr>
<tr>
<td>675.800</td>
<td>Directed Studies in Space Systems Engineering</td>
<td>Program chair approval</td>
</tr>
</tbody>
</table>