Saint Louis University

Parks College of Engineering, Aviation and Technology
Bachelor of Science in Aeronautics
Concentration in Flight Science

Department of Aviation Science

Student Achievement Data

2018 – 2019

B.S. in Aeronautics, Concentration in Flight Science
To perform the undergraduate program assessment of the B.S. in Aeronautics Flight Science concentration, the Department of Aviation Science performed an undergraduate program assessment and individual course assessments and at the end of the fall 2018 and spring 2019 semesters. This process included the program-level SLO’s which were scheduled to be assessed at the end of the fall 2017 and spring 2018 semesters as well as the assessment of individual courses to meet certain Student Learning Outcomes (SLO’s) as determined by the department.

The program-level SLO’s assessed during the 2018-2019 academic year were: Fall 2018
   G. Assess contemporary issues.
   H. Use the techniques, skills and modern technology necessary for professional practice.
   I. Assess the national and international aviation environment.

Spring 2019
   J. Apply pertinent knowledge in identifying and solving problems.
   K. Apply knowledge of business sustainability to aviation issues.
Results of the fall 2018 undergraduate Flight Science program assessment of program-level SLO’s

The following program-level SLO’S assessed after the fall 2018 semester were:

- G. Assess contemporary issues.
- H. Use the techniques, skills and modern technology necessary for professional practice.
- I. Assess the national and international aviation environment.

<table>
<thead>
<tr>
<th>Program-level SLO</th>
<th>Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>G. Assess contemporary issues.</td>
<td>There were no prior recommendations from previous program level assessments of this SLO to assess during this cycle. The department determined to continue monitoring subsequent course offerings for methods to improve student performance in this program-level SLO.</td>
</tr>
<tr>
<td>H. Use the techniques, skills and modern technology necessary for professional practice.</td>
<td>There were no prior recommendations from previous program level assessments of this SLO to assess during this cycle. The department determined to continue monitoring subsequent course offerings for methods to improve student performance in this program-level SLO.</td>
</tr>
<tr>
<td>I. Assess the national and international aviation environment.</td>
<td>There were no prior recommendations from previous program level assessments of this SLO to assess during this cycle. The department determined to continue monitoring subsequent course offerings for methods to improve student performance in this program-level SLO.</td>
</tr>
</tbody>
</table>

NOTE: The performance indicator rubrics and evidence as provided by the instructor and indirect measures of student surveys of the courses listed above which were used by the department to assess the academic program can be found in Appendix A: Fall 2018 Flight Science Program and Course Assessment Data, of this report.

The department will work to ensure that all full-time and adjunct faculty submit evidence of student work in their respective courses to enable the department to perform a more thorough assessment of this program/concentration.
Results of the spring 2019 undergraduate Flight Science program assessment of program-level SLO’s

The following program-level SLO’S assessed after the spring 2019 semester were:

- J. Apply pertinent knowledge in identifying and solving problems.
- K. Apply knowledge of business sustainability to aviation issues.

<table>
<thead>
<tr>
<th>Program-level SLO</th>
<th>Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>J. Apply pertinent knowledge in identifying and solving problems.</td>
<td>There were no prior recommendations from previous program level assessments of this SLO to assess during this cycle. The department determined.</td>
</tr>
<tr>
<td>K. Apply knowledge of business sustainability to aviation issues.</td>
<td>There were no prior recommendations from previous program level assessments of this SLO to assess during this cycle. The department determined.</td>
</tr>
</tbody>
</table>

**NOTE:** The performance indicator rubrics and evidence as provided by the instructor and indirect measures of student surveys of the courses listed above which were used by the department to assess the individual courses can be found in Appendix B: Spring 2019 Flight Science Undergraduate Program Assessment Data, of this report.

The department will work to ensure that all full-time and adjunct faculty submit evidence of student work in their respective courses to enable the department to perform a more thorough assessment of this program/concentration.
Results of the fall 2018 undergraduate program assessment of individual courses

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Name</th>
<th>Recommendation based on the Assessment Process</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASCI 1010</td>
<td>Professional Orientation (On-site)</td>
<td>To improve the course outcome, the instructor suggests providing more class time on topics in which students need improvement so that more of the students will be capable of at minimum, meeting the expectations while reinforcing the abilities of those students currently meeting and exceeding expectations.</td>
</tr>
<tr>
<td>ASCI 1010</td>
<td>Professional Orientation (Online)</td>
<td>None.</td>
</tr>
<tr>
<td>ASCI 1300</td>
<td>Aviation Weather (On-site)</td>
<td>None.</td>
</tr>
<tr>
<td>ASCI 1300</td>
<td>Aviation Weather (Online)</td>
<td>None.</td>
</tr>
<tr>
<td>ASCI 3010</td>
<td>Jet Transport Systems I</td>
<td>To improve the course outcome, the instructor suggests providing more class time on topics in which students need improvement so that more of the students will be capable of at minimum, meeting the expectations while reinforcing the abilities of those students currently meeting and exceeding expectations.</td>
</tr>
<tr>
<td>ASCI 4012</td>
<td>Jet Flying Techniques I</td>
<td>None.</td>
</tr>
<tr>
<td>ASCI 4050</td>
<td>Human Factors (On-site and Online)</td>
<td>Continuous improvement of this course suggest I should include additional learning opportunities surrounding how technology might be leveraged in the context of human factors. I intend to add a course project that will focus on identifying available technology and providing an extensive narrative on its application. I also plan to emphasize the area of technology in my course lectures.</td>
</tr>
<tr>
<td>ASCI 4250</td>
<td>Prof. Ethics &amp; Standards (On-site and Online)</td>
<td>While individual exam questions addressed ethical principles, few addressed action choices. Establish online discussion board (DB) ethical dilemmas that will address all three performance indicators.</td>
</tr>
<tr>
<td>ASCI 4450</td>
<td>Aviation Law (On-site and Online)</td>
<td>None.</td>
</tr>
<tr>
<td>FSCI 1250</td>
<td>Basic Flight Foundations</td>
<td>Greater emphasis should be placed on preparing students to apply the information presented in class. Consider the inclusion of a greater number of examples, scenario-type questions, and individual or group problem-solving projects.</td>
</tr>
<tr>
<td>FSCI 2250</td>
<td>Instrument Flight Foundations</td>
<td>Overall, the class performed at or above expectations. Additional work on application via in-class exercises and simulations is envisioned for future offerings. Consider videotaping presentations for additional/more nuanced evidence.</td>
</tr>
</tbody>
</table>
NOTE: The performance indicator rubrics provided by the instructor and indirect measures of student surveys of the courses listed above which were used by the department to assess the academic program can be found in *Appendix A: Fall 2018 Flight Science Undergraduate Program Assessment Data*, of this report.

The department will work to ensure that all full-time and adjunct faculty submit evidence of student work in their respective courses to enable the department to perform a more thorough assessment of this program/concentration.
### Results of the spring 2019 undergraduate assessment of individual courses

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Name</th>
<th>Recommendation based on the Assessment Process</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASCI 1850</td>
<td>Safety Management Systems (Onsite and Online)</td>
<td>Regrettably, I utilized “answer sheets” with each test. Upon grading and following discussion in-class, answer sheets were returned to the students. Consequently, I was unable to uniquely assess each contributory performance indicator. Lesson learned for the semester is to retain copies of answer sheets in order to provide a more-detailed analysis. Overall, I am slightly disappointed with the relatively high percentage of “needs improvement” scores from Test #2. Test #2 focuses on detailed aspects of contemporary safety management system and the test itself was not a multiple-choice test. I would consider the test to be rigorous in comparison to other proficiency measures used in the course. I anticipate developing a study guide to complement course lectures in the coming terms. I also plan to record each lecture and make it available on the Blackboard LMS for review.</td>
</tr>
<tr>
<td>ASCI 3020</td>
<td>Jet Transport Systems II</td>
<td>None.</td>
</tr>
<tr>
<td>ASCI 3062</td>
<td>Turbine Aircraft Transition</td>
<td>None.</td>
</tr>
<tr>
<td>ASCI 3100</td>
<td>Air Carrier Operations (Onsite)</td>
<td>This was a very effective vehicle for teaching students to identify, understand and reflect on today’s issues that impact air carriers and their operational units. Use it again, with improvements, in the spring 2020 offering; for example, improve the “research questions” section.</td>
</tr>
<tr>
<td>ASCI 3100</td>
<td>Air Carrier Operations (Online)</td>
<td>None.</td>
</tr>
<tr>
<td>ASCI 4022</td>
<td>Jet Flying Techniques II</td>
<td>None – the instructor resigned and did not submit data.</td>
</tr>
<tr>
<td>ASCI 4350</td>
<td>Team Resource Management</td>
<td>None.</td>
</tr>
<tr>
<td>FSCI 2650</td>
<td>Navigation Foundations</td>
<td>Provide more in-depth instruction on the computation of antipodal latitude/longitude coordinates, great circle vertices, and changes in position from a given latitude/longitude coordinate. Require students to provide documented explanations of their techniques when calculating solutions.</td>
</tr>
<tr>
<td>FSCI 3700</td>
<td>Principles of Flight Instruction</td>
<td>All students met expectations for the two performance indicators. Improvement in this area will include the use of personal-review and peer-review rubrics for practice teaching activities, the introduction of more scripted common difficulties encountered in flight instruction to increase scenario realism, and collection of student work samples through the use of video recording.</td>
</tr>
</tbody>
</table>

**NOTE:** The performance indicator rubrics and evidence as provided by the instructor and indirect measures of student surveys of the courses listed above which were used by the department to assess the individual courses can be found in *Appendix B: Spring 2019 Flight Science Undergraduate Program Assessment Data*, of this report.

Course evidence collected as part of this assessment process is contained in a large file and is not posted on this website. The information can be found in *Appendix C: 2017-2018 Flight Science Undergraduate Program and Course Evidence*, of this report.
Appendix A

Fall 2018 Flight Science

Student Achievement Data
Direct Measures of Assessment
## Results of the fall 2018 undergraduate program assessment of individual courses

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Name</th>
<th>Recommendation based on the Assessment Process</th>
</tr>
</thead>
</table>
| ASCI 1010     | Professional Orientation (On-site) | Provide better examples of oral presentation techniques/styles to improve the group presentations.  
Devote additional time to topics covered.                                                                                                                                                                                                                                                                                                                                 |
| ASCI 1010-10  | Professional Orientation (Online)  | Provide better examples of oral presentation techniques/styles to improve the student presentations; consider requiring students to provide an audio/visual presentation to be able to determine oral communication skills.                                                                                                                                                                           |
| ASCI 1300-01  | Aviation Weather (On-site)         | None.                                                                                                                                                                                                                                                                                                                                                                               |
| ASCI 1300-10  | Aviation Weather (Online)          | None.                                                                                                                                                                                                                                                                                                                                                                               |
| ASCI 2200-0   | Concepts in Aerodynamics           | None.                                                                                                                                                                                                                                                                                                                                                                               |
| ASCI 4050-01  | Human Factors (On-site and online) | Continuous improvement of this course suggest I should include additional learning opportunities surrounding how technology might be leveraged in the context of human factors. I intend to add a course project that will focus on identifying available technology and providing an extensive narrative on its application. I also plan to emphasize the area of technology in my course lectures. |
| ASCI 4250-01  | Prof. Ethics & Standards (On-site) | As in any seminar setting, the students developed over the course of the semester to higher-level thinking skills. In the first four seminars students struggled with identifying the dilemmas and ethical principles or discussions lead to trivial or inappropriate solutions. Following mid-term break the final six sessions saw students meeting or exceeding expectations.  
Recommendations for fall 2019 course offering:  
(1) Revise/improve/update the seminar topics  
(2) consider addressing the issue of “moral hazard"  
(3) consider addressing the issue of “ethical relativism"  
  
Fall 2019 online:  
Address very specific issues and solutions using the discussion board (DB) platform.                                                                                                                                                                                                                                                                                            |
| ASCI 4250-10  | Prof. Ethics & Standards (Online)  | None.                                                                                                                                                                                                                                                                                                                                                                               |
| ASCI 4450-01  | Aviation Law (On-site)             | All students orally presented two case briefs in the course. However, no rubric was developed to measure these oral case briefs. This course did not fully address this learning outcome.  
For fall 2018 course offering:  
(1) Revise/improve/update the seminar topics to ensure oral and written communication skills are evidenced and measured  
(2) Assign and develop a rubric for “case briefs"  
(3)Assign and develop a rubric for a "research paper"                                                                                                                                                                                                                                                                                                                   |
| ASCI 4450-10  | Aviation Law (Online)              | None.                                                                                                                                                                                                                                                                                                                                                                               |
NOTE: The performance indicator rubrics and evidence as provided by the instructor and indirect measures of student surveys of the courses listed above which were used by the department to assess the academic program can be found in Appendix A: Fall 2018 Flight Science Undergraduate Program Assessment Data, of this report.
AABI Student Learning Outcome G: Assess Contemporary Issues

Course: ASCI 1010 Professional Orientation  Semester Taught: Fall 2018  Number of Students Scored: 43

Type of Student Work Used for Assessment* (e.g. Homework #4; Exam #2 problem 3; final project): Quiz 3

*Attach description of assignment used for assessment and samples of student work.

<table>
<thead>
<tr>
<th>Rating Scale</th>
<th>Needs Improvement</th>
<th>Meets Expectations</th>
<th>Exceeds Expectations</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Identify contemporary issues related to the aviation industry.</strong></td>
<td>When identifying contemporary aviation issues, important facts and details are missing.</td>
<td>Prioritizes contemporary aviation issues; ignores some less significant, yet relevant issues.</td>
<td>Effectively prioritizes contemporary aviation issues, including subtle details; does not include unrelated contemporary issues.</td>
</tr>
<tr>
<td><strong>Recognize potential solutions.</strong></td>
<td>Shows some understanding of contemporary aviation issues; provides some explanations of potential solutions but important facts are missing.</td>
<td>Shows adequate understanding of contemporary aviation issues; provides adequate explanation of potential solutions; missing the explanation of minor facts.</td>
<td>Shows in-depth understanding of contemporary aviation issues; provides in-depth explanation of potential solutions.</td>
</tr>
</tbody>
</table>

**Description of Assignment:** Quiz #3 was based on select readings from “Aviation Daily” over a period of 3-4 weeks.

<table>
<thead>
<tr>
<th>Performance Indicator</th>
<th>Questions, Problems, Etc.</th>
<th>% Needs Improvement</th>
<th>% Meets Expectations</th>
<th>% Exceeds Expectations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identify contemporary issues</td>
<td>Question #2</td>
<td>16.3</td>
<td>83.7</td>
<td>N/A</td>
</tr>
<tr>
<td>Identify contemporary issues</td>
<td>Question #5</td>
<td>20.9</td>
<td>79.1</td>
<td>N/A</td>
</tr>
<tr>
<td>Recognize potential solutions</td>
<td>Question #10</td>
<td>7.0</td>
<td>93.0</td>
<td>N/A</td>
</tr>
</tbody>
</table>

To improve the course outcome, the instructor suggests providing more class time on topics in which students need improvement so that more of the students will be capable of at minimum, meeting the expectations while reinforcing the abilities of those students currently meeting and exceeding expectations.
Performance Indicator Rubric

AABI Student Learning Outcome G: Assess Contemporary Issues

Course: ASCI 1010 Professional Orientation  
Semester Taught: Fall 2018  
Number of Students Scored: 43

Type of Student Work Used for Assessment* (e.g. Homework #4; Exam #2 problem 3; final project): Test 1

*Attach description of assignment used for assessment and samples of student work.

<table>
<thead>
<tr>
<th>Performance Indicator</th>
<th>Needs Improvement</th>
<th>Meets Expectations</th>
<th>Exceeds Expectations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identify contemporary issues related to the aviation industry.</td>
<td>When identifying contemporary aviation issues, important facts and details are missing.</td>
<td>Prioritizes contemporary aviation issues; ignores some less significant, yet relevant issues.</td>
<td>Effectively prioritizes contemporary aviation issues, including subtle details; does not include unrelated contemporary issues.</td>
</tr>
<tr>
<td>Recognize potential solutions.</td>
<td>Shows some understanding of contemporary aviation issues; provides some explanations of potential solutions but important facts are missing.</td>
<td>Shows adequate understanding of contemporary aviation issues; provides adequate explanation of potential solutions; missing the explanation of minor facts.</td>
<td>Shows in-depth understanding of contemporary aviation issues; provides in-depth explanation of potential solutions.</td>
</tr>
</tbody>
</table>

Description of Assignment: Test 1 covered lecture material from the course.

<table>
<thead>
<tr>
<th>Performance Indicator</th>
<th>Questions, Problems, Etc.</th>
<th>% Needs Improvement</th>
<th>% Meets Expectations</th>
<th>% Exceeds Expectations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identify contemporary issues and/or Recognize potential solutions</td>
<td>Question #17</td>
<td>7.0</td>
<td>93.0</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td>Question #19</td>
<td>7.0</td>
<td>93.0</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td>Question #21</td>
<td>4.7</td>
<td>95.3</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td>Question #22</td>
<td>23.2</td>
<td>76.8</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td>Question #27</td>
<td>9.3</td>
<td>91.7</td>
<td>N/A</td>
</tr>
</tbody>
</table>

To improve the course outcome, the instructor suggests providing better examples and/or increased discussion of topics so that more of the students will be capable of meeting the expectations while reinforcing the abilities of those students meeting expectations.
Performance Indicator Rubric

AABI Student Learning Outcome G: Assess Contemporary Issues

Course: **ASCI 1010 Professional Orientation**  
Semester Taught: **Fall 2018**  
Number of students scored: **43**

Number of Students Scored: **43**

Type of Student Work Used for Assessment* (e.g. Homework #4; Exam #2 problem 3; final project):

*Attach description of assignment used for assessment and samples of student work.*

<table>
<thead>
<tr>
<th>Rating Scale</th>
<th>Needs Improvement</th>
<th>Meets Expectations</th>
<th>Exceeds Expectations</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Performance Indicator</strong></td>
<td>Identify contemporary issues related to the aviation industry.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>When identifying contemporary aviation issues, important facts and details are missing.</td>
<td>Prioritizes contemporary aviation issues; ignores some less significant, yet relevant issues.</td>
<td>Effectively prioritizes contemporary aviation issues, including subtle details; does not include unrelated contemporary issues.</td>
</tr>
<tr>
<td></td>
<td>Recognize potential solutions.</td>
<td>Shows some understanding of contemporary aviation issues; provides some explanations of potential solutions but important facts are missing.</td>
<td>Shows adequate understanding of contemporary aviation issues; provides adequate explanation of potential solutions; missing the explanation of minor facts.</td>
</tr>
</tbody>
</table>

**Description of Assignment:** Final Exam covered lecture material from the course.

<table>
<thead>
<tr>
<th>Performance Indicator</th>
<th>Questions, Problems, Etc.</th>
<th>% Needs Improvement</th>
<th>% Meets Expectations</th>
<th>% Exceeds Expectations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identify contemporary issues and/or Recognize potential solutions</td>
<td>Question #12</td>
<td>21.0</td>
<td>79.0</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td>Question #15</td>
<td>7.0</td>
<td>93.0</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td>Question #18</td>
<td>0.0</td>
<td>100.0</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td>Question #30</td>
<td>18.6</td>
<td>83.4</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td>Question #40</td>
<td>4.7</td>
<td>95.3</td>
<td>N/A</td>
</tr>
</tbody>
</table>

To improve the course outcome, the instructor suggests providing better examples and/or increased discussion of topics so that more of the students will be capable of meeting the expectations while reinforcing the abilities of those students meeting expectations.
# Performance Indicator Rubric

**AABI Student Learning Outcome H: Use the Techniques, Skills and Modern Technology necessary for Professional Practice**

<table>
<thead>
<tr>
<th>Course: ASCI 3010 Jet Transport Systems I</th>
<th>Semester Taught: Fall 2018</th>
<th>Number of Students Scored: 22</th>
</tr>
</thead>
</table>

Type of Student Work Used for Assessment* (e.g. Homework #4; Exam #2 problem 3; final project): **Test 1**

*Attach description of assignment used for assessment and samples of student work.

<table>
<thead>
<tr>
<th>Performance Indicator</th>
<th>Rating Scale</th>
<th>Needs Improvement</th>
<th>Meets Expectations</th>
<th>Exceeds Expectations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identify necessary techniques, skills and tools of modern aviation practice for a given situation.</td>
<td></td>
<td>Identifies a small subset of necessary techniques, skills, and tools; identifies unrelated techniques, skills, and tools.</td>
<td>Identifies almost all of the relevant techniques, skills, and tools; missing some minor techniques, skills, and tools.</td>
<td>Identifies all relevant techniques, skills, and tools; does not include unrelated techniques, skills, and tools.</td>
</tr>
<tr>
<td>Explain the use of specific techniques, skills and tools of modern aviation practice.</td>
<td></td>
<td>Provides little explanation of how the techniques, skills, and tools should be used; provides incorrect explanation of how to use techniques, skills, and tools.</td>
<td>Explains how almost all of the techniques, skills, and tools should be used; shows adequate understanding of techniques, skills, and tools; missing the explanation of some minor techniques, skills, and tools.</td>
<td>Explains how all relevant techniques, skills, and tools should be used; shows in-depth understanding of techniques, skills, and tools; does not explain unrelated aspects of techniques, skills, and tools.</td>
</tr>
<tr>
<td>Apply the chosen techniques, skills and tools of modern aviation practice to the given situation.</td>
<td></td>
<td>Applies a small subset of the necessary techniques, skills, and tools; incorrectly applies the techniques, skills, and tools.</td>
<td>Correctly applies almost all of the techniques, skills, and tools; demonstrates adequate use of techniques, skills, and tools; incorrectly applies some minor techniques, skills, and tools.</td>
<td>Correctly applies all relevant techniques, skills, and tools; demonstrates mastery of techniques, skills, and tools; does not apply unnecessary techniques, skills, and tools.</td>
</tr>
<tr>
<td>Reflect on the choice of techniques, skills and tools of modern aviation practice applied to the given situation.</td>
<td></td>
<td>Provides little evidence of reflection; incorrectly attributes success or failure to certain techniques, skills, and tools.</td>
<td>Reflects properly on almost all of the techniques, skills, and tools; proposes some improvements or justifies properly the use of some techniques, skills, and tools; reflects improperly on some minor techniques, skills, and tools.</td>
<td>Reflects properly on all relevant techniques, skills, and tools; proposes several improvements or justifies properly the use of all techniques, skills, and tools; does not reflect on irrelevant techniques, skills, and tools.</td>
</tr>
</tbody>
</table>
**Description of Assignment:** Test 1 was based on lecture material covered in the course.

<table>
<thead>
<tr>
<th>Performance Indicator</th>
<th>Questions, Problems, Etc.</th>
<th>% Needs Improvement</th>
<th>% Meets Expectations</th>
<th>% Exceeds Expectations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identify necessary techniques…for a given situation</td>
<td>Question #10</td>
<td>4.5</td>
<td>95.5</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td>Question #13</td>
<td>4.5</td>
<td>95.5</td>
<td>N/A</td>
</tr>
<tr>
<td>Explain specific techniques…of modern aviation practice</td>
<td>Question #5</td>
<td>9.0</td>
<td>91.0</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td>Question #19</td>
<td>27.3</td>
<td>72.7</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td>Question #43</td>
<td>13.5</td>
<td>86.5</td>
<td>N/A</td>
</tr>
<tr>
<td>Apply chosen techniques…to the given situation</td>
<td>Question #25</td>
<td>4.5</td>
<td>95.5</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td>Question #35</td>
<td>31.8</td>
<td>68.2</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td>Question #44</td>
<td>13.5</td>
<td>86.5</td>
<td>N/A</td>
</tr>
<tr>
<td>Reflect on the choice of techniques… to given situation</td>
<td>Question #32</td>
<td>13.5</td>
<td>86.5</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td>Question #39</td>
<td>22.7</td>
<td>77.3</td>
<td>N/A</td>
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</table>

To improve the course outcome, the instructor suggests providing more class time on topics in which students need improvement so that more of the students will be capable of at minimum, meeting the expectations while reinforcing the abilities of those students currently meeting and exceeding expectations.
AABI Student Learning Outcome H: Use the Techniques, Skills and Modern Technology necessary for Professional Practice

Course: **ASCI 3010 Jet Transport Systems I**  
Semester Taught: **Fall 2018**  
Number of Students Scored: 22

Type of Student Work Used for Assessment* (e.g. Homework #4; Exam #2 problem 3; final project): **Test 2**

*Attach description of assignment used for assessment and samples of student work.

<table>
<thead>
<tr>
<th>Performance Indicator</th>
<th>Needs Improvement</th>
<th>Meets Expectations</th>
<th>Exceeds Expectations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identify necessary techniques, skills and tools of modern aviation practice for a given situation.</td>
<td>Identifies a small subset of necessary techniques, skills, and tools; identifies unrelated techniques, skills, and tools.</td>
<td>Identifies almost all of the relevant techniques, skills, and tools; missing some minor techniques, skills, and tools.</td>
<td>Identifies all relevant techniques, skills, and tools; does not include unrelated techniques, skills, and tools.</td>
</tr>
<tr>
<td>Explain the use of specific techniques, skills and tools of modern aviation practice.</td>
<td>Provides little explanation of how the techniques, skills, and tools should be used; provides incorrect explanation of how to use techniques, skills, and tools.</td>
<td>Explains how almost all of the techniques, skills, and tools should be used; shows adequate understanding of techniques, skills, and tools; missing the explanation of some minor techniques, skills, and tools.</td>
<td>Explains how all relevant techniques, skills, and tools should be used; shows in-depth understanding of techniques, skills, and tools; does not explain unrelated aspects of techniques, skills, and tools.</td>
</tr>
<tr>
<td>Apply the chosen techniques, skills and tools of modern aviation practice to the given situation.</td>
<td>Applies a small subset of the necessary techniques, skills, and tools; incorrectly applies the techniques, skills, and tools.</td>
<td>Correctly applies almost all of the techniques, skills, and tools; demonstrates adequate use of techniques, skills, and tools; correctly applies some minor techniques, skills, and tools.</td>
<td>Correctly applies all relevant techniques, skills, and tools; demonstrates mastery of techniques, skills, and tools; does not apply unnecessary techniques, skills, and tools.</td>
</tr>
<tr>
<td>Reflect on the choice of techniques, skills and tools of modern aviation practice applied to the given situation.</td>
<td>Provides little evidence of reflection; incorrectly attributes success or failure to certain techniques, skills, and tools.</td>
<td>Reflects properly on almost all of the techniques, skills, and tools; proposes some improvements or justifies properly the use of some techniques, skills, and tools; reflects improperly on some minor techniques, skills, and tools.</td>
<td>Reflects properly on all relevant techniques, skills, and tools; proposes several improvements or justifies properly the use of all techniques, skills, and tools; does not reflect on irrelevant techniques, skills, and tools.</td>
</tr>
</tbody>
</table>
Description of Assignment: Test 2 was based on lecture material covered in the course.

<table>
<thead>
<tr>
<th>Performance Indicator</th>
<th>Questions, Problems, Etc.</th>
<th>% Needs Improvement</th>
<th>% Meets Expectations</th>
<th>% Exceeds Expectations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identify necessary techniques…for a given situation</td>
<td>Question #2</td>
<td>0</td>
<td>100</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td>Question #4</td>
<td>0</td>
<td>100</td>
<td>N/A</td>
</tr>
<tr>
<td>Explain specific techniques…of modern aviation practice</td>
<td>Question #7</td>
<td>27.3</td>
<td>72.7</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td>Question #25</td>
<td>9.1</td>
<td>90.9</td>
<td>N/A</td>
</tr>
<tr>
<td>Apply chosen techniques…to the given situation</td>
<td>Question #32</td>
<td>9.1</td>
<td>90.9</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td>Question #57</td>
<td>13.6</td>
<td>86.4</td>
<td>N/A</td>
</tr>
<tr>
<td>Reflect on the choice of techniques…to given situation</td>
<td>Extra Credit Question</td>
<td>9.1</td>
<td>3.9</td>
<td>87.0</td>
</tr>
</tbody>
</table>

To improve the course outcome, the instructor suggests providing more class time on topics in which students need improvement so that more of the students will be capable of at minimum, meeting the expectations while reinforcing the abilities of those students currently meeting and exceeding expectations.
# Performance Indicator Rubric

**AABI Student Learning Outcome H: Use the Techniques, Skills and Modern Technology necessary for Professional Practice**

| **Course:** ASCI 3010 Jet Transport Systems I | **Semester Taught:** Fall 2018 | **Number of Students Scored:** 22 |

**Type of Student Work Used for Assessment** (e.g. Homework #4; Exam #2 problem 3; final project): **Test 3**

*Attach description of assignment used for assessment and samples of student work.*

<table>
<thead>
<tr>
<th>Performance Indicator</th>
<th>Rating Scale</th>
<th>Needs Improvement</th>
<th>Meets Expectations</th>
<th>Exceeds Expectations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identify necessary techniques, skills and tools of modern aviation practice for a given situation.</td>
<td></td>
<td>Identifies a small subset of necessary techniques, skills, and tools; identifies unrelated techniques, skills, and tools.</td>
<td>Identifies almost all of the relevant techniques, skills, and tools; missing some minor techniques, skills, and tools.</td>
<td>Identifies all relevant techniques, skills, and tools; does not include unrelated techniques, skills, and tools.</td>
</tr>
<tr>
<td>Explain the use of specific techniques, skills and tools of modern aviation practice.</td>
<td></td>
<td>Provides little explanation of how the techniques, skills, and tools should be used; provides incorrect explanation of how to use techniques, skills, and tools.</td>
<td>Explains how almost all of the techniques, skills, and tools should be used; shows adequate understanding of techniques, skills, and tools; missing the explanation of some minor techniques, skills, and tools.</td>
<td>Explains how all relevant techniques, skills, and tools should be used; shows in-depth understanding of techniques, skills, and tools; does not explain unrelated aspects of techniques, skills, and tools.</td>
</tr>
<tr>
<td>Apply the chosen techniques, skills and tools of modern aviation practice to the given situation.</td>
<td></td>
<td>Applies a small subset of the necessary techniques, skills, and tools; incorrectly applies the techniques, skills, and tools.</td>
<td>Correctly applies almost all of the techniques, skills, and tools; demonstrates adequate use of techniques, skills, and tools; incorrectly applies some minor techniques, skills, and tools.</td>
<td>Correctly applies all relevant techniques, skills, and tools; demonstrates mastery of techniques, skills, and tools; does not apply unnecessary techniques, skills, and tools.</td>
</tr>
<tr>
<td>Reflect on the choice of techniques, skills and tools of modern aviation practice applied to the given situation.</td>
<td></td>
<td>Provides little evidence of reflection; incorrectly attributes success or failure to certain techniques, skills, and tools.</td>
<td>Reflects properly on almost all of the techniques, skills, and tools; proposes some improvements or justifies properly the use of some techniques, skills, and tools; reflects improperly on some minor techniques, skills, and tools.</td>
<td>Reflects properly on all relevant techniques, skills, and tools; proposes several improvements or justifies properly the use of all techniques, skills, and tools; does not reflect on irrelevant techniques, skills, and tools.</td>
</tr>
</tbody>
</table>
**Description of Assignment:** Test 3 was based on lecture material covered in the course.

<table>
<thead>
<tr>
<th>Performance Indicator</th>
<th>Questions, Problems, Etc.</th>
<th>% Needs Improvement</th>
<th>% Meets Expectations</th>
<th>% Exceeds Expectations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identify necessary techniques…for a given situation</td>
<td>Question #22</td>
<td>22.7</td>
<td>77.3</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td>Question #35</td>
<td>31.8</td>
<td>68.2</td>
<td>N/A</td>
</tr>
<tr>
<td>Explain specific techniques…of modern aviation practice</td>
<td>Question #11</td>
<td>0.0</td>
<td>100.0</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td>Question #48</td>
<td>31.8</td>
<td>68.2</td>
<td>N/A</td>
</tr>
<tr>
<td>Apply chosen techniques…to the given situation</td>
<td>Question #2</td>
<td>4.5</td>
<td>95.6</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td>Question #40</td>
<td>36.4</td>
<td>63.6</td>
<td>N/A</td>
</tr>
<tr>
<td>Reflect on the choice of techniques…to given situation</td>
<td>Extra Credit Question</td>
<td>4.5</td>
<td>59.1</td>
<td>36.4</td>
</tr>
</tbody>
</table>

To improve the course outcome, the instructor suggests providing more class time on topics in which students need improvement so that more of the students will be capable of at minimum, meeting the expectations while reinforcing the abilities of those students currently meeting and exceeding expectations.
Performance Indicator Rubric

AABI Student Learning Outcome H: Use the Techniques, Skills and Modern Technology necessary for Professional Practice

Course: ASCI 3010 Jet Transport Systems I  
Semester Taught: Fall 2018  
Number of Students Scored: 22

Type of Student Work Used for Assessment* (e.g. Homework #4; Exam #2 problem 3; final project): Final Exam

*Attach description of assignment used for assessment and samples of student work.

<table>
<thead>
<tr>
<th>Performance Indicator</th>
<th>Needs Improvement</th>
<th>Meets Expectations</th>
<th>Exceeds Expectations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identify necessary techniques, skills and tools of modern aviation practice for a given situation.</td>
<td>Identifies a small subset of necessary techniques, skills, and tools; identifies unrelated techniques, skills, and tools.</td>
<td>Identifies almost all of the relevant techniques, skills, and tools; missing some minor techniques, skills, and tools.</td>
<td>Identifies all relevant techniques, skills, and tools; does not include unrelated techniques, skills, and tools.</td>
</tr>
<tr>
<td>Explain the use of specific techniques, skills and tools of modern aviation practice.</td>
<td>Provides little explanation of how the techniques, skills, and tools should be used; provides incorrect explanation of how to use techniques, skills, and tools.</td>
<td>Explains how almost all of the techniques, skills, and tools should be used; shows adequate understanding of techniques, skills, and tools; missing the explanation of some minor techniques, skills, and tools.</td>
<td>Explains how all relevant techniques, skills, and tools should be used; shows in-depth understanding of techniques, skills, and tools; does not explain unrelated aspects of techniques, skills, and tools.</td>
</tr>
<tr>
<td>Apply the chosen techniques, skills and tools of modern aviation practice to the given situation.</td>
<td>Applies a small subset of the necessary techniques, skills, and tools; incorrectly applies the techniques, skills, and tools.</td>
<td>Correctly applies almost all of the techniques, skills, and tools; demonstrates adequate use of techniques, skills, and tools; incorrectly applies some minor techniques, skills, and tools.</td>
<td>Correctly applies all relevant techniques, skills, and tools; demonstrates mastery of techniques, skills, and tools; does not apply unnecessary techniques, skills, and tools.</td>
</tr>
<tr>
<td>Reflect on the choice of techniques, skills and tools of modern aviation practice applied to the given situation.</td>
<td>Provides little evidence of reflection; incorrectly attributes success or failure to certain techniques, skills, and tools.</td>
<td>Reflects properly on almost all of the techniques, skills, and tools; proposes some improvements or justifies properly the use of some techniques, skills, and tools; reflects improperly on some minor techniques, skills, and tools.</td>
<td>Reflects properly on all relevant techniques, skills, and tools; proposes several improvements or justifies properly the use of all techniques, skills, and tools; does not reflect on irrelevant techniques, skills, and tools.</td>
</tr>
</tbody>
</table>
Description of Assignment: The Final Exam was based on lecture material covered in the course.

<table>
<thead>
<tr>
<th>Performance Indicator</th>
<th>Questions, Problems, Etc.</th>
<th>% Needs Improvement</th>
<th>% Meets Expectations</th>
<th>% Exceeds Expectations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identify necessary techniques…for a given situation</td>
<td>Question #3</td>
<td>13.6</td>
<td>86.4</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td>Question #11</td>
<td>0.0</td>
<td>100.0</td>
<td>N/A</td>
</tr>
<tr>
<td>Explain specific techniques…of modern aviation practice</td>
<td>Question #9</td>
<td>9.1</td>
<td>90.9</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td>Question #21</td>
<td>13.6</td>
<td>86.4</td>
<td>N/A</td>
</tr>
<tr>
<td>Apply chosen techniques…to the given situation</td>
<td>Question #15</td>
<td>0.0</td>
<td>100.0</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td>Question #18</td>
<td>40.1</td>
<td>59.9</td>
<td>N/A</td>
</tr>
<tr>
<td>Reflect on the choice of techniques…to given situation</td>
<td>Question #14</td>
<td>27.3</td>
<td>72.7</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td>Question #36</td>
<td>20.1</td>
<td>79.9</td>
<td>N/A</td>
</tr>
<tr>
<td>Extra Credit Question</td>
<td></td>
<td>36.4</td>
<td>4.5</td>
<td>59.1</td>
</tr>
</tbody>
</table>

To improve the course outcome, the instructor suggests providing more class time on topics in which students need improvement so that more of the students will be capable of at minimum, meeting the expectations while reinforcing the abilities of those students currently meeting and exceeding expectations.
DEPARTMENT OF AVIATION SCIENCE
ASSESSMENT OF UNDERGRADUATE PROGRAM STUDENT LEARNING OUTCOMES
FALL 2018

ASCI 4250 PROFESSIONAL ETHICS AND STANDARDS
SECTION 01 ON CAMPUS
SECTION 10 ONLINE

Program Student Learning Outcomes

- D - Make professional and ethical decisions
- E – Communicate effectively, using both written and oral communication skills
- G – Assess contemporary issues
- J – Apply pertinent knowledge in identifying and solving problems

(Learning Outcomes F and K removed Jan 2019 meeting)

Direct measures:
The student learning outcome will be assessed using data from:
The results of embedded questions in quizzes; mid-term examinations, final examinations, and seminars will be obtained from the ASCI 4250 course.

NOTES – FALL 2018
The approach to teaching was the same as the previous offering of this “applied ethics” course.

Subjects/Topics
Ethical theories
Moral principals
Ethical decision-making frameworks
Responsibility, accountability, rules and relationships
Professionalism
Intent, motive and circumstance

Student-led Seminars

- REGULATORY CAPTURE
- WHISTLEBLOWING IN AVIATION
- CORPORATE RESPONSIBILITY IN AVIATION
• COST-BENEFIT ANALYSIS & ETHICS
• RACIAL & GENDER DIVERSITY IN AVIATION
• AGE DISCRIMINATION: PILOTS
• ETHICS & THE ENVIRONMENT IN AVIATION SETTINGS
• PRIVACY & CONFIDENTIALITY IN AVIATION SETTINGS
• ETHICS OF TECHNOLOGY USE IN AVIATION SETTINGS
• ETHICS IN AVIATION EDUCATION (e.g. flight training, universities)
• BUSINESS ETHICS, SAFETY, AND THE AIRLINE INDUSTRY
• ETHICAL ISSUES ACROSS CULTURES
• CODES OF ETHICS: VALUE AND ROLE IN THE AVIATION SETTING

**Methodology**
The principle approach to the on-campus course combines lecture and student-led seminars focused on application of ethical principles to dilemmas in various aviation settings.

The principle approach to the online course utilizes discussion boards on ethical issues in aviation settings along with instructor notes and other presentation resources.
Performance Indicator Rubric

AABI Student Learning Outcome G: Assess contemporary issues

Course: ASCI 4250 Professional Ethics and Standards  Semester Taught: Fall 2018  Number of Students Scored: 18 enrolled on campus; 18 enrolled online

<table>
<thead>
<tr>
<th>Rating Scale</th>
<th>Performance Indicator</th>
<th>Needs Improvement</th>
<th>Meets Expectations</th>
<th>Exceeds Expectations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identify contemporary issues related to the aviation industry.</td>
<td></td>
<td>When identifying contemporary aviation issues, important facts and details are missing.</td>
<td>Prioritizes contemporary aviation issues; ignores some less significant, yet relevant issues.</td>
<td>Effectively prioritizes contemporary aviation issues, including subtle details; does not include unrelated contemporary issues.</td>
</tr>
<tr>
<td>Recognize potential solutions.</td>
<td></td>
<td>Shows some understanding of contemporary aviation issues; provides some explanations of potential solutions but important facts are missing.</td>
<td>Shows adequate understanding of contemporary aviation issues; provides adequate explanation of potential solutions; missing the explanation of minor facts.</td>
<td>Shows in-depth understanding of contemporary aviation issues; provides in-depth explanation of potential solutions.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Performance Indicator</th>
<th>Student Work</th>
<th>% Needs Improvement</th>
<th>% Meets Expectations</th>
<th>% Exceeds Expectations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identify contemporary issues related to the aviation industry</td>
<td>Seminar on campus class</td>
<td>0</td>
<td>100%</td>
<td>0</td>
</tr>
<tr>
<td>Recognize potential solutions</td>
<td>Seminar on campus class</td>
<td>0</td>
<td>100%</td>
<td>0</td>
</tr>
</tbody>
</table>

Summary

Thirteen seminar sessions and topics; one per week. All topics were relevant, contemporary issues.

Students were able to identify and prioritize contemporary aviation issues and ignore some less significant, yet relevant, issues.
Student demonstrated adequate understanding of contemporary aviation issues and provide adequate explanation of potential solutions.

<table>
<thead>
<tr>
<th>Instructor’s Recommendations</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Department Recommendations</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Performance Indicator</th>
<th>Student Work Description of Assignment</th>
<th>% Needs Improvement</th>
<th>% Meets Expectations</th>
<th>% Exceeds Expectations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identify contemporary issues related to the aviation industry</td>
<td>Online class</td>
<td>100%</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Recognize potential solutions</td>
<td>Online class</td>
<td>100%</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Summary

No evidence gathered to support this performance indicator.

<table>
<thead>
<tr>
<th>Instructor’s Recommendations</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall 2019 online:</td>
<td>(1) Address very specific issues and solutions using the discussion board (DB) platform</td>
</tr>
</tbody>
</table>

| Department Recommendations |  |
ASCI 4450 AVIATION LAW  
FALL 2018 - SECTION 01 ON CAMPUS (19)  
FALL 2018 - SECTION 10 ONLINE (17)  

Program Student Learning Outcomes  
• B – Analyze and interpret data  
• D - Make professional and ethical decisions  
• E – Communicate effectively, using both written and oral communication skills  
• F – Engage in and recognize the need for life-long learning  
• G – Assess contemporary issues  
• I - Assess the national and international aviation environment  

Direct measures:  
The student learning outcome will be assessed using data from:  
The results of embedded questions in quizzes, exams, mid-term examinations, final examinations, and case briefs.  

NOTES – FALL 2018  
This course provides management and pilot majors the opportunity to experience court cases that apply federal and state statutes and regulations in multiple facets of aviation. Each on campus and online student is required to "brief" two legal cases: one from administrative law and another from areas of constitutional law, tort law, insurance, liability, property law, and international air law. The on-campus exams were open-source, collaborative and involved extensive research to frame the correct responses. Online exams, were open-source, but were representative of low-level rote learning with multiple-choice responses.  

Subjects/Topics  
Fundamentals of U.S. legal system  
• Court system & structure  
• Classifications  
• Jurisdictions  
• Litigation process  

U.S. Constitution impact on aviation operations  
• Preemption doctrine
- Fourth amendment privacy issues & UAS operations

**Aviation operations and criminal law**
- Subpoena
- FAA Order 2150.3C
- Criminalization of accidents
- U.S. criminal code and business and pilot violations
- Laser pointers
- State criminal codes in aviation
- Criminal acts on board aircraft
- Fraud

**Administrative agencies and administrative law**
- FAA enforcement
- Pilots’ Bill of Rights
- NTSB jurisdiction & hearings
- Airmen enforcement and certificate cases
- Civil penalties and consent orders

**Tort law, negligence, wrongful death, tort reform**
- Federal Tort Claims Act
- General Aviation Revitalization Act
- Trespass (drones & crop dusting)
- False imprisonment (tarmac delay)
- Defamation (airline employee)
- Assault and battery onboard aircraft
- Negligent operation of aircraft
- Manufacturer’s liability
- Flight instructor liability

**Aircraft purchase and ownership**
- Aircraft leasing, purchase, ownership
- Aviation insurance cases

**Property law and airport issues**
- Legal aspects of airport programs
- Noise and environmental issues
- Zoning
- Bailment
- Preemption
• Privatization issues

**Labor and employment law in aviation settings**
• Railway Labor Act
• Employment statutes
• Age discrimination
• Defamation

**Security and aviation law**

•

**International air law**
• Private and public international air law

**Methodology**
Lecture, in-class discussions, case briefs of actual aviation-related court cases (NTSB hearings, DOL hearings, state courts, federal courts).
<table>
<thead>
<tr>
<th>Category</th>
<th>Evaluator’s Comments</th>
<th>1 – 5 Unacceptable or Poor</th>
<th>4 – 8 Marginal or Average</th>
<th>9 – 10 Good or Satisfactor y or Well Done</th>
<th>11 – 12 Exemplary or Outstanding</th>
<th>Total pts. per category</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CITATION</strong></td>
<td>Case name; court name; date of decision; page number; Reporter reference</td>
<td>Does not cite the court case.</td>
<td>Cites the court case inaccurately or incompletely.</td>
<td>Cites the court case accurately and completely in most respects. Citation may be in an incorrect format but will all information.</td>
<td>Cites the court case accurately and completely. Identifies the case name and citation in the correct format.</td>
<td>8</td>
</tr>
<tr>
<td><strong>FACTS / SUMMARY OF RELEVANT FACTS / STATEMENT OF FACTS</strong></td>
<td>Briefly indicate the reasons for the lawsuit. Identify the relationship/status of the parties (Note: Do not merely refer to the parties as the plaintiff/defendant or appellant/appellee; be sure to also include more descriptive generic terms to identify the relationship/status at issue, e.g., buyer/seller, employer/employee ( etc.) Identify legally relevant facts, that is, those facts that tend to prove or disprove an issue before the court. The relevant facts tell what happened before the parties entered the judicial system. Identify procedurally significant facts. You should set out (1) the cause of action (the law the plaintiff claimed was broken), (2) relief the plaintiff requested, (3) defenses, if any; the defendant raised.</td>
<td>Presents few, if any, facts of the case. Does not include all key facts and reasoning is absent or incoherent or is not in accord with the opinion.</td>
<td>Presents some facts of the case. Does not include all key facts.</td>
<td>Presents the facts of the case. Includes all key facts and the reasoning may contain weaknesses but is basically cogent and accords with the opinion.</td>
<td>Presents and explains the facts of the case. Includes all relevant facts and the reasoning logically connects the facts to the rule in accord with the opinion.</td>
<td>8</td>
</tr>
</tbody>
</table>
### TOPIC / ISSUE(S) / LEGAL QUESTION / LEGAL PRINCIPLE / RULE / RELEVANT LAW / RULE OF LAW
The legal question(s).

Concisely phrase, in the form of a question, the essential issue before the court.

A substantive statement of the issue consists of the point of law in dispute and the key facts of the case relating to that point of law in dispute (legally relevant facts). Procedural issue: What is the appealing party claiming the lower court did wrong (e.g., ruling on evidence, jury instructions, granting of summary judgment, etc.)?

This is the rule of law that the court applies to determine the substantive rights of the parties. The rule of law could derive from a statute, case rule, regulation, or may be a synthesis of prior holdings in similar cases (common law). The rule of legal principle may be expressly stated in the opinion or it may be implied.

<table>
<thead>
<tr>
<th>Incorrect issue is identified.</th>
<th>Issue is not completely identified.</th>
<th>Issue correctly identified but may contain extraneous information and is not stated in the form of a question.</th>
<th>Issue correctly identified and is stated in the form of a question.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Incorrect rule is identified.</td>
<td>Rule is not completely identified.</td>
<td>Identifies and describes the topic and issue(s) of the case.</td>
<td>Identifies and describes in detail the topic and issue(s) of the case.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Rule correctly identified but may contain extraneous info and is not in the form of a statement.</td>
<td>Rule is correctly identified and is in the form of a statement.</td>
</tr>
</tbody>
</table>

### DECISION / FINDINGS / JUDGMENT
This is the court’s final decision as to the rights of the parties, the court’s response to a party’s request for relief. Generally, the appellate court will either affirm, reverse, or reverse with instructions. The judgment is usually found at the end of the opinion.

<table>
<thead>
<tr>
<th>Fails to answer the issue question.</th>
<th>Fails to answer the issue question.</th>
<th>Answers the issue question.</th>
<th>Answers the issue question.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Provides an incomplete summary or omits a summary of the court’s decision.</td>
<td>Provides a partial summary of the court’s decision.</td>
<td>Summarizes the trial court’s decision and, if applicable, appellate court’s decision.</td>
<td>Summarizes comprehensively the trial court’s decision and, if applicable, appellate court’s decision.</td>
</tr>
</tbody>
</table>

### REASONING / ANALYSIS / RATIONALE
This is the court’s analysis of the issues and the heart of the case brief. Reasoning is the way in which the court applied the rules / legal principles to the particular facts in the case to reach its decision. This includes syllogistic

<table>
<thead>
<tr>
<th>Merely repeats what the court said in analyzing the facts.</th>
<th>Merely repeats what the court said in analyzing the facts.</th>
<th>Explains the reason(s) for the decision.</th>
<th>Explains the reason(s) for the decision in detail.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Incompletely explains the reason(s) for the decision.</td>
<td>Partially explains the reason(s) for the decision.</td>
<td>Summarizes the court’s rationale in own words.</td>
<td>Summarizes the court’s rationale in own words.</td>
</tr>
</tbody>
</table>
application of the rules as well as policy arguments the court used to justify its holding.

**IMPLICATIONS FOR AVIATION PROFESSIONALS**

For this course, this is an important section. How does this opinion impact our aviation professionals? What are the implications to aviation professionals? How may we apply this case to our activities in aviation? What are the political, economic or social impacts of this decision going forward?

<table>
<thead>
<tr>
<th>Incompletely / Incorrectly assesses the implication(s) of the decision and its importance for aviation professionals.</th>
<th>Somewhat assesses the implication(s) of the decision and its importance for aviation professionals.</th>
<th>Adequately assesses the implication(s) of the decision and its importance for aviation professionals.</th>
<th>Thoroughly assesses the implication(s) of the decision and its importance for aviation professionals.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Error.</td>
<td>Some error.</td>
<td>No error.</td>
<td>No error.</td>
</tr>
</tbody>
</table>

Total Points: Maximum possible 72
Performance Indicator Rubric

**AABI Student Learning Outcome H**: Use the Techniques, Skills and Modern Technology necessary for Professional Practice

**Course**: FSCI 2250 Instrument Flight Foundations  **Semester Taught**: Fall 2017  **Number of Students Scored**: 24

Type of Student Work Used for Assessment* (e.g. Homework #4; Exam #2 problem 3; final project): Exams 1-3, X/C Project

*Attach description of assignment used for assessment and samples of student work.

<table>
<thead>
<tr>
<th>Performance Indicator</th>
<th>Needs Improvement</th>
<th>Meets Expectations</th>
<th>Exceeds Expectations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identify necessary techniques, skills and tools of modern aviation practice for a given situation.</td>
<td>Identifies a small subset of necessary techniques, skills, and tools; identifies unrelated techniques, skills, and tools.</td>
<td>Identifies almost all of the relevant techniques, skills, and tools; missing some minor techniques, skills, and tools.</td>
<td>Identifies all relevant techniques, skills, and tools; does not include unrelated techniques, skills, and tools.</td>
</tr>
<tr>
<td>Explain the use of specific techniques, skills and tools of modern aviation practice.</td>
<td>Provides little explanation of how the techniques, skills, and tools should be used; provides incorrect explanation of how to use techniques, skills, and tools.</td>
<td>Explains how almost all of the techniques, skills, and tools should be used; shows adequate understanding of techniques, skills, and tools; missing the explanation of some minor techniques, skills, and tools.</td>
<td>Explains how all relevant techniques, skills, and tools should be used; shows in-depth understanding of techniques, skills, and tools; does not explain unrelated aspects of techniques, skills, and tools.</td>
</tr>
<tr>
<td>Apply the chosen techniques, skills and tools of modern aviation practice to the given situation.</td>
<td>Applies a small subset of the necessary techniques, skills, and tools; incorrectly applies the techniques, skills, and tools.</td>
<td>Correctly applies almost all of the techniques, skills, and tools; demonstrates adequate use of techniques, skills, and tools; incorrectly applies some minor techniques, skills, and tools.</td>
<td>Correctly applies all relevant techniques, skills, and tools; demonstrates mastery of techniques, skills, and tools; does not apply unnecessary techniques, skills, and tools.</td>
</tr>
<tr>
<td>Reflect on the choice of techniques, skills and tools of modern aviation practice applied to the given situation.</td>
<td>Provides little evidence of reflection; incorrectly attributes success or failure to certain techniques, skills, and tools.</td>
<td>Reflects properly on almost all of the techniques, skills, and tools; proposes some improvements or justifies properly the use of some techniques, skills, and tools; reflects improperly on some minor techniques, skills, and tools.</td>
<td>Reflects properly on all relevant techniques, skills, and tools; proposes several improvements or justifies properly the use of all techniques, skills, and tools; does not reflect on irrelevant techniques, skills, and tools.</td>
</tr>
<tr>
<td>Performance Indicator</td>
<td>Questions, Problems, Etc.</td>
<td>% Needs Improvement</td>
<td>% Meets Expectations</td>
</tr>
<tr>
<td>--------------------------------------------------------------------------------------</td>
<td>---------------------------</td>
<td>---------------------</td>
<td>----------------------</td>
</tr>
<tr>
<td>Identify necessary techniques…for a given situation</td>
<td>Exam 1 Question 34</td>
<td>50%</td>
<td>50%</td>
</tr>
<tr>
<td></td>
<td>Exam 1 Question 41</td>
<td>4%</td>
<td>96%</td>
</tr>
<tr>
<td></td>
<td>Exam 2 Question 4</td>
<td>8%</td>
<td>92%</td>
</tr>
<tr>
<td></td>
<td>Exam 2 Question 39</td>
<td>12%</td>
<td>88%</td>
</tr>
<tr>
<td></td>
<td>Exam 3 Question 4</td>
<td>0%</td>
<td>100%</td>
</tr>
<tr>
<td></td>
<td>Exam 3 Question 14</td>
<td>12%</td>
<td>88%</td>
</tr>
<tr>
<td></td>
<td><strong>Average</strong></td>
<td>14%</td>
<td><strong>86%</strong></td>
</tr>
<tr>
<td>Explain specific techniques…of modern aviation practice</td>
<td>Exam 1 Question 6</td>
<td>19%</td>
<td>81%</td>
</tr>
<tr>
<td></td>
<td>Exam 1 Question 40</td>
<td>50%</td>
<td>50%</td>
</tr>
<tr>
<td></td>
<td>Exam 2 Question 25</td>
<td>8%</td>
<td>92%</td>
</tr>
<tr>
<td></td>
<td>Exam 2 Question 40</td>
<td>17%</td>
<td>83%</td>
</tr>
<tr>
<td></td>
<td>Exam 3 Question 2</td>
<td>25%</td>
<td>75%</td>
</tr>
<tr>
<td></td>
<td>Exam 3 Question 17</td>
<td>12%</td>
<td>88%</td>
</tr>
<tr>
<td></td>
<td><strong>Average</strong></td>
<td>22%</td>
<td><strong>78%</strong></td>
</tr>
<tr>
<td>Apply chosen techniques…to the given situation</td>
<td>Exam 1 Question 18</td>
<td>4%</td>
<td>96%</td>
</tr>
<tr>
<td></td>
<td>Exam 1 Question 27</td>
<td>35%</td>
<td>65%</td>
</tr>
<tr>
<td></td>
<td>Exam 2 Question 22</td>
<td>4%</td>
<td>96%</td>
</tr>
<tr>
<td></td>
<td>Exam 2 Question 47</td>
<td>8%</td>
<td>92%</td>
</tr>
<tr>
<td></td>
<td>Exam 3 Question 8</td>
<td>4%</td>
<td>96%</td>
</tr>
<tr>
<td></td>
<td>Exam 3 Question 25</td>
<td>37%</td>
<td>63%</td>
</tr>
<tr>
<td></td>
<td><strong>Average</strong></td>
<td>15%</td>
<td><strong>85%</strong></td>
</tr>
<tr>
<td>Reflect on the choice of techniques… to given situation</td>
<td>Presentation</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Overall, the class performed at or above expectations. Additional work on application via in-class exercises and simulations is envisioned for future offerings. Consider video-taping presentations for additional/more nuanced evidence.
Indirect Measures of Assessment

Student Surveys
Waiting for department-level report to include in this section.
<table>
<thead>
<tr>
<th>November 7, 2019</th>
<th>Saint Louis University</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Parks College of Engineering, Aviation and Technology</td>
</tr>
<tr>
<td></td>
<td>Bachelor of Science in Aeronautics</td>
</tr>
<tr>
<td></td>
<td>Concentration in Flight Science</td>
</tr>
</tbody>
</table>

Department of Aviation Science

Appendix B

Spring 2019 Flight Science

Student Achievement Data
Direct Measures Of Assessment

AABI Student Learning Outcome J: Apply pertinent knowledge in identifying and solving problems (Evaluated for Spring 2019)
<table>
<thead>
<tr>
<th>Rating</th>
<th>Needs Improvement</th>
<th>Meets Expectations</th>
<th>Exceeds Expectations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apply pertinent knowledge in identifying and solving problems associated with safety management systems</td>
<td>Does not demonstrate foundational knowledge of the theoretical underpinnings associated with SMS</td>
<td>Demonstrates a foundational knowledge of the theoretical underpinnings associated with SMS</td>
<td>Demonstrates a mastery of theoretical underpinnings and can apply concepts in a practical manner</td>
</tr>
<tr>
<td>Demonstrate competence in relating and applying concepts surrounding Safety Policy</td>
<td>Is not able to apply concepts surrounding safety policy and is unable to related to other aspects of SMS</td>
<td>Is generally able to apply concepts surrounding safety policy with familiarity of its relationship to other aspects of SMS</td>
<td>Effectively applies concepts surrounding safety policy and can relate those concepts to other aspects of SMS</td>
</tr>
<tr>
<td>Demonstrate competence in relating and applying concepts surrounding Safety Risk Management</td>
<td>Is not able to apply concepts surrounding safety policy and is unable to related to other aspects of SMS</td>
<td>Is generally able to apply concepts surrounding safety risk management with familiarity of its relationship to other aspects of SMS</td>
<td>Effectively applies concepts surrounding safety risk management and can relate those concepts to other aspects of SMS</td>
</tr>
<tr>
<td>Demonstrate competence in relating and applying concepts surrounding Safety Assurance</td>
<td>Is not able to apply concepts surrounding safety policy and is unable to related to other aspects of SMS</td>
<td>Is generally able to apply concepts surrounding safety assurance with familiarity of its relationship to other aspects of SMS</td>
<td>Effectively applies concepts surrounding safety assurance and can relate those concepts to other aspects of SMS</td>
</tr>
<tr>
<td>Demonstrate competence in relating and applying concepts surrounding Safety Promotion</td>
<td>Is not able to apply concepts surrounding safety policy and is unable to related to other aspects of SMS</td>
<td>Is generally able to apply concepts surrounding safety promotion with familiarity of its relationship to other aspects of SMS</td>
<td>Effectively applies concepts surrounding safety promotion and can relate those concepts to other aspects of SMS</td>
</tr>
</tbody>
</table>

Description of Assignments: Evaluation based on test administered throughout the semester including the final examination

| Student Learning Outcome J - Apply Pertinent Knowledge in Identifying and Solving Problems |
|-----------------------------------------------|-----------------------------------------------|----------------|----------------|----------------|
| Performance indicator                        | Work description/Test questions                | % needs improvement | % Meets expectations | % Exceeds expectations |
| Student’s will apply pertinent knowledge in identifying and solving problems associated with safety management systems | Test #1 – Questions 1, 3, 4, 15, 17, 19, 25 | 8%            | 14%            | 78%            |
|                                               | Test #2 – Questions 3, 7, 20, 21               | 29%           | 35%            | 34%            |
|                                               | Final Examination – 2, 3, 4, 9, 11, 16, 53, 59, 77 | 0%            | 17%            | 79%            |
| Student’s will demonstrate competence in      | Test #2 – Questions 1, 11, 13, 17             | 29%            | 35%            | 34%            |
|                                               | Final Examination – 54, 58, 60, 62             | 0%            | 17%            | 79%            |
| Student’s will demonstrate competence in describing the concept of Safety Policy | Test #2 – Questions 24, 28, 29, 32 | 29% | 35% | 34% |
| Final Examination – 6, 7, 63, 64, 70, 72 | 0% | 17% | 79% |
| Student’s will demonstrate competence in describing the concept of Safety Risk Management | Test #2 – Questions 8, 16, 19, 28, 30 | 29% | 35% | 34% |
| Final Examination – 69, 71, 73, 74, 75 | 0% | 17% | 79% |
| Student’s will demonstrate competence in describing the concept of Safety Assurance | Final Examination – 43, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 91, 92, 93, 94, 95, 96, 97, 98, 99 | 29% | 17% | 79% |

**Summary**

Overall, student performance was bimodal based on the totality of each assessment (tests). Assessing student learning outcomes using test scores is not sufficiently granular to provide more-detailed analysis and follow-up strategies for continuous improvement.

**Instructor Commentary**

Regrettably, I utilized “answer sheets” with each test. Upon grading and following discussion in-class, answer sheets were returned to the students. Consequently, I was unable to uniquely assess each contributory performance indicator. Lesson learned for the semester is to retain copies of answer sheets in order to provide a more-detailed analysis. Overall, I am slightly disappointed with the relatively high percentage of “needs improvement” scores from Test #2. Test #2 focuses on detailed aspects of contemporary safety management system and the test itself was not a multiple-choice test. I would consider the test to be rigorous in comparison to other proficiency measures used in the course. I anticipate developing a study guide to complement course lectures in the coming terms. I also plan to record each lecture and make it available on the Blackboard LMS for review.

---

**Performance Indicator Rubric**

AABI Student Learning Outcome J: Apply Pertinent Knowledge in Identifying and Solving Problems

Course: ASCI 3020 Jet Transport Systems II Semester Taught: Spring 2019 Number of Students Scored: 21
Type of Student Work Used for Assessment* (e.g. Homework #4; Exam #2 problem 3; final project): Test 1

*Attach description of assignment used for assessment and samples of student work.

<table>
<thead>
<tr>
<th>Performance Indicator</th>
<th>Rating Scale</th>
<th>Needs Improvement</th>
<th>Meets Expectations</th>
<th>Exceeds Expectations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Formulate the problem and identify key issues/variables.</td>
<td>Weak problem formulation; some issues/variables identified, but many missing; many criteria missing; many constraints missing; many assumptions missing.</td>
<td>Adequate problem formulation; most key issues/variables are identified; almost all criteria presented for ranking alternatives; Almost all constraints identified; almost all assumptions identified.</td>
<td>Complete and succinct problem formulation; key issues/variables identified; all relevant criteria presented for ranking alternatives; all relevant constraints identified; all relevant assumptions identified.</td>
<td></td>
</tr>
<tr>
<td>Analyze and justify solutions to a problem.</td>
<td>Limited analysis of alternatives; only some criteria evaluated; only some constraints considered; weak discussion of analysis results; missing significant steps in decision making process; weak justification for final solution.</td>
<td>Appropriate analysis approach; mostly correct analysis results; criteria evaluated with minor errors; constraints considered with minor errors; adequate discussion of analysis results; document decision making process.</td>
<td>Well thought out or clever analysis approach; complete and correct analysis results; complete consideration of constraints; detailed discussion of analysis results; detailed documentation of decision making process.</td>
<td></td>
</tr>
</tbody>
</table>

Description of Assignment: Test 1 was based on lecture material covered in the course.

<table>
<thead>
<tr>
<th>Performance Indicator</th>
<th>Questions, Problems, Etc.</th>
<th>% Needs Improvement</th>
<th>% Meets Expectations</th>
<th>% Exceeds Expectations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Formulate the problem and identify key issues/variables</td>
<td>Question #12</td>
<td>9.5</td>
<td>90.5</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td>Question #19</td>
<td>19.0</td>
<td>81.0</td>
<td>N/A</td>
</tr>
</tbody>
</table>
Analyze and justify solutions to a problem

| Question #17 | 4.8 | 95.2 | N/A |
| Question #36 | 23.8 | 76.2 | N/A |
| Question #42 | 13.1 | 86.9 | N/A |

An example of the Test 1 used in the ASCI 3020 Jet Transportation Systems II course in Spring 2019 is found in Appendix C of this document.

To improve the course outcome, the instructor suggests providing more class time on topics in which students need improvement so that more of the students will be capable of at minimum, meeting the expectations while reinforcing the abilities of those students currently meeting and exceeding expectations.

**Description of Assignment:** Test 2 was based on lecture material covered in the course.

<table>
<thead>
<tr>
<th>Performance Indicator</th>
<th>Questions, Problems, Etc.</th>
<th>% Needs Improvement</th>
<th>% Meets Expectations</th>
<th>% Exceeds Expectations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Formulate the problem and identify key issues/variables</td>
<td>Question #6</td>
<td>14.3</td>
<td>85.7</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td>Question #10</td>
<td>66.7</td>
<td>33.3</td>
<td>N/A</td>
</tr>
<tr>
<td>Analyze and justify solutions to a problem</td>
<td>Question #24</td>
<td>0.0</td>
<td>100.0</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td>Question #26</td>
<td>4.8</td>
<td>95.2</td>
<td>N/A</td>
</tr>
</tbody>
</table>

An example of the Test 2 used in the ASCI 3020 Jet Transportation Systems II course in Spring 2019 is found in Appendix C of this document.

To improve the course outcome, the instructor suggests providing more class time on topics in which students need improvement so that more of the students will be capable of at minimum, meeting the expectations while reinforcing the abilities of those students currently meeting and exceeding expectations.

**Description of Assignment:** Test 3 was based on lecture material covered in the course.

<table>
<thead>
<tr>
<th>Performance Indicator</th>
<th>Questions, Problems, Etc.</th>
<th>% Needs Improvement</th>
<th>% Meets Expectations</th>
<th>% Exceeds Expectations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Formulate the problem and identify key issues/variables</td>
<td>Question #5</td>
<td>33.3</td>
<td>66.7</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td>Question #22</td>
<td>66.7</td>
<td>33.3</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td>Question #28</td>
<td>9.5</td>
<td>90.5</td>
<td>N/A</td>
</tr>
</tbody>
</table>
Analyze and justify solutions to a problem | Question #40 | 47.6 | 52.4 | N/A

An example of the Test 3 used in the ASCI 3020 Jet Transportation Systems II course in Spring 2019 is found in Appendix C of this document.

To improve the course outcome, the instructor suggests providing more class time on topics in which students need improvement so that more of the students will be capable of at minimum, meeting the expectations while reinforcing the abilities of those students currently meeting and exceeding expectations.

**Description of Assignment:** The Final Exam was based on lecture material covered in the course.

<table>
<thead>
<tr>
<th>Performance Indicator</th>
<th>Questions, Problems, Etc.</th>
<th>% Needs Improvement</th>
<th>% Meets Expectations</th>
<th>% Exceeding Expectations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Formulate the problem and identify key issues/variables</td>
<td>Question #14</td>
<td>9.5</td>
<td>90.5</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td>Question #36</td>
<td>14.3</td>
<td>85.7</td>
<td>N/A</td>
</tr>
<tr>
<td>Analyze and justify solutions to a problem</td>
<td>Question #38</td>
<td>4.8</td>
<td>95.2</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td>Question #40</td>
<td>9.5</td>
<td>90.5</td>
<td>N/A</td>
</tr>
</tbody>
</table>

An example of the Final Exam used in the ASCI 3020 Jet Transportation Systems II course in Spring 2019 is found in Appendix C of this document.

To improve the course outcome, the instructor suggests providing more class time on topics in which students need improvement so that more of the students will be capable of at minimum, meeting the expectations while reinforcing the abilities of those students currently meeting and exceeding expectations.

**Performance Indicator Rubric**

AABI Student Learning Outcome J: Apply Pertinent Knowledge in Identifying and Solving Problems

Course: **FSCI 3700 Principles of Flight Instruction I**  
Semester Taught: **Spring 2019**  
Number of Students Scored: **6**  
Type of Student Work Used for Assessment* (e.g. Homework #4; Exam #2 problem 3; final project): **Practice teaching/Service learning project**
*Attach description of assignment used for assessment and samples of student work.*

<table>
<thead>
<tr>
<th>Performance Indicator</th>
<th>Needs Improvement</th>
<th>Meets Expectations</th>
<th>Exceeds Expectations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Formulate the problem and identify key issues/variables.</td>
<td>Weak problem formulation; some issues/variables identified, but many missing; many criteria missing; many constraints missing; many assumptions missing.</td>
<td>Adequate problem formulation; most key issues/variables are identified; almost all criteria presented for ranking alternatives; Almost all constraints identified; almost all assumptions identified.</td>
<td>Complete and succinct problem formulation; key issues/variables identified; all relevant criteria presented for ranking alternatives; all relevant constraints identified; all relevant assumptions identified.</td>
</tr>
<tr>
<td>Analyze and justify solutions to a problem.</td>
<td>Limited analysis of alternatives; only some criteria evaluated; only some constraints considered; weak discussion of analysis results; missing significant steps in decision making process; weak justification for final solution.</td>
<td>Appropriate analysis approach; mostly correct analysis results; criteria evaluated with minor errors; constraints considered with minor errors; adequate discussion of analysis results; document decision making process.</td>
<td>Well thought out or clever analysis approach; complete and correct analysis results; complete consideration of constraints; detailed discussion of analysis results; detailed documentation of decision making process.</td>
</tr>
</tbody>
</table>

All students met expectations for the two performance indicators. Improvement in this area will include the use of personal-review and peer-review rubrics for practice teaching activities, the introduction of more scripted common difficulties encountered in flight instruction to increase scenario realism, and collection of student work samples through the use of video recording.

(rev. 11/01/2017)
<table>
<thead>
<tr>
<th>Component</th>
<th>CFI PTS</th>
<th>Needs Improvement</th>
<th>Meets Expectations</th>
<th>Exceeds Expectations</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Setting instructional outcomes</strong></td>
<td></td>
<td>Stating the purpose</td>
<td>Instructional outcomes are too general, and/or do not reflect CFI Practical Test and Appropriate Airman Certification Standards.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Instructional outcomes are stated as goals reflecting high-level learning and curriculum standards that align with CFI Practical Test and Appropriate Airman Certification Standards.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1/6</td>
<td>1/6</td>
</tr>
<tr>
<td><strong>Demonstrating knowledge of content and pedagogy</strong></td>
<td></td>
<td>Giving an accurate, comprehensive oral description</td>
<td>Instructor's plans and practice reflect some awareness of the important concepts and prerequisite relations between them.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Instructor's plans and practice reflect solid knowledge of the content, and prerequisite relations between important concepts.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>0/6</td>
<td>4/6</td>
</tr>
<tr>
<td><strong>Designing coherent instruction</strong></td>
<td></td>
<td>Use of instructional aids, as appropriate</td>
<td>The series of learning experiences demonstrates partial alignment with instructional outcomes, some of which are likely to engage students in significant learning. The lesson or unit has a recognizable structure and reflects partial knowledge of students and resources.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Instructor coordinates knowledge of content, of students, and of resources, to design a series of learning experiences aligned to instructional outcomes. The lesson or unit has a clear structure and is likely to engage</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>5/6</td>
<td>1/6</td>
</tr>
</tbody>
</table>

Instructor coordinates knowledge of content, of students, and of resources, to design a series of learning experiences aligned to instructional outcomes, differentiated where appropriate to make them suitable to all students and likely to engage them in significant learning as they relate to concepts and processes in Ohio standards and school/district curriculum. The lesson or unit’s structure is clear and allows for different pathways according to student needs.
| Using Assessment in Instruction | Recognition, analysis, and correction of common errors | Assessment is occasionally used in instruction, through some monitoring of progress of learning. Feedback to students is uneven, and students are aware of only some of the assessment criteria used to evaluate their work. | Assessment is regularly used in instruction, through self-assessment by students, monitoring of progress of learning by Instructor, and through high quality feedback to students. Students are fully aware of the assessment criteria used to evaluate their work. | Assessment is used in a sophisticated manner in instruction, through student involvement in establishing the assessment criteria, self-assessment by students and monitoring of progress by both students and Instructors, and high quality feedback to students. |

Indirect Measures of Assessment
Indirect Measures of Assessment

Alumni Surveys
## Alumni surveys (10 Responses)

How well do you feel your education at Saint Louis University prepared you in fulfilling the following program objectives:

### To enhance your broad-based knowledge:
- Neither Agree nor Disagree
- Neither Agree nor Disagree
- Strongly Agree
- Neither Agree nor Disagree
- Disagree
- Agree
- Neither Agree nor Disagree
- Strongly Agree

### To develop skills surrounding piloting, communication, research and critical thinking, decision making and team building:
- Agree
- Agree
- Agree
- Strongly Agree
- Strongly Agree
- Agree
- Disagree
- Strongly Agree
- Agree
- Strongly Agree

### To develop abilities to succeed in life regardless of their chosen fields:
- Strongly Agree
- Disagree
- Disagree
- Agree
- Agree
- Strongly Agree
How well do you feel your education at Saint Louis University prepared you in fulfilling the following program objectives: - To develop an attitude reflecting an education at a Jesuit University:

Strongly Agree

Disagree

Agree

Agree

Neither Agree nor Disagree

Of the undergraduate courses in Flight Science, tell us which was your favorite and why:

Aviation law. I found this class challenging and I feel like I learned about how to protect myself legally as a flight instructor.

Personally, I think that the King air initial course was the most valuable aviation course I took. It was a great transition to advanced systems and taught by someone with actual experience in that plane and an airline environment. I can say without a doubt that the crew training and disciplines instilled in that course and the crj course have prepared parks students far better for crew environments and cockpit disciplines than other programs such as ATP.

Jet flying technique I & II
Saul Robinson was a joy to work with. He treated us like adults and was always open to changing the course to improve it! The course itself was very valuable, educating me on the procedures and skills of flying faster and more technical aircraft.

Aviation Law and Accident Investigation. Both are applicable to my career and I use the knowledge gained from these courses regularly, if not daily.

CRJ course. This course was fun and it was helpful in preparing my career as an airline pilot.

Concepts in Aerodynamics with Saul Robinson. The class felt advanced and challenged us to understand new concepts.

Probably Jet Flying Techniques (both semesters). I had a blast with Dr. Robinson. He was a really great teacher and mentor that actually pushed me further than I thought I could go. He had such a high standard that I wanted to meet and so I tried my hardest to be above that standard.

Any of Saul’s courses. Especially TRM. Just a fun environment and good course content.
Accident Investigation. Because Terry Kelly is the best professor that the AVSCI program has and out of the coursework I took, presented the information in the most interesting and engaging manner.

Jet transition course and CRJ simulator. This gave me real-world practical knowledge and skills that immediately assisted me with my first full-time pilot job in a jet aircraft.

How could we better prepare students to satisfy these objectives? (e.g., additional topics, courses, concentration areas, minors, etc.)

I think all students should be encouraged to pursue a minor outside of the flight science minors to broaden their knowledge and future prospects.

I think that the King air simulator should be repaired or replaced to allow students to build crew fundamentals before transition to the CRJ simulator. I also believe that the aviation department should have a wider variety of professors with real world experience in a crew or airline environment. While the current staff has prepared me well, there is no substitute for actual experience and I think students would benefit from advice and from current or past airline pilots that could share the intricacies of the industry.

I think to improve SLUs program a CFI course should be mandatory. Also, other competitive flying courses at other school are ALOT faster. I felt like it took forever to finish my flying requirements. I also felt under prepared in obtaining a job flying after graduation. I still feel the same way today. It’s almost impossible to find a job flying with low time requirements that pays a livable wage.

Push for more flight students to pursue internship opportunities. It is tough to work and continue flight training over the summer, but maybe that should be addressed.

More minors related to aviation could be offered. Additional topics like international flying could be discussed with students.

Somehow make more hands on learning activities or situational examples required to make decisions. In the Marine Corps, we are all briefed on a general scenario, then we make decisions afterwards. They are called Tactical Decision Games (TDGs). This promotes creativity, innovation, constructive criticism, and a thorough understanding of the thought processes of others as they take on new challenges.

I think the main problem the aviation science department runs into is old equipment. Between the CRJ700 sim and the King Air sim all the way to the ATC sim, the stuff is old. We can better enable students to complete their objectives by providing better learning equipment for them.
Have a course dedicated to difficult CRM situations, it’s easy when you get along, not so much when the captain is a jerk.

The careers that Flight Science students are set up for do not care how many research papers you have written or how well you can write them. They do not care that you know trivial knowledge such as the trigonometry behind INS/IRS system operations. They DO care that you have excellent decision making and judgment. They DO care that you have excellent customer service skills. When I left Parks and went right into my airline career, I could not make a well thought out announcement to passengers explaining why we were delayed getting off the gate or why we just diverted to an unplanned location because there was a thunderstorm over our destination airport. I had zero understanding of how to descend via a STAR or climb via a SID. Rest assured, however, I could write a research paper on those topics. The AVSCI department needs to do in depth analysis of the careers that AVSCI students are going into and revisit the content of courses to give PRACTICAL scenario based training to students based on the findings.

Continue to focus on fundamentals as well as essential skills necessary for real-world jobs.

When you graduated from Parks College with a degree in Flight Science, you were prepared to do the following: -
Apply knowledge of mathematics, science, and applied sciences to aviation-related disciplines
Strongly Agree
Strongly Agree
Strongly Agree
Agree
Agree
Strongly Agree
Agree
Strongly Agree
Agree
Strongly Agree
Strongly Agree
When you graduated from Parks College with a degree in Flight Science, you were prepared to do the following:

- Analyze and interpret data
  Agree
  Strongly Agree
  Strongly Agree
  Agree
  Agree
  Strongly Agree
  Agree
  Strongly Agree
  Agree
  Strongly Agree

- Function on multi-disciplinary and diverse teams
  Agree
  Strongly Agree
  Strongly Agree
  Agree
  Agree
  Strongly Agree
  Agree
  Agree
  Agree
  Strongly Agree

- Understand professional and ethical responsibility
  Strongly Agree
  Strongly Agree
  Strongly Agree
  Agree
  Agree
  Strongly Agree
  Strongly Agree
  Strongly Agree
  Strongly Agree
  Agree
  Strongly Agree
When you graduated from Parks College with a degree in Flight Science, you were prepared to do the following:

- Communicate effectively, including both written and oral communication skills
  - Strongly Agree
  - Strongly Agree
  - Strongly Agree
  - Agree
  - Neither Agree nor Disagree

- Recognize the need for, and engage in, life-long learning
  - Strongly Agree
  - Strongly Agree
  - Strongly Agree
  - Agree
  - Agree
  - Neither Agree nor Disagree

- Have knowledge of contemporary issues
  - Strongly Agree
  - Strongly Agree
  - Strongly Agree
  - Agree
  - Agree
  - Neither Agree nor Disagree
When you graduated from Parks College with a degree in Flight Science, you were prepared to do the following:

Communicate effectively, including both written and oral communication skills
Strongly Agree
Strongly Agree
Strongly Agree
Agree
Neither Agree nor Disagree
Strongly Agree
Strongly Agree
Strongly Agree
Agree
Strongly Agree

Recognize the need for, and engage in, life-long learning
Strongly Agree
Strongly Agree
Strongly Agree
Agree
Agree
Agree
Strongly Agree
Strongly Agree
Agree
Agree
Neither Agree nor Disagree
Strongly Agree

Have knowledge of contemporary issues
Strongly Agree
Strongly Agree
Strongly Agree
Agree
Agree
Agree
Strongly Agree
Agree
Agree
Neither Agree nor Disagree
Strongly Agree
When you graduated from Parks College with a degree in Flight Science, you were prepared to do the following:

Apply knowledge of business sustainability to aviation issues

- Strongly Agree
- Neither Agree nor Disagree
- Strongly Agree
- Disagree
- Disagree
- Agree
- Neither Agree nor Disagree
- Strongly Agree
- Neither Agree nor Disagree
- Neither Agree nor Disagree

Additional Comments:

Some of my communication/writing ability stems from taking classes outside the flight science courses. I had a minor in business administration which gave me a broader perspective with regards to global issues.

I did not actively research aviation (commercial, corporate, private, etc.) while at Parks College. I think it would be beneficial to require some research different airlines etc. in order to build up the understanding of every student. Maybe even try to plan for non-mandatory field trips to see what the airlines are all about, inside and out.
Department of Aviation Science

Appendix C

Fall 2018 Flight Science

Student Achievement Data – Course Assessment Evidence
Direct Measures Of Assessment
Circle the correct response. Each question is worth 1 point.

1. Which of the following European airlines voted unanimously in favor of a collective labor agreement?
   A. Lufthansa.
   B. Ryanair. [Corrected]
   C. Air France.

2. A major part of the proposed agreement noted in Question 1 covers which area(s)?
   A. Base transfers and command upgrades and seniority principles.
   B. Base salary for persons at the level of captain.
   C. Medical and life insurance policy upgrades.

3. Industry experts expect that the funding for the FAA, assuming a reauthorization bill is not passed, will extend until:
   A. The end of the year (December 31, 2018).
   B. September 30, 2018.
   C. June 30, 2018.

4. A process described in the FAA Extension article by which legislation if passed back and forth between the U.S. Senate and House until an agreement is reached is referred to as:
   A. Give-and-take.
   B. Bipartisanship.
   C. Ping-ponging. [Corrected]

5. Which of the following airlines plans to drop its only service to Southeast Asia early in 2019?
   A. Swiss International.
   B. Finnair.
   C. Norwegian. [Corrected]
6. Tore Ostby, the EVP of Strategy gave which of the following reasons for the airline for the airline noted in Question 5 not increasing Asian flights?
   A. The yields are not there.
   B. Persons in Asia not flying west to Europe.
   C. Both answers A and B.

7. In addition to U.S. and Canada services, the airline noted in Question 5 is beginning to expand routes to which region of the world?
   A. Antarctica.
   B. Latin America.
   C. Africa.

8. Which of the following airlines has recently completed a major biofuel trial and expects additional testing in the future?
   A. Qantas.
   B. Virgin Australia.
   C. Air New Zealand.

9. The biofuel supply used by the airline in Question 8 was delivered to the airline using:
   A. Fuel trucks only to keep the biofuel out of the existing refueling infrastructure.
   B. The traditional aircraft refueling infrastructure.

10. The biofuel used by the airline in Question 8 was produced in which country?
    A. United States.
    B. United Arab Emirates.
    C. Brazil.

**EXTRA CREDIT – worth up to two points**

The agreement reached between pilots and the airline noted in Question 1 will provide pilots with what is viewed as transparency and fairness. List at least two aspects of the agreement that the pilots find desirable.

- choose their base
- know their seniority rank in regards to other pilots at the airline
Circle the correct response. Each question is worth 1 point.

1. Which of the following European airlines voted unanimously in favor of a collective labor agreement?
   A. Lufthansa.
   B. Ryanair.
   C. Air France.

2. The pilots flying for the airline noted in Question #1 are often contract pilots who want their labor contracts to be constructed by:
   A. Their national unions.
   B. Their contract broker agency.
   C. The European Cockpit Association (ECA.)

3. The FAA released a final rule requiring the design of fuel systems in transport category aircraft to protect against:
   A. Fuel starvation during operation.
   B. Refueling aircraft with the incorrect type of fuel.
   C. Fuel vapor ignition caused by lightning strikes.

4. The Federal Aviation Regulation that is amended to change the fuel systems in transport category aircraft is:
   A. Part 43.
   B. Part 145.
   C. Part 25.

5. The manufacturer of transport category aircraft noted in Question #3 are required to establish what level of fuel system protection against lightning strikes?
   A. Triple redundant fault standard tolerance.
   B. Double redundant fault standard tolerance.
   C. Single fault standard tolerance.

6. The FAA is adding Airport Surface Detection Equipment-X (ASDE-X) at major airports to allow air traffic controllers to detect:
   A. Aircraft potentially lined up to land on airport taxiways.
   B. Airport runway incursions by aircraft on the ground.
   C. Poor aircraft braking during landing caused by contaminated runways.
7. If the ASDE-X system detects the dangerous condition noted in Question #6, the system will:
   A. Alert the flight crew to the condition.
   B. Alert the air traffic controllers with aural and visual alerts.
   C. Alert the airport’s Aircraft Rescue and Fire Fighting (ARFF) crew of the condition.

8. Regarding the post-Brexit era in Europe, the Director General of the International Air Transport Association (IATA) expressed which of the following desires for air travel in between the European Union (EU) and the United Kingdom (UK)?
   A. Not allowing EU-based airlines to fly into or out of the UK.
   B. Not allowing UK-based airlines to fly into or out of the EU.
   C. Allow EU-based airline to fly into or out of the UK and have EU countries reciprocate.

9. A European Commission (EC) guidance document states which of the following concerning the air transportation rules when the UK exits from the EU?
   A. All EU rules covering air transport continue to exist when the UK departs the EU.
   B. All EU rules covering air transport cease to exist when the UK departs the EU.

10. When the Brexit occurs, the UK-based airline operating certificates that currently allow operation in the EU will:
    A. Cease to be valid in the remaining 27 EU nations.
    B. Continue to be valid in the remaining 27 EU nations.

EXTRA CREDIT – worth up to two points

The National Transportation Safety Board (NTSB) investigation into an incident at which airport is a reason for the FAA to install the ASDE-X system (as noted in Question #6) at major airports?

SFO (San Francisco)
Circle the correct response. Each question is worth 1 point.

1. IATA reports that passengers desire more real-time information on their personal devices in which of the following areas?
   A. Flight status.
   B. Baggage location.
   C. Wait-times at security and immigration checkpoints.
   D. All the above.

2. Of the answers listed in Question 1, which of the following do passengers describe to IATA as a "must" item.
   A. Flight status.
   B. Baggage location.
   C. Wait-times at security and immigration checkpoints.

3. Which of the following airlines flew a Boeing 747 from Orlando, Florida to London Gatwick Airport on a blend of waste-gas biofuel?
   A. Virgin Atlantic.
   B. United Airlines.
   C. Air New Zealand.

4. The biofuel used by the airline noted in Question 3 captured waste carbon dioxide from industrial steel production to create which of the following products that can be converted into jet fuel?
   A. Jatropha.
   B. Palm oil.
   C. Ethanol.

5. Software upgrades are being mandated for CFM International Leap-1A engines due to which of the following operations being experienced by one operator?
   A. Hot weather operation.
   B. Cold weather operation.
   C. High altitude operations.
6. Which of the following aircraft manufacturers experienced a rebound in aircraft deliveries as compared to deliveries from this past summer?
   A. Boeing.
   B. Airbus.
   C. Shanghai Aircraft Manufacturing.

7. Which of the following airlines used its hub-flow strategy to increase its Q3 net income?
   A. United Airlines.
   B. Southwest Airlines.
   C. JetBlue Airways.

8. The airline noted in Question 7 shifted East Coast hub flying by shifting regional flights and bring higher-margin New York area flights into which of the following airports?
   A. Newark Liberty.
   B. LaGuardia Airport.

9. Which of the following airlines is modifying its existing fleet to provide for an increase in the noise reduction capacity of its fleet?
   A. Southwest Airlines.
   B. Delta Airlines.
   C. JetBlue Airways.

10. Which of the following modifications is being used by the airline noted in Question 9 to achieve the noise reduction capacity of its fleet?
    A. Engine exhaust reduction.
    B. Saw-tooth engine chevrons on the rear edge of engine nacelles.
    C. Vortex generators.

   EXTRA CREDIT – worth up to two points

List one of the two biggest frustrations that passengers reported to IATA in its latest Global Passenger Survey.

Frustration with going through security.
September 18, 2018

ASCI 1010 Professional Orientation

Personal Reflection

I am probably the only Sophomore in this class. This does not bother me in any way, but it does highlight the difference that even just one year of college experience does for a student. As a freshman I thought I had it all figured it out, that I would just naturally adapt to the rigors of college. Going in I thought I just had to put all my effort into the work, not what I really had to do in high school but nothing to get overly concerned about. I failed to realize how truly difficult that could be for me and without the experience I have now I didn’t know how to apply all the advice I had heard.

I started as an Aerospace Engineering major. This had changed from what I had originally applied and been accepted into Saint Louis University for. Family and friends had convinced me that engineering would be better for me than flying, and I cannot blame them or me for the change because given everything that made a lot of sense. Turns out that engineering really is not for me, and it took longer than I like to admit for me to realize that. I trudged through the year very unhappy with my classes. My high school work ethic was ill fit for college, but I was too unmotivated to try and change it. Doing something I disliked without a clear end goal makes it hard to improve myself and fix my poor grades. Now switching back to Flight Science has brought me an end goal and new vigor in my work, and I feel confident in my ability to improve upon myself going forward this year.

With a new start this year I’m looking to improve not only my grades, but my work ethic and organization as well. These things go hand in hand but going forward in life the latter are
more important to success. Setting myself a work schedule and eliminating the distractions around me are working well at the moment to keep me focused on my work and securing my future. Where in the future I envision myself in the cockpit of a commercial airliner, either going through the Air Force Reserves or straight into a regional to get me there. Since this is my first year with this major I have yet to fully set a plan for future, but these are the plans I am currently looking into. For the immediate future though I’m just looking to get into a good rhythm to accomplish my personal goals with the thought of my freshman year’s failures reminding where I don’t want to be.
The multiple-choice questions are worth 3 points each. The extra credit question is worth up to 5 additional points.

Please place the letter of your response on the line next to the question number.

A 1. Who made the first successful manned, powered flight?
   A. Orville Wright.
   B. Wilbur Wright.
   C. Charles Taylor.

B 2. On what date was the first successful manned, powered flight accomplished?
   A. December 17, 1897.
   B. December 17, 1903.
   C. December 17, 1909.

B 3. Where was the first successful manned, powered flight accomplished?
   A. Dayton, Ohio,
   B. Kitty Hawk, North Carolina.
   C. Wichita, Kansas.

A 4. Who accomplished what was the first successful international flight?
   A. Louis Bleriot.
   B. Calbraith Rodgers.
   C. Charles Lindbergh.

B 5. Who accomplished the first transcontinental flight across the U.S.?
   A. Oliver Parks.
   B. Calbraith Rodgers.
   C. Charles Lindbergh.
6. Who successfully completed the first successful solo non-stop trans-Atlantic flight?
   A. Oliver Parks.
   B. Calbraith Rodgers.
   C. Charles Lindbergh.

7. In what year was the first successful solo non-stop trans-Atlantic flight accomplished?
   A. 1930.
   B. 1924.
   C. 1927.

8. What is normally regarded as the airplane's first practical use?
   A. Airmail.
   B. Public transportation.
   C. Air freight.

9. Who is the "Father of Airmail" in the United States?
   A. Charles Lindbergh.
   B. Otto Praeger.
   C. Earl Ovington.

10. Which government legislation was passed that set airmail rates and the level of cash subsidies to be paid to companies that carried the mail, in response to objections by the railroad industry about losing business to airmail service?
    A. Airmail Act of 1925.
    B. Railroad Competition Act of 1925.
    C. Civil Aeronautics Act of 1938.

11. The Civil Aeronautics Act of 1938 transferred the federal civil aviation responsibilities from the Commerce Department to which new independent agency?
    A. Federal Aviation Administration.
    B. Civil Aeronautics Authority.
    C. Department of Transportation.
12. The Civil Aeronautics Act of 1938 made which of the following responsible for the investigation of aircraft accidents?

A. The Civil Aeronautics Authority.
B. The Administrator of Aviation.
C. The Safety Board.

13. The 1940 Amendment to the Civil Aeronautics Act created which of the following and charged it with being responsible for exercising legislative and judicial authority over civil aviation, maintaining executive control of the economics of the air carrier industry, and with the investigation of aircraft accidents?

A. The Civil Aeronautics Board.
B. The Federal Aviation Administration.
C. The Department of Transportation.

14. The Federal Aviation Act of 1958 created which independent agency and gave it the responsibility of developing and maintaining a common civil-military system of air navigation and air traffic control?

A. Federal Aviation Agency.
B. Civil Aeronautics Authority.
C. Department of Transportation.

15. Which government legislation created what we know today as the Federal Aviation Administration?

A. Federal Airport Act of 1946.
B. Airport and Airway Act of 1970.
C. Department of Transportation Act of 1966.

16. Which government legislation created the National Transportation Safety Board?

A. Federal Airport Act of 1946.
B. Airport and Airway Act of 1970.
C. Department of Transportation Act of 1966.
17. Which U.S. government legislation removed most government controls from the U.S. commercial aviation industry?

B. Department of Transportation Act of 1966.
C. Airport and Airway Act of 1970.

18. Which government organization is charged with protecting all transportation modes from terrorism and other criminal threats?

A. Federal Bureau of Investigation.
B. Transportation Security Administration.
C. Department of Transportation.

19. The Federal Aviation Administration (FAA) is an agency of which department of the U.S. government?

B. Department of Transportation.
C. National Transportation Safety Board.

20. What is the name of the Federal Aviation Administration's policy that is designed to better meet future traffic loads, reduce gridlock, and maintain safety in the U.S. National Airspace System?

A. NextGen.
B. Open Skies.

21. Which of the following pieces of U.S. legislation was mandated with the intent of placing greater emphasis on long-range research planning and on study of such issues as aging aircraft structures and human factors affecting safety?

B. The Department of Transportation Act of 1966.
22. Which of the following Federal Aviation Administration's initiatives uses aircraft transponders and the Global Positioning System (GPS) satellite signals to provide air traffic controllers and pilots with the aircraft's precise position in the sky to help keep aircraft safely separated in the sky and on runways?

A. System Wide Information Management (SWIM).
B. Automatic Dependent Surveillance-Broadcast (ADS-B).
C. NAS Voice Switch (NVS).

23. Which of the following types of aircraft dominate the U.S. civil aircraft fleet?

A. Large jet air carrier aircraft.
B. Military aircraft.
C. General aviation aircraft.

24. Aviation is found in which "title" of the Code of Federal Regulations?

A. Title 10.
B. Title 14.
C. Title 18.

25. What is the name of the document published daily by the U.S. federal government that is used to inform the public about new federal regulations and revisions, corrections, or deletions of existing federal regulations?

A. The Federal Register.

26. In accordance with 14 CFR Part 21; Certification Procedures for Products and Parts, which of the following certificates is given to an aircraft manufacturer whose aircraft design has proven to meet all of the requirements of this regulation?

A. Supplemental Type Certificate (STC).
B. Type Certificate (TC).
C. Production Certificate (PC).
27. Is compliance with an airworthiness directive (AD) issued in accordance with 14 CFR Part 39; Airworthiness Directives considered to be a mandatory function?

A. Yes.
B. No.

28. 14 CFR Part 43; Maintenance, Preventive Maintenance, Rebuilding and Alteration outlines which of the following?

A. Aircraft inspection, maintenance and repair.
B. The record keeping requirements required after any type of maintenance has been performed on an aircraft.
C. Both answers A and B.

29. The regulation requiring the identification and registration markings that are to be displayed on a U.S. registered aircraft is found in:

B. 14 CFR Part 45.
C. 14 CFR Part 91.

30. Which of the following codes of federal regulations governs the certification of pilots, flight instructors and ground instructors?

B. 10 CFR Part 145.
C. 14 CFR Part 91.

31. 14 CFR Part 91 prescribes rules for which of the following?

A. The issuance of medical certificates.
B. The certification of persons such as mechanics, parachute riggers and dispatchers.
C. The general operating and flight rules for all civilian aircraft flights.
A 32. 14 CFR Part 135 governs the operating requirements for which type of flight operations?
   A. Commuter and on-demand flight operations.
   B. Flight school operations.
   C. Domestic and flag air carrier operations.

C 33. Which of the following codes of federal regulations governs the flight training activities of students at Saint Louis University?
   A. 20 CFR Part 147.
   C. 14 CFR Part 141.

Extra Credit
1. The invention and development of the aircraft led to a variety of ways in which mankind has changed economically, socially, and politically. Choose one of these aspects of change in mankind and briefly describe how changes in that aspect have affected mankind in the 100+ years of aviation.

[Written responses to extra credit question]

Political. Air force size and power have put countries such as the U.S. in positions of global leadership. Airplanes have decided the outcomes of major wars such as WWI, WWII, Vietnam, Korea, Gulf War, etc. For example, the U.S. dropped atomic bombs on Japan during WWII which had an impact on the outcome of the war.

[Signature]
## ASCI 1010 Group Presentations
### Rubric for Audience Critique of Group

<table>
<thead>
<tr>
<th>STRUCTURE</th>
<th>COMPETENCIES (LEARNING OUTCOMES)</th>
<th>Score in %</th>
<th>YES</th>
<th>NEEDS WORK</th>
<th>NO</th>
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<tr>
<td><strong>INTRODUCTION</strong></td>
<td>Introduced self &amp; presentation topic</td>
<td>97</td>
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<td></td>
<td><strong>Problem/Need Identification</strong></td>
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<td>Identified a specific problem to be solved or need to be met</td>
<td>97</td>
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<td></td>
<td>Formulated coherent, valid philosophical arguments</td>
<td>97</td>
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<td></td>
<td>Noted strength/weakness of the problem/project</td>
<td>90</td>
<td>10</td>
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<td></td>
<td>Compared competing philosophical ideas of the project</td>
<td>81</td>
<td>19</td>
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<td>Presented a position/standpoint on the problem/project</td>
<td>89</td>
<td>8</td>
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<td><strong>Organization</strong></td>
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<td>Presented ideas in logical sequence</td>
<td>92</td>
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<td><strong>Evaluation</strong></td>
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<td>8</td>
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<td></td>
<td>Evaluated adequacy of information (current, relevant, etc.)</td>
<td>92</td>
<td>8</td>
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<td></td>
<td>Documented sources of information or data</td>
<td>78</td>
<td>19</td>
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<td></td>
<td><strong>Visuals Aids</strong></td>
<td>95</td>
<td>5</td>
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<tr>
<td></td>
<td>Used appropriate visual aids (graphs, tables, charts, etc.)</td>
<td>95</td>
<td>5</td>
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<tr>
<td></td>
<td>Knows well how to operate presentation equipment &amp; tools</td>
<td>95</td>
<td>5</td>
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<td><strong>Verbal Delivery</strong></td>
<td>86</td>
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<td>Used a safe &amp; inclusive language for audience diversity</td>
<td>89</td>
<td>11</td>
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<td>Used effective transitions to bridge main points</td>
<td>78</td>
<td>22</td>
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<td></td>
<td><strong>Nonverbal Delivery</strong></td>
<td>81</td>
<td>19</td>
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<td></td>
<td>Used appropriate vocal qualities (volume, rate, variety, etc.)</td>
<td>92</td>
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<tr>
<td></td>
<td>Maintained adequate eye contact with audience members</td>
<td>100</td>
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<td><strong>Timeliness</strong></td>
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<td>Began the presentation on time</td>
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<td>Delivered the presentation within allotted time</td>
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<tr>
<td><strong>CONCLUSION</strong></td>
<td>Summarized what the audience needs to know, believe, or do</td>
<td>81</td>
<td>19</td>
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<tr>
<td></td>
<td>Invited questions from the audience at the end of the presentation</td>
<td>100</td>
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### Scoring:
- Met learning outcome: **YES**
- Needs additional work to meet learning outcome: **NEEDS WORK**
- Did not meet learning outcome: **NO**
### Format for scoring group members

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### ASCI 1010 Peer Review for Group Presentation

Your name: 8

Your Group # 5

Format for scoring group members

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<th>PARAMETER</th>
<th>Exemplary</th>
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</table>
# ASCI 1010 Peer Review for Group Presentation

**Your name:** [Redacted]  
**Your Group #:** 8

## Format for scoring group members

<table>
<thead>
<tr>
<th>PARAMETER</th>
<th>Exemplary</th>
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<th>Beginning</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Role</strong></td>
<td>Group member completed role in an impressive manner.</td>
<td>Group member completed role in a satisfactory manner.</td>
<td>Group member completed role with a great deal of difficulty.</td>
<td>Group member did not complete role within group</td>
<td>0.0</td>
</tr>
<tr>
<td><strong>Cooperation</strong></td>
<td>Group member was a major asset to the group.</td>
<td>Group member was relatively easy to work with most of the time.</td>
<td>Group member was difficult to work with at times.</td>
<td>Group member was consistently difficult to work with.</td>
<td>0.0</td>
</tr>
<tr>
<td><strong>Time on Task</strong></td>
<td>Group member lead group through most tasks.</td>
<td>Group member was on-task throughout the project.</td>
<td>Group member was off-task regularly.</td>
<td>Group member was regularly off-task and distracted others throughout the project.</td>
<td>0.0</td>
</tr>
<tr>
<td><strong>Task Completion</strong></td>
<td>Group member completed assignments in an above average manner.</td>
<td>Group member completed assignments in a satisfactory manner.</td>
<td>Group member participated in a less than fully satisfactory manner.</td>
<td>Group member did not participate in assignments.</td>
<td>0.0</td>
</tr>
</tbody>
</table>
1. In this course, you have examined whistleblowing and dissent. What can we say about whistleblowing? Is whistleblowing an ethical practice? What have you learned?
   a. Let’s assume that employees do not have a moral obligation to be loyal to the company for which they work.
   b. I have a moral obligation to blow the whistle purely out of self-interest.
   c. There is a moral obligation to help right the situation. The main question with Utilitarian theory is to which option for action will help produce the greatest amount of happiness and least harm?
   d. It is best to blow the whistle external as soon as practical; even before exhausting all internal avenues.

2. Tough choices are faced by all individuals. Consider the following: It is right to protect the species inhabiting the Arctic National Wildlife Refuge (ANWR)—and right to ease the ever-escalating global energy crisis by drilling for oil in their habitat. Under Wadsworth Kidder’s decision-making model, this is considered
   a. a right versus wrong position.
   b. a level three / stage four point of moral development.
   c. a right versus right ethical dilemma.
   d. a moral temptation.

3. Cost-benefit analysis exhibits
   a. greater strength within the realm of virtue ethics.
   b. a strong manifestation of the principle of respect.
   c. A significant buy-in to the principle of nonmalevolence.
   d. an element of a well-developed form of applied consequentialism.

4. Technology is pervasive in our day-to-day activities. It’s presence and use within our private lives is ever-increasing. Below, select the one best and truthful response in this so-called information age in which we live.
   a. Although technology has a major impact on the gathering, storage, retrieval and dissemination of information, its main ethical impact relates to
accessibility/inaccessibility and the manipulation of information.

b. Unfortunately, the legal right to privacy is not constitutionally protected in democratic societies.

c. Pilots in the U.S. undergo screening through the Pilot Records Information Act (Congress) requirements. However, the pilot applicant does not have the right to verify the information provided to the airline by his/her previous employers or training schools is correct.

5. It impacts those individuals affected by the act (or action). There must be a moral basis or justification for the claim. Some say they are entitlements or assertions. Here, we speak of

   a. A right
   b. An obligation
   c. A duty
   d. A promise

6. We have witnessed culture failures in corporate settings. Consider the most recent Wells Fargo debacle. Corporations expect “them” to be followed absolutely, and tend to enforce “them” selectively, often causing ethics conflicts, corruption, fraud, and dysfunction within the company.

   a. Reasoning flaws in the corporation
   b. Unsound ethics policies may lead to unethical behavior in the organization.
   c. This is just a case of “a few bad apples.”
   d. People are just less ethical than they used to be.

7. It is the fuel for the intent. It is the reason why someone is going to do something. It induces the action. We identify it as (a/the) ______________________________ . Motive

8. In your studies of aviation safety, you have learned that trustworthiness in safety culture is where all actions in the air transport system increase it (the level of trustworthiness, that is). Trustworthiness is connected to the principle of __________, which refers to the responsibility and a clear and transparent process of evaluating errors and separating culpable deeds from blameless acts (a just culture).

   a. virtue
   b. obligation
   c. justice
   d. benevolence

9. Whistleblowing protection extends to very specific employees and with strict requirements in
The U.S. Congress has provided some limited relief through legislation. Two federal laws may impact employees in the aviation industry. The federal laws that apply are:

a. Whistleblower Protection Act of 1989 (WPA)
b. Sarbanes-Oxley Act
c. Wendell Ford Aviation Investment and Reform Act
d. Occupational Safety and Health Act (OSHA)
e. Both B and C are correct.

10. Consequentialism

Chap 1 & Hoppe p. 8,9

a. The good is defined independently of the right.
b. The right action is the one that produces the most intrinsic good.
c. What sort of people should we be?
d. “The good life”

11. “Maintain personal standards of conduct befitting a professional; respect yourself in all of your decisions so as to be worthy of living a fulfilling professional life.” This best describes the

p. 53

a. Principle of Benevolence
b. Principle of Integrity
c. Principle of Justice
d. Principle of Respect

12. According to Beabout and Wennemann, it should contribute to resolving contemporary moral dilemmas by providing a coherent structure of moral principles and a common moral vocabulary.

Quiz 1

a. applied ethics
b. meta-ethics
c. normative ethics
d. rights-based ethics

13. As a soon-to-be aviation professional, with your specialized knowledge and skills, you incur many professional obligations . . .
Quiz 6

a. . . . because of the natural rights which society has given
b. . . . you know of what you are due. (right)
c. . . . because of the unequal relationship between you and lay persons
d. . . . because you know the rights of the individual person, no matter what his or her station in life, cannot be violated or overridden simply to promote the happiness of others more effectively. (contractarian rights p. 21)

14. Some thinkers focus upon adherence to certain forms of law. Does the action conform to the law that one should only do what one would be willing for everyone to do? Still other thinkers look to moral rights. Would a certain action promote or violate someone’s moral rights? And some thinkers regard virtue or good character as the proper focus of moral evaluation. Still other people think that what ought to be measured are the ____________ of an action. For example, would the action produce happiness, or would it cause pain or suffering? Quiz 1 consequences (Hoppe. P.7)

15. Your study of the danger of regulatory capture exposed you to the fact that it should be considered an ethical issue. In essence, regulatory capture is

a. about issues of privacy.
b. about rules.
c. blowing the whistle.
d. about relationship between parties.

16. It is the belief--the mental attitude--that explains the act. What the act is depends on the pilot’s

p. 66

a. motivation.
b. intention.
c. circumstances.

17. It is a collection of decision-aiding techniques that have in common the numerical weighing of advantages against disadvantages. Two or more options in a public decision are compared to each other by careful calculation of their respective consequences. It is a pretty standard way of determining how much harm is justified, and for when it is morally called. It is . . .

Cost benefit analysis

18. This ethical theory emphasizes respect for rights of others to reason and choose for themselves.

Reasoned choices; deontology; respect for human choices p.11 & Hoppe p. 12+

a. virtue ethics
b. duty ethics  
c. utilitarianism  
d. egoism  

19. They are assumed to be binding, but may be set aside under certain conditions or “trumped” by more important rights and obligations.

We know them as __________________________presumptive rights and obligations

Inalienable rights; Declaration of Independence; it cannot be taken away by others; others are not justified by taking away that right; right to liberty; right to life


p. 13; virtues are habits that bring about self-actualization; Hoppe p. 23+

a. conventional morality  
b. utilitarianism  
c. duty ethics  
d. virtue ethics

21. The problem is that it focuses on consequences; disregards intention and motive of actions. It wrongly assumes that the consequences of each act can be accurately predicted. It may lead to rule worshipping.

p. 15

a. duty ethics  
b. utilitarianism  
c. conventional morality  
d. egoism

22. A CBA is an overview of all the pros (benefits) and cons (costs) of a project or policy options, as much as possible quantified and expressed in monetary terms. Monetary valuation of most pros and cons is based on

a. The value of life being infinite.
b. The willingness to pay of consumers.
c. The benefit side of the equation.
d. Fairness.

23. Considering the multiple dimensions of diversity, by filling-in the six blanks, identify the core components. (up to 6 points)

It is a family, tribe, people, or nation belonging to the same stock.

__________________ RACE

It is a psychological and cultural term. We use it to refer to an individual’s subjective feelings of maleness or femaleness. The behavioral, cultural, or psychological traits typically associated with one sex.

__________________ GENDER

Some would say it is identity with or membership in a particular racial, national, or cultural group, and observance of that group’s customs, beliefs, and language. Many minority groups in U.S. maintain strong ethnic identity; especially in cities, immigrants are often attracted to ethnic communities established by people from their own country, communities in which many traditional cultural features are maintained.

__________________ ETHNICITY

It is the quality or state of being sexual; the condition of having sex; sexual activity; expression of sexual receptivity or interest especially when excessive.

__________________ SEXUALITY

We define it as competence in doing; skill; natural aptitude or acquired proficiency; physical, mental, or legal power to perform.

__________________ ABILITY

And finally,

__________________ AGE

24. The new U.S. President-Elect is facing serious issues surrounding his business assets and the
potential conflict of holding public office. There is the need to ensure no conflict of interest exists or the possibility of bribery and corruption entering into decision making. Wadsworth Kidder would suggest any decision, in this case, can be assessed by testing the idea against

a. The Mom Test.
b. The Stench Test.
c. The Front Page Test.
d. The Caring Model.

25. Often managers and executives fail to notice the gradual erosion of others’ ethical standards. If they find minor infractions acceptable, they are likely to accept increasingly major infractions as long as each violation is only incrementally more serious than the preceding one.

a. This is commonly referred to as a cognitive bias “the slippery slope.”
b. This cognitive bias may be called an “ill-conceived goal.”
c. This is a good example of “indirect blindness.”
d. None of the above are appropriate responses to the example.

26. The flight instructor who acts for the sake of duty, does so not because of self-interest or because it is socially expected, but because it is one’s moral duty. This is most closely aligned with

a. virtue ethics.
b. egoism.
c. rights-based ethics.
d. deontology. (B&W p. 11 & 12) Quiz 1

27. As a professional, you will face many difficult decisions. Beabout and Wennemann (1994) indicate you will run into situations that may appear to be in conflict. There will be conflicts between your role as an employee and that of a professional. There will also be conflicts between the standards of your society and those of another. Additionally,

p. 21-31; conflicts

a. you must decide if “the good life” is more important to pursue.
b. there will be issues relative to conformity to social roles.
c. there will be issues of self-interest.
d. there will be issues rising out of fear of punishment.
28. The ethical dimension of age discrimination discussions focused on fairness, empathy, and the Golden Rule. Here, typically, we are addressing the

a. Principle of respect
b. Principle of nonmalevolence
c. Principle of consistency
d. Principle of double-effect

29. Kohlberg’s theory of moral development . . . .

p. 22

a. We can see how people make moral decisions.
b. We are able to distinguish between egoism and duty ethics.
c. Models the levels of culpability of a given act or action.
d. Illustrates with clarity intent, motive and circumstance.

30. Your study of whistleblowing has informed you that it does not extend to certain acts (Hoppe). In a brief statement, identify one.

(1) acts motivated by bad faith (e.g., a disgruntled employee attempts to damage an organization’s image), (2) prematurely uncovering matters that should primarily be handled internally and are not matters of public concerns to begin with, (3) involving structures of authority that are not recognized in law, and (4) engaging in whistleblowing on mere suspicion instead of demonstrable evidence.

31. There is a moral obligation to do the things we agree to do, especially if others are counting on us to do so. We are expected to keep our promises; to keep commitments. These statements address

a. a social obligation
b. a legal obligation
c. an ethical obligation

32. Regulatory capture is not an uncommon activity in some government and private sector settings. This ethical theory stands out above all others when one examines issues surrounding regulatory capture.

a. Justice
b. Benevolence

c. Virtue ethics

d. The ethics of consequentialism

33. Deontology

a. “greed is good”

b. The theory or study of moral obligations; duty ethics.

c. Developing virtues such as wisdom, justice, and prudence

d. One should follow the rule that produces the greatest amount of good for the greatest number of people.

34. The goal of safety in aviation can be justified by the principle of ________, when the target is passengers . . . to achieve the greatest benefit for the largest number of people. “You do not have the right, as a singular individual, to operate your Galaxy smartphone on this flight.”

a. utilitarianism

b. retributive justice

c. distributive justice

d. integrity

35. According to Kohlberg’s theory . . .

p. 26

a. The levels are not developmental; one cannot move through all three levels. One is relegated to one stage within life.

b. Level Three does not eliminate the significance of Levels One and Two. Rather, it subordinates them to the principle of respect.
c. Level Three is weak as it lends itself to abuse of power (particularly true for professionals).

d. Conformity to social norms (to maintain the approval of others) is of the highest order.

36. An action is right if it promotes one’s own self-interest.

p. 10

a. egoism

b. conventional morality

c. duty ethics

d. virtue ethics

37. If we examine airline management roles and responsibilities, from the Kantian perspective . . .

a. An airline has an obligation to provide a living wage to all its pilots.

b. An airline is expected to maximize happiness or fulfillment for all its pilots.

38. A prescribed guide for conduct or action; an accepted procedure, custom, or habit criterion; a standard for decision-making; social convention or agreement.

Chap 3

a. a rule

b. a relationship

c. a principle

d. a value

39. Cognitive biases distort ethical decision making. Unfortunately, we find ethical breakdowns in many government and private sector settings. Of the following, which one is “the slippery slope?”

a. Rewarding results rather than rewarding high-quality decisions. An individual may make
a poor decision that turns out well (okay) and be rewarded for it or a good decision that turns out poorly and be punished. Rewarding unethical decisions because they have good outcomes is a recipe for disaster.

b. Southwest Airlines outsources a great deal of its maintenance to an El Salvador company, Aeroman. It is outsourcing the “dirty work.” Using an intermediary to hide something is possible. It is using other people/organizations to do work for you. We are instinctively more lenient in our judgment of a person or an organization when an unethical action has been delegated to a third party.

c. People see what they want to see. They may be building a “house of cards” that will eventually come crashing down. Barry Bonds of the SF Giants...steroid use...those with a stake in Bonds’ performance had a powerful motivation to look the other way: they all stood to benefit financially. Watch for conflicts of interest that may exist.

d. Failure to notice the gradual erosion of others’ ethical standards. If we find minor infractions acceptable, we are likely to accept increasingly major infractions as long as each violation is only incrementally more serious than the preceding one. Address even trivial-seeming infractions immediately.

40. One can examine the nature of rules and ethical decision making. Which one of the following best defines a characteristic?

Quiz 4

a. Rules are of little help to us as we conduct our affairs in the face of uncertainties and ambiguities.

b. Loopholes are indicative of a rule’s over-inclusive nature (opposite: under-inclusive; rule does not go far enough)

c. Rules control our tendency to act only in our self-interest. (lecture & posting)

d. Rule do little for us when they cause us to behave differently than we would have behaved in the absence of the rule. (opposite)

41. Whatever your view of “the responsible aviation professional,” there often are serious obstacles to attaining a professional level of responsibility. When we allow our own judgment to be biased by our wanting something for ourselves, this can be identified as

a. Self-deception.

b. Egocentricity

c. Microscopic vision

d. Self-interest
42. Applying Kohlberg’s theory of moral development

   a. Level Three comes after Level Two developmentally. Therefore we can assume it is always better.

   b. Provides a hierarchical and rigid structure . . . of the moral life.

   c. Moral development moves through multiple levels; never static.

   d. Level Three focuses more on the “good-boy” morality of maintaining good relations. It is more oriented to approval and helping others.

43. Willfully ignoring the moral obligations of your aviation profession is not good. As an aviation professional, you know the moral ramifications of your craft. You may not ignore your moral obligations. This kind of ignorance can cause harm; it may be a form of negligence. This illustrates

   Quiz 5

   a. Principle of justice
   b. Principle of respect
   c. Principle of double-effect
   d. The principle of non-malevolence

44. Rules. Relationships. Accountability. “A duty that binds to the course of action.”

   Slides on rules, relationships responsibility accountability

   a. Answerability

   b. Liability

   c. Responsibility

   d. Trustworthiness

45. The ethical life is not simply a matter of rule-following for its own sake. “The ethical life is more than mere rule-following. Living ethically means living according to the spirit of the law, not just the letter of the law.” In the aviation industry, all too frequently, the response to scandals, aviation accidents or issues of safety is a rush to address problems by adding more rules and regulations. Of the following, which one is an accurate statement?

   Slides RULES rules, relationships, responsibility, accountability 4-13

   a. Rules cause people to behave at Kohlberg’s Level Three standard of moral development.

   b. Rules rarely, if ever, help us to conduct our affairs in the face of uncertainties and ambiguities. We see this played out often in the cockpit.

   c. Rules do not have loopholes and they never go too far. Rules are often perfect.
d. Rules often make *ad hoc* decisions (decisions being made for us).

46. One of the difficulties with Kantian moral philosophy

Hoppe p. 16

a. It places too much emphasis on forming good habits of character.

b. Applying the Categorical Imperative allows little or no room for exceptions.

c. By focusing on consequences, there is an avoidance to address intention and motive.

d. Following rules and practices of society may lead you to living in a morally corrupt one.

47. It is often recognized as a permission to perform certain acts provided specified conditions are fulfilled.

a. a right

b. a privilege

c. a duty

d. a responsibility

48. As a consumer of aviation as transportation, you are complicit in harming the atmosphere. Intentional harm is morally impermissible. Unintentional harm is negligence, generally by the act of ignoring obligations of your chosen aviation profession. You must know there are moral ramifications of flying.

Here, we are addressing

Slides & text “in all your actions, avoid harming people” chapter 4

a. the principle of non-malevolence.

b. the principle of utility.

c. the ethics of character traits.

d. the principle of benevolence.

49. It involves punishment for wrong-doing. It concerns what punishment is appropriate for what offense and how to maintain a correct balance between severity and leniency.

p. 56

a. substantive justice

b. retributive justice
c. remedial justice

d. distributive justice

50. Under AIR-21, the air carrier management team can appeal the preliminary order of OSHA favorable to the plaintiff, in this case the whistleblower, by requesting a hearing

p. 92

a. before a Department of Labor administrative law judge.

b. in a civil court within the state.

c. before the U.S. Court of Appeals for Washington, DC.

d. before a grand jury of 12 persons.

51. When considering the amount of greenhouse gases produced by aircraft as compared to other transportation modes, one should consider ______________ into the calculation.

Chapter 25 p. 243-244

a. time and passenger demand

b. (passenger) demand and distance

c. the make and model of the aircraft and duration only

d. distance and duration

52. We make moral decisions based on our level of development. Consider a pilot, as a decision-maker, responds in one of the following two ways: (a) she is likely to silently verbalize that flying into a cloud formation without an IFR clearance is a federal violation (offense) and she will not do it or (b) she is likely to deviate around the clouds to avoid the implied punishment that may come from ‘getting caught’ by ATC. In either solution, the action is

Kohlberg

a. motivated by rights and character.

b. motivated by the principle of benevolence.

c. motivated by self-interest.

d. motivated by conforming to society’s expectations.

53. International commercial air carriers and corporate jets that fly globally and emit harmful CO₂
could be said to be in violation of the principle of benevolence; especially against those who are unable to help themselves such as poor and developing countries.

a. This is a truthful statement.

b. This is a false statement.

54. Actions that accord with a universal rule or law of morality are ones that a human agent ought to do, regardless of what the actual consequences might be. It’s not about making people happy. It may be the ultimate standard of morality. Which one of the ethical theories is most closely identified with this statement?

p. 13 Duty ethics or Deontology

55. This moral principle is often prominent in many professional activities like aviation businesses, aerospace engineering, and medicine. Efficiency and “getting the job done” are viewed as important.

p. 56

a. The principle of justice

b. The principle of integrity

c. The principle of utility

d. The principle of respect

56. Of Kohlberg’s levels/stages of moral development, which one is most conventional? That is, it addresses moral development which conforms to the expectations of others or society.

p. 24

a. Level One

b. Level Two

c. Level Three

d. Level Four
57. In addressing professional responsibility, I am more driven to prevent harm than to assign blame. I take due care and practice a standard reflected of a normal, prudent nonprofessional to prevent harm. The general public should have a say over what risks they may be viewed as logical for them to be subjected to.

slides
   a. This is the reasonable care model.
   b. This is the good works model.
   c. This is the malpractice model.
   d. This is the self-deception model.

58. It includes intimidating, threatening, blacklisting or discharge of an employee. The U.S. Department of Labor authority construing similar whistleblower protection statutes indicates that it also includes demotion, reduction in salary or transfer to a less desirable position. Under the laws, here we speak of

   a. Accusations
   b. Dissention
   c. Adverse Actions
   d. Disloyalty

59. You are a human resource manager within a corporate flight department. You are tasked by senior management to develop an ethically valid code of ethics.

From Constructing a Code of Ethics paper posted & handout
   a. What are other aviation codes addressing? Most likely I will research for similar business codes to form a basis for my aviation department’s code. For example, I would examine the suggested code on the National Business Aviation Association (NBAA) site.

   b. As an initial step, I would have the office staff, pilots, and mechanics write a list of “dilemmas” they have encountered. These would be scenarios with an ethical dimension. Core values for each can then be determined.

   c. While I would keep my senior management informed, most likely I would not wish to involve them in the development process considering their very busy schedules.
d. Pilots are accustomed to rules and regulations. They are, by nature, compliance based in their orientation. My first draft would be a rule-based code for the aviation department. A rule-oriented code is more effective in aviation than a values-oriented code of ethics.

60. With the two recent grand jury “no bill” (no indictments in St Louis County and NYC) rulings, I feel compelled to be pre-disposed to doing good. I will actively respond to the needs of others. I will take action. I will not continue to “mind my own business.” At times, it may be appropriate to “butt in.” I will practice the principle of . . . .

Posted lecture notes on moral principles
   a. The principle of respect
   b. The principle of benevolence
   c. The principle of commutative justice
   d. The principle of integrity

61. This examines the “rightness” of rules and procedures. It focuses on the end result. It seeks to protect ownership of property, privacy, bodily safety, citizenship, or copyright.

   p. 54
   a. procedural justice
   b. substantive justice
   c. retributive justice
   d. remedial justice
   e. distributive justice

62. Ethical relativism may come into the conversation and be most pronounced

   a. When we discuss issues relative to ethics and the environment.
   b. When we discuss issues in the United States education and training environments.
   c. When we address issues surrounding the differences in cultures of other countries.
   d. When discussing issues such as low entry-level pilot wages in the U.S..

63. Of the following, identify those considered to be actual greenhouse gases (GHG). There may be more than one correct response. Some responses are only contributors to GHG. (0.5 pt ea; up
A – B – E  Slides & readings

a. Methane (CH4) fossil fuels, waste dumps
b. Nitrus oxide (N2O) fertilizers, combustion; industrial processes
c. Soot (GHG contributor)
d. Contrails from jet aircraft (GHG contributor)
e. Carbon dioxide (CO2) fossil fuel combustion
f. Ozone (GHG contributor)
g. Cirrus clouds (GHG contributor)
h. H2O

64. Confidentiality is not an absolute obligation. When can confidentiality be breached? If one were to examine this as a utilitarian, you might say the following:

“. . . when situations arise where the ____________ in maintaining confidentiality is greater than the ____________ brought about by disclosing confidential information.” (hint: the same word is valid for both blanks)

a. harm; harm (injury; hurt; pain)

65. We recognize them as fixed norms or morally binding customs found within society. They are manners or habits and the violation of which may have consequences.

a. Values
b. Mores (slides)
c. Decision-making procedures
d. Ideals which are desirable (this is values)

66. Most likely you have examined the tragic 1977 Tenerife accident (two Boeing 747s; KLM & PanAm) in accident investigation or safety-oriented courses. Post-accident evidenced looked at the KLM Captain showed him to be an impatient, overconfident individual who did not tolerate questioning his authority in the cockpit. One could examine his character traits and moral actions

a. as a study in conventional morality.
b. through the lens of a virtue theorist (virtue ethics). Hoppe p. 24 chap. 2
c. through rights-based reasoning -- as in company policy (fairness).
d. through Kant’s Categorical Imperative (Kantian Deontology).
The ethical aspects of aviation safety management are rarely discussed. If an individual examines the operational culture of a company, she or he may find the underlying values and principles of safety. The safety management system (SMS) approach may be the best approach in terms of achieving an ethical safety culture.

a. Under SMS, as a management safety professional, the organization must implement your ethical vision.
b. There is a mechanism of hope since continual improvement is its key attribute.
c. Under SMS the strongest ethical motive may be the promotion of the value of justice.
d. SMS defines and identifies individual violators.

COURSE EVALUATION REPORT:

- “Each class was always engaging.”
- “Course was well designed and executed; liked real-world application with material in class.”
- “Instructor was very passionate about the material and taught using personal examples and applications! Well executed and explained.”
- “He expects the class to read so much for his classes, and it was difficult to manage all of it considering he expected the same thing for his law class as well.”
- “Bruce Hoover is the reason why the Ozone layer is badly damaged. He kills more trees for his handouts than any company currently attacking the Amazon Rainforest.”
- “Please do the diversity seminar earlier in the year!”
- “Thanks for everything…great semester we had”
Exam 1 Question 34

There are three basic skills required for instrument flying. Name the second skill.

Interpret

34) There are three basic skills required for instrument flying. Name the second skill.
41) What is the Wide Area Augmentation System (WAAS)?

a. WAAS enhances the accuracy of GPS by using a series of ground stations to generate a corrective message that is transmitted to the airplane by a geostationary satellite. This message accounts for positional drift of the satellites and signal delays caused by the ionosphere and other atmospheric factors.

b. WAAS is a navigation computer in the airplane used in addition to GPS to calculate the position with enhanced accuracy.

c. WAAS enhances the accuracy of GPS by using receivers to send corrective signals over a localized area, generally 20 to 30 miles.

Exam 2 Question 4

4. Taxing onto the active runway, Lisa notices that the white arrow continues down the runway to a group of white arrows that point to a solid white stripe that crosses the entire width of the runway. Where may she begin her takeoff roll?

a. Once she crosses the solid white stripe.

b. She may take off or land before the displaced threshold.

c. She may take off before the displaced threshold, may use that area for overrun, but may not land there.

d. She may not take off until crossing the displaced threshold, but may use that area for overrun, if necessary.

Exam 2 Question 39

39) True/False. For domestic enroute and terminal IFR flights with a GPS receiver certified according to TSO-C-129, the airplane must be equipped with alternate avionics necessary to receive the ground-based facilities appropriate for the route to the destination and to any required alternate.

True
4) How is the FAF depicted in NOS Terminal Approach Procedures?
   a) By the letters “IAF”
   b) By the letters “IF”
   c) With a Maltese Cross
   d) There is no indication or fix. It is when you are established on the published route proceeding inbound on the approach.

Exam 3 Question 14

14) What is the Missed Approach Point for this approach?
   a) MAFMU
   b) Red Table
   c) GLENO
   d) ZIGBU

Exam 1 Question 6

6) The heading indicator contains a gyroscopic wheel spinning in the ______________ on a horizontal axis. ______________ keeps the gyro pointing in the same direction as the aircraft turns about its vertical axis.
   b. Longitudinal plane. Rigidity in space.
   c. Vertical plane. Rigidity in space.

Exam 1 Question 40
Exam 2 Question 40

40. What does Item 7 ensure?

It ensures 1000 ft of clearance in non-mountainous terrain areas and 2000 ft of clearance in mountainous terrain areas.

41. Item 8: Why is this symbol filled in?
Exam 3 Question 2

40. What does Item 7 ensure?
   a) It ensures that you are above the highest obstacle in this area.
   b) It ensures that you are below the highest obstacle in this area.
   c) It ensures that you are at the minimum altitude required.
   d) It ensures that you are at the maximum altitude allowed.
   e) It ensures that you are at the optimal altitude for safety.

2. What is the purpose of the intermediate approach segment?
   a) Connects the enroute and approach structure.
   b) Aligns you with the approach course.
   c) Positions you for final descent to the airport.
   d) Guides you to a point which you may continue and land.
   e) Allows you to safely navigate to a point where you MAY attempt another approach.
Exam 3 Question 17

32) Explain item 3. (TCH 55)
   a) If you are on glide slope, you will cross the runway threshold at 55'
   b) If you are on glide slope, you will touch down 55' past the threshold
   c) The Tower Clearance Height is 55'
   d) The Tower Enroute Clearance is on page 55

Exam 1 Question 18

18) All air inlets associated with the Pitot tube become blocked. While the aircraft is climbing, how will this affect the VSI?
   It won't affect the VSI because
   VSI is associated with the static port

Exam 1 Question 27
For the following questions, use the VOR instrument to the right. If you doubt the precision of the indications, use the nearest mark or dot to the line or needle.

27) Refer to the OBS. On what radial is the aircraft located with respect to the station?

From the 030 Radial

28) Refer to the OBS. Assume that you are 10 miles from the VOR. How far off course, or from the radial selected on the VOR azimuth card (not from the station) is the aircraft, in nautical miles?

Exam 2 Question 22

22. How can you identify when you are at NAMBE
   a. When you are 15 DME from SAF
   b. When you are advised by ATC (radar is required)
   c. When you center the 027 off SAF
   d. When you reach 9000

Exam 2 Question 47
For Questions 47-50. Please refer to the L-chart to determine the proper recommended entry, the direction of the first turn (which way will you turn, left or right, upon crossing the fix for the first time?), the magnetic heading immediately after the first turn, and the OBS setting after crossing the fix.

You are traveling eastbound on Victor Airway 291 FROM Winslow VORTAC. Upon reaching TAWNE intersection you receive the following clearance:

“Billiken 99. Hold Southeast of the Flagstaff VOR as published. Expect further clearance at 20:40.”

47. Entry Type

48. Heading After First Turn After Crossing the Fix
(to what heading will you turn when you cross FLG?)

49. Direction of First Turn

50. New OBS setting

For Questions 47-50. Please refer to the L-chart to determine the proper recommended entry, the direction of the first turn (which way will you turn, left or right, upon crossing the fix for the first time?), the magnetic heading immediately after the first turn, and the OBS setting after crossing the fix.

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47. Entry Type

48. Heading After First Turn After Crossing the Fix
(to what heading will you turn when you cross FLG?)

49. Direction of First Turn

50. New OBS setting
Refer to Figure 1 for the following questions

8) Bill is arriving from the North West and is receiving radar vectors for the final approach course when he receives the following instruction from approach control: “fly heading 130.” He notices that he is flying through the final approach course and will need to make an immediate right turn in order to capture it. The controller is so busy with other traffic that Bill cannot get onto the frequency to make a request. Is he allowed to turn on course? What should he do?
   a) Yes. He should turn onto the final approach course and begin the descent.
   b) No. He should maintain his present heading and query the controller when able.
   c) No. He should execute the missed approach procedure.
   d) No. He should immediately turn left and for a parallel entry to the holding pattern.

Exam 3 Question 25

25) Austin is flying the ILS RWY 5 approach to TWF (figure 2). After crossing STRIK inbound, he notices that his glide slope receiver has failed. What should he do? Could he continue the approach? How?
   a) He should continue the approach to the DA and then continue or execute the missed approach procedure
   b) He should descend no lower than 4700 and proceed for 3:28 at 90 kts
   c) He should descend no lower than 4480 and proceed to 0.8 DME from TWF
   d) He should enter the hold at STRIK and query the controller
KBKC to KCOS

Weather

FLY CAT

LIR
TRI
MDV
AIRMETS
ượบสีส้ม

SOGS

Warnings

Weather Symbols

AMP Flight Category [20181211_09214]
Route Planning

- No preferred route
- KBJC PIKES1.DEN ADANE KCOS (11,000 cruise)
  - Expecting DEBERRY 3 arrival
  - Mountains to the west of the field
- Alternate: KPUB
  - PIKES.1 departure
  - Class D airspace
  - Provides PA and
  - RNAV approaches
Saint Louis University

Parks College of Engineering, Aviation and Technology
Bachelor of Science in Aeronautics
Concentration in Flight Science

November 7, 2019

Department of Aviation Science

Appendix C

Spring 2019 Flight Science

Student Achievement Data – Course Assessment Evidence
Direct Measures Of Assessment
1. Is it possible to be perfectly safe?
   a. Yes
   b. No

2. According to the Supreme Court of the United States, being safe is the equivalent of being risk free.
   a. True
   b. False

3. Generally, organizational complexity increases the number of hazards to which individuals are exposed.
   a. True
   b. False

4. Closely coupled systems generally are less risky than loosely coupled systems.
   a. True
   b. False

5. The terms “hazards” and “risk” have the same meaning.
   a. True
   b. False

6. A hazard may be defined as a perceived condition.
   a. True
   b. False

7. According to the Federal Aviation Administration, hazards may lead to unplanned events.
   a. True
   b. False

8. Hazards are generally considered to be antecedents to accidents.
   a. True
   b. False

9. While hazards may lead to injury, they do not lead to illness.
   a. True
   b. False

10. It is possible to manage unrecognized hazards.
    a. True
    b. False

11. Hazard recognition is a subjective skill.
    a. True
    b. False

12. An individual’s ability to recognize hazards may change over time.
    a. True
    b. False

13. The use of perfectly airworthy but unapproved part would be considered a hazard.
    a. True
    b. False

14. Risk is the future impact of an unmitigated hazard.
    a. True
15. Risks associated with a given hazard are not always immediate.
   a. True
   b. False

16. Risk assessment is based on the sum of hazard severity and?
   a. Magnitude
   b. Extent
   c. Scope
   d. Chance

17. The “damage” associated with a given risk considers only tangible losses.
   a. True
   b. False

18. When considering hazard severity in a risk calculation, the SME must consider the impact on the organization.
   a. True
   b. False

19. When determining the “probability” associated with hazard, the SME is considering?
   a. Whether a hazard will operationalize
   b. How often a hazard will operationalize
   c. Both above

20. The notion of risk will always include a level of uncertainty.
   a. True
   b. False

21. Hazards may present different levels of risk to different individuals.
   a. True
   b. False

22. The outcome of a risk assessment will generally include one of the following with the except for?
   a. Acceptable
   b. Acceptable with mitigation
   c. Rejected
   d. Rejected with mitigation

23. Unacceptable risk may be mitigated.
   a. True
   b. False

24. Ideally, all risks are identified risk.
   a. True
   b. False

25. In complex systems, some risks are never identified.
   a. True
   b. False

26. Acceptable risks include unidentified risk.
   a. True
   b. False

27. Residual risk is the sum of?
   a. Unacceptable and acceptable risk
   b. Acceptable and unidentified risk
   c. Identified and acceptable risk
d. Unidentified and unknown risk.

28. According to MIL-STD-882, critical risk is “worse” than catastrophic risk.
   a. True
   b. False

29. According to MIL-STD-882, a Category 1 risk is “worse” than a Category 2 risk.
   a. True
   b. False
   c.

30. An unlikely hazard probability assumes an event is so unlikely, the SME assumes it will not occur in an individual’s career
   a. True
   b. False

31. According to MIL-STD-882, a “frequent” hazard probability suggests an event will occur?
   a. One failure in 100,000 events
   b. One failure in 50,000 events
   c. One failure in 25,000 events
   d. One failure in 10,000 events

32. The importance of Heinrich’s Triangle (1931) is in identifying?
   a. The precise ratio(s) of smaller occurrences to more significant occurrences
   b. The one major event emerging from smaller events
   c. Learning from smaller events to avoid larger events
1. How would/could absolute safety be achieved?

2. Who holds the final responsibility for safety in high consequence organizations using a Safety Management System?

3. Describe the term “unquestioned assumption” and why it is so influential in an SMS

4. Differentiate between the terms “accountability” and “responsibility.”

5. What is the step immediately following a decision to accept a hazard within the SRM-SA process?

6. How does the SMS “ensure” (to the best of its ability) that a mitigation strategy does not introduce new hazards into the system?

7. Describe the notion of residual risk.

8. Policies drive procedures. Describe the logic behind this statement in an SMS.

9. Describe two situations within the SRM process in which a risk control would not be necessary.
10. What must occur for a System Assessment default to the Hazard Identification process?

11. Within SRM, which process most fully utilizes SMEs?

12. Define the term “vision statement.”

13. What is LOSA (define the acronym and a short description)?

14. What is FOQA (define the acronym and a short description)?

15. Generally, there are five options for dealing with risk. These options include? (list five)

16. Why is it important to develop and publicize an organization’s “safety values?”

17. What is ASAP (define the acronym and a short description)?

18. During the SA process, when is a corrective action necessary?

19. In order, list the “safety order of precedence.” (list four)

20. In the SRM-SA process, what occurs when System Assessment determines the system is operating as intended?

21. Describe why zero-risk is generally unachievable in high-consequence endeavors.
22. Describe the purpose of a “risk matrix.”

23. Describe why SRM is considered a “design process.”

24. Describe why SA is considered a “performance process.”

Place the correct letter (a – j) in the appropriate position in the SRM-SA diagram on the right. (20 pts.)

a. Corrective Action
b. Risk Analysis
c. System Description Analysis
d. System Assessment
e. Risk Assessment
f. Hazard Identification
g. Data Acquisition
h. Risk Control
i. Analysis
j. System Operation

Draw connecting **lines** with **arrows** indicating direction for **all** relationships in the SRM-SA diagram (10 pts.)
25. Briefly describe what occurs during “Corrective Action” in the SRM-SA process.


27. Briefly describe what occurs during “System Description Analysis” in the SRM-SA process.


31. Briefly describe what occurs during “Data Acquisition” in the SRM-SA process.

32. Briefly describe what occurs during “Risk Control” in the SRM-SA process.

33. Briefly describe what occurs during “Analysis” in the SRM-SA process.

34. Briefly describe what occurs during “System Operation” in the SRM-SA process.
1. Risk assessment generally involves a determination of both the __________________________ of a hazard manifestation.
   a.Severity and magnitude
   b. Frequency and likelihood
   c. Likelihood and severity
   d. None of the above

2. Of the following, which is the least desirable type of risk?
   a. Identified risks
   b. Unidentified risks
   c. Residual risks
   d. Unacceptable risks

3. The lack of exposure to risks is a legitimate definition of safety.
   a. True
   b. False

4. In complex systems, it is possible to identify all risks.
   a. True
   b. False

5. The Supreme Court of the United States recognizes (from case law) that being safe is the equivalent of being risk free.
   a. True
   b. False

6. Generally, the notion of being safe equates to an exercise in risk management.
   a. True
   b. False

7. Generally, risk management efforts/activities can lower the level of risk to zero.
   a. True
   b. False

8. Generally, the more complex a system, the more difficult it is to identify hazards.
   a. True
   b. False

9. Aviation will never be free from hazards and their associated risks.
   a. True
   b. False

10. Aviation is considered a complex system.
    a. True
    b. False

11. Aviation is generally considered a closely coupled system
    a. True
    b. False

12. Hazards may be real or perceived.
    a. True
    b. False

13. A dormant hazard is a hazard with a temporal constraint.
    a. True
    b. False

14. Generally, a hazard is a necessary antecedent to an incident or an accident.
    a. True
    b. False
15. A situation in which equipment is in danger of damage would not be considered a hazard and lasts there was a human injury potential.
   a. True
   b. False
16. In aviation, it is essential to look past the immediate conditions and project into the future.
   a. True
   b. False
17. Without the ability to recognize hazards, risks are unmanaged.
   a. True
   b. False
18. The ability to recognize a hazard in a complex system is an objective skill set.
   a. True
   b. False
19. The ability to recognize hazards may be increased with?
   a. Education
   b. Experience
   c. Individual state of mind
   d. Luck
   e. All the above
20. Latent hazards have the potential of being operationalized by known hazards.
   a. True
   b. False
21. The risk associated with a given hazard may be distant in both time and space.
   a. True
   b. False
22. Regulatory violations are generally considered to be risky
   a. True
   b. False
23. Risk are determined by evaluating __________ of a hazards probability and severity if operationalized.
    a. Product
    b. Sum
    c. Quotient
    d. Differences
24. The determination of risk associated with commercial flight should include aspects that pertain to the environment.
    a. True
    b. False
25. The determination of risk associated with commercial flight should include aspects that are intangible.
    a. True
    b. False
26. An event that has a very low probability may occur “frequently.”
    a. True
    b. False
27. An event that has a very high severity may result in very little damage.
    a. True
    b. False
28. ________________ should conduct risk assessments.
    a. Everyone
    b. SMEs
    c. Management
29. Decisions regarding the final acceptability of a given risk should be made by?
   a. Everyone
   b. SMEs
   c. Management

30. Ideally, all of risk within a complex system are identified.
   a. True
   b. False

31. Generally, some risks within complex systems will never be identified/discovered.
   a. True
   b. False

32. Of the following, which type of risk is generally considered the worst?
   a. Identified risk
   b. Mitigated risk
   c. Unknown risk
   d. Acceptable risk

33. Reactive risk identification is generally preferred over active risk identification.
   a. True
   b. False

34. The totality of risk after mitigation techniques have been employed describes?
   a. Total risk
   b. Unknown risk
   c. Acceptable risk
   d. Residual risk

35. According to MIL-STD 882 “negligible severity” occurs when losses exceed $100,000.
   a. True
   b. False

36. According to MIL-STD 882 a single death describes a ____________ severity
   a. Catastrophic
   b. Critical
   c. Marginal
   d. Negligible

37. Generally, it is best to describe hazard probabilities using?
   a. Descriptive/Qualitative terms
   b. Quantitative terms
   c. Both

38. Generally, determining hazard probability should be accomplished using ____________ information.
   a. Experimental
   b. Anecdotal
   c. Both

39. Generally, a hazard that is described as unlikely may be expected to occur in the lifecycle of the system.
   a. True
   b. False

40. A hazard that occurs occasionally is described by the US government with which the following probabilities:
   a. One failure and 1 billion exposures
   b. One failure in 500 million exposures
   c. One failure in 1 million exposures
   d. One failure in 500,000 exposures
   e. One failure in 100,000 exposures

41. Heinrichs Triangle/Pyramid uses ratios of approximately 1 – 3– 300.
   a. True
   b. False
42. Of the following, which describes a proactive means of hazard identification.
   a. Internal evaluation programs
   b. Official state investigation results of accidents and incidents
   c. LOSA programs

43. The compatibility of production and safety goals, the allocation of resources, operating pressures and the organizational safety culture describes?
   a. Organizational factors
   b. Work environment factors
   c. Regulatory oversight factors
   d. Defenses

44. Include the applicability and enforceability of regulations; the certification of equipment, personnel and procedures; and the adequacy of surveillance audits describes?
   a. Organizational factors
   b. Work environment factors
   c. Regulatory oversight factors
   d. Defenses

45. Including ambient noise and vibration, temperature, lighting and the availability of protective equipment and clothing describes?
   a. Organizational factors
   b. Work environment factors
   c. Regulatory oversight factors
   d. Defenses

46. Saint Louis University’s PEDALS program is most like?
   a. LOSA
   b. FOQA
   c. NOSS
   d. ASAP

47. Of the following operational issues, which describes the “historic” approach to hazard identification strategies.
   a. The Boeing 787 battery issues
   b. The Bell/Boeing Osprey early operational issues
   c. The De Havilland Comet - in-flight hull losses
   d. The UPS 747 lithium battery accident

48. Of the following operational issues, which describes the “diagnostic” approach to hazard identification?
   a. The Boeing 787 battery issues
   b. The Bell/Boeing Osprey early operational issues
   c. The De Havilland Comet - in-flight hull losses
   d. The UPS 747 lithium battery accident

49. Of the following, which is the preferred method for eliminating/mitigating risk?
   a. Safety devices
   b. Warning devices
   c. Change in design
   d. Operator training

50. Of the following, which is the least-preferred method for eliminating/mitigating risk?
   a. Safety devices
   b. Warning devices
   c. Change in design
   d. Operator training

51. Risk assessment is generally accomplished by?
   a. Management
   b. SMEs

52. Risk analysis is generally accomplished by?
53. The point where limited decreases in risk can only be gained through major and unacceptable increases in investment describes?
   a. ALARP
   b. ASAP
   c. ATOS
   d. AMMT

54. Safety ______________ is the first step in developing and/or implementing a Safety Management System.
   a. Assurance
   b. Policy
   c. Promotion
   d. Risk management

55. A formal safety management system is a requirement for CFR 145 Repair Stations.
   a. True
   b. False

56. Organizational mission statements are generally aspirational.
   a. True
   b. False

   a. True
   b. False

58. Generally, an emergency response plan is documented within safety policy.
   a. True
   b. False

59. A Safety Management System is/are a management function.
   a. True
   b. False

60. When developing a safety management system, procedures drive the development of policy.
   a. True
   b. False

61. ICAO guidance suggest that safety policies may be standalone safety documents, or they may be integrated into existing guidance.
   a. True
   b. False

62. In a positive Safety Management System, safety policy should articulate behavioral expectations of all members of the organization.
   a. True
   b. False

63. Safety Risk Management is most closely associated with?
   a. A quality management system
   b. A system safety approach to risk
   c. Safety culture
   d. Just culture

64. Ideally, the safety risk management process is embedded in the processes used to provide a given product or service.
   a. True
   b. False

65. A program whereby operations personnel may submit reports that identify hazards is most closely associated with?
   a. FOQA
66. A program whereby operations personnel are monitored by other qualified operations personnel while carrying out their assigned duties is most closely associated with?
   a. FOQA
   b. LOSA
   c. ASAP
   d. IEP

67. A program whereby digital operational data is collected and analyzed is most closely associated with?
   a. FOQA
   b. LOSA
   c. ASAP
   d. IEP

68. Risk analysis is generally conducted through a quantitative process.
   a. True
   b. False

69. ________ monitors and measures risk controls
   a. Safety policy
   b. Safety risk management
   c. Safety assurance
   d. Safety promotion

70. When risks require mitigation, that mitigation takes place as an aspect of
   a. Safety promotion
   b. Safety risk management
   c. Safety policy
   d. Safety assurance

71. If the risk associated with a hazard is determined by management to be acceptable, it transitions to?
   a. Safety assurance
   b. Safety risk management
   c. Safety policy
   d. Safety promotion

72. Risk controls are funneled through safety risk management to?
   a. Ensure risk controls remain effective
   b. Ensure risk controls have not introduced additional hazards to the system

73. Safety assurance should be intrusive.
   a. True
   b. False

74. When assessment reveals risk mitigation techniques remain effective, they are normally funneled through?
   a. Safety policy
   b. Safety risk management
   c. Safety assurance
   d. Safety promotion

75. When assessment reveals unexpected consequences emerging from risk controls, they are generally funneled through?
   a. Safety policy
   b. Safety risk management
   c. Safety assurance
   d. Safety promotion

76. When conformity with risk controls has been found to be deficient after initially being effective, they are generally funneled through?
   a. Safety policy
b. Safety risk management
c. Safety assurance
d. Safety promotion

77. The four components (pillars) of the SMS are not interdependent and function independently.
   a. True
   b. False

78. The extent to which the less powerful members of groups accept and expect that power is distributed unequally is generally defined as?
   a. Group Hierarchy
   b. Power Distance
   c. Uncertainty Avoidance
   d. Masculinity vs. femininity

79. Uncertainty Avoidance was one of four cultural traits identified by?
   a. Schein
   b. Hofstede
   c. Sabin
   d. Patankar

80. Of the following, which is not a component of organizational culture.
   a. Language systems
   b. Individual perceptions
   c. Beliefs
   d. Habits
   e. All the above contribute to organizational level culture

81. According to the FAA, mutual trust is an integral component of positive safety culture.
   a. True
   b. False

82. Which of the following researchers described safety culture as “the way we do things around here.”
   a. Hofstede
   b. Schein
   c. Pronovost
   d. Pigeon

83. Which of the following researchers described safety culture as a “dynamically-balanced adaptable state?”
   a. Schein and Hofstede
   b. Patankar and Sabin
   c. Hofstede and Sabin
   d. Patankar and Schein

84. Who made the statement “culture is one of the most precious things a company has so you must work harder on it than anything else.”
   a. Gerard Arpey, American Airlines
   b. Herb Kelleher, Southwest Airlines
   c. Bob Crandall, American Airlines
   d. David Barger, JetBlue

85. The foundation of the Safety Culture Pyramid is identified as?
   a. Values
   b. Strategies
   c. Safety climate
   d. Safety performance

86. Which layer of the Safety Culture Pyramid is influenced by the temporal conditions influencing an organization?
   a. Safety Values
   b. Safety Strategies
   c. Safety Climate
   d. Safety Performance
87. In terms of the dominant states of safety culture, which is generally considered the least desirable?
   a. Blame Culture
   b. Just Culture
   c. Reporting Culture
   d. Secretive Culture

88. In terms of the dominant states of safety culture, which is generally considered the most desirable?
   a. Blame Culture
   b. Just Culture
   c. Reporting Culture
   d. Secretive Culture

89. In a positive safety culture, safety strategies operationalize safety values.
   a. True
   b. False

90. Programs such as ASAP, FOQA, LOSA, etc. are examples of?
   a. Safety values
   b. Safety strategies
   c. Safety climate
   d. Safety performance

91. Organizations which question some of its assumptions are generally a characteristic of?
   a. Secretive cultures
   b. Blame cultures
   c. Reporting cultures
   d. Just cultures

92. A safety climate replete with defensive and adversarial individuals is described by a?
   a. Secretive culture
   b. Blame culture
   c. Reporting culture
   d. Just culture

93. A safety culture committed to fairness is generally described as a?
   a. Secretive culture
   b. Blame culture
   c. Reporting culture
   d. Just culture

94. Command and control safety strategies are most often found in?
   a. Secretive cultures
   b. Blame Cultures
   c. Reporting Cultures
   d. Just Cultures

95. “Culture is one of the most precious things a company has, so you must work harder on it than anything else” was a statement made by?
   a. Gene Aubrey
   b. Herb Kelleher
   c. Fred Harms
   d. Edward Sabin

96. Unquestioned assumptions may support a positive safety culture or may deter from a positive safety culture.
   a. True
   b. False

97. Attitudes and opinions surrounding organizational safety will generally align with the Safety ____________ layer of the Safety Culture Pyramid.
   a. Values
b. Strategies
c. Climate
d. Performance

98. Unilateral self-protection is a key characteristic located in the values layer of a Safety Culture Pyramid in a __________ Culture
   a. Secretive
   b. Blame
   c. Reporting
   d. Just

99. Mutual trust as an aspect of the attitudes and opinions found in a Safety Culture will generally exist in a __________ Culture
   a. Secretive
   b. Blame
   c. Reporting
Multiple choice questions: Place the letter of your answer on the answer sheet. Use the back of the answer sheet if needed for any calculations.

1. The output of a simple, basic generator before commutation is:
   A. AC.
   B. DC.
   C. Synchronized AC and DC.

2. The name for the component containing a number of wires rotating through a magnetic field is:
   A. A capacitor.
   B. An armature.
   C. A commutator.

3. Instead of a commutator, what is used to convert the AC electricity generated by a DC alternator to DC?
   A. A diode-rectifier pack.
   B. A capacitor pack.
   C. An inverter pack.

4. In an aircraft having a battery with a nominal voltage of 24v, the generator output would be:
   A. 12v.
   B. 115v.
   C. 28v.

5. The ratio of true power to apparent power is known as:
   A. KVAs.
   B. The power factor.
   C. The Root Mean Square (RMS) value.

6. In a constant frequency AC supply system, the frequency is determined by:
7. The frequency of an AC supply is rated in units of:

   A. Cycles or Hertz.
   B. Watts.
   C. Cycles/minute.

8. The sine wave showing the voltage output of an AC generator will rise to a maximum value:

   A. In one direction, fall to zero and rise in the same direction.
   B. In one direction and remain at a constant value.
   C. In one direction, fall to zero and rise to a maximum value in the opposite direction.

9. The induced voltage that acts to oppose the current flow in an AC electrical circuit is referred to as:

   A. Capacitive reactance.
   B. Inductive reactance.
   C. Resistance.

10. A 400 Hz AC electrical supply has:

    A. A frequency of 400 cycles per hour.
    B. A frequency of 400 cycles per minute.
    C. A frequency of 400 cycles per second.

11. The basic unit of inductance is:

    A. The Henry.
    B. The Farad.
    C. The Ohm.
12. The basic unit of capacitance is:

   A. The Henry.
   B. The Farad.
   C. The Ohm.

13. The amount of power available for consumption in an AC electrical circuit is referred to as:

   A. True power.
   B. The power factor.
   C. Apparent power.

14. Transferring electrical energy by means of rotating a conductor through a magnetic field is referred to as:

   A. Electromagnetic polarization.
   B. Electromagnetic induction.
   C. Electromagnetic amplification.

15. The moving part of a simple DC generator typically used on small aircraft is:

   A. The stator.
   B. The armature or rotor.
   C. The voltage regulator.

16. An alternator normally used to supply a transport category aircraft’s electrical power system would be:

   A. Single phase.
   B. Three phase.
   C. Frequency wild.
17. The type of alternator that is almost universally used in transport category aircraft electrical systems is:

A. Rotating armature alternator.
B. Rotating field alternator.
C. Rotating exciter alternator.

18. In a three phase alternator, the three individual voltage phases being produced are out of phase with each other by:

A. 90° to each other.
B. 270° to each other.
C. 120° to each other.

19. An advantage of three phase generation over a single phase generation is that:

A. Most aircraft systems require three phase generation.
B. It can be more easily converted into DC.
C. It allows for more compact generators and allows lower electrical cable weights.

20. A voltage regulator can change the AC generator’s output voltage by:

A. Increasing the battery voltage in the DC electrical system.
B. Measuring the impedance of the AC circuits in the aircraft.
C. Varying the strength of excitation circuit in the AC generator.

21. A component used in a brushless alternator to provide current for the main generator’s rotating field is the:

A. Voltage regulator.
B. Exciter generator.
C. 28V DC bus bar.

22. A frequency wild generator produces AC electrical power that varies when:

A. The rotational speed of the generator varies.
B. A transformer winding has an open circuit.
C. The voltage regulator is malfunctioning.
23. A frequency wild generator system:
   A. Is typically used to generate the AC electrical power required by the aircraft.
   B. Is not typically used to generate the AC electrical power required by the aircraft.
   C. Is only used in the AC electric systems of small, general aviation aircraft.

24. The component used to maintain a constant AC generator speed, regardless of engine speed, is:
   A. The static inverter.
   B. The constant speed drive (CSD) unit.
   C. The generator control unit (GCU).

25. Malfunction of an alternator's constant speed drive (CSD) unit requires:
   A. Continued use of the unit at any time in flight despite the malfunction.
   B. Turning OFF the generator connected to the CSD.
   C. Operation of the drive disconnect switch at any time during ground or flight operations to disconnect the drive from the engine to the CSD.

26. Indication of a CSD unit oil overheat condition is given in the cockpit by:
   A. An automatic CSD switching the system to an “OFF” position.
   B. A “high oil pressure” warning light.
   C. An indication on a temperature gauge or a warning light illuminating.

27. The unit that is comprised of an AC generator and a CSD unit combined into one assembly that is attached to the engine is known as:
   A. The integrated drive generator (IDG).
   B. The variable speed constant frequency (VSCF) unit.
   C. The generator control relay (GCR) unit.

28. If the CSD unit's drive disconnect has been used, the drive can:
A. Only be reconnected by maintenance personnel when the aircraft is on the ground.
B. Be reconnected from the flight deck.
C. Be reconnected when necessary by using the ram air turbine (RAT).

29. To increase the real load which is being taken on by a paralleled AC generator:

A. The voltage regulator increases the excitation strength.
B. The CSD unit increases the generator’s drive torque.
C. Both the excitation strength and the generator drive torque are decreased.

30. To increase the reactive load which is being taken on by a paralleled AC generator:

A. The excitation strength of the generator producing less power is reset to match the other generator.
B. The excitation strength of the generator producing more power is reset to match the other generator.
C. The excitation strength of the affected generators are lowered or increased as necessary until the generator outputs are matched.

31. The generator control unit (GCU) maintains a constant voltage as the electrical load varies by:

A. Sensing the difference between the AC generator and the system voltage.
B. Controlling the current in the stator circuit.
C. Controlling the generator's excitation circuit.

32. To prevent high circulating currents between paralleled AC generators, the following conditions should be met:

A. Their voltage and current loads must be the same.
B. Their voltage, frequency, phase and phase angle must all be the same.
C. Only their frequencies must be identical.

33. In a constant speed parallel operation AC generator system:
A. All AC generators are driven at the same speed by one CSD unit.
B. All AC generators are driven by the same engine at the same speed.
C. Each AC generator is driven at the same speed as the other AC generators by its own CSD unit.

34. For modern transport category aircraft powered by an AC electrical system, the AC ground power unit must supply the aircraft with:

A. 28V AC only.
B. 200V AC only.
C. 115V/200V, three phase, 400 Hz AC electrical power.

35. The purpose of an inverter is:

A. To change AC into DC.
B. To change DC into AC.
C. To act as a backup for the AC generator.

36. The component used to supply electrical power to vital systems in the event of a failure of both main and auxiliary electrical power systems is:

A. The inverter.
B. The battery transformer.
C. The ram air turbine (RAT).

37. The primary source of AC electrical power on the CRJ700 during normal operation is/are:

A. The integrated drive generators (IDGs).
B. The air driven generator (ADG).
C. A source of AC ground power.

38. A source of AC power for the CRJ700 when an engine-driven generators are inoperative or when the aircraft is on the ground with the engines off is:
A. The inverter unit.
B. The transformer rectifier unit (TRU).
C. The auxiliary power unit (APU).

39. To operate and monitor the operation of the engine driven AC generators while in-flight, the CRJ700 flight crew uses:

A. The auxiliary power unit (APU) control panel.
B. The ELECTRICAL POWER SERVICES control panel.
C. The copilot’s circuit breaker panel.

40. The name of the main electrical buses installed in the CRJ700 is/are:

A. AC BUS 1 and AC BUS 2.
B. AC UTILITY BUS 1 and 2.
C. AC SERV BUS.

41. The CRJ700 AC electrical bus or busses that can be used supply electrical power to the AC ESS BUS for flight is/are:

A. AC BUS 1 and AC BUS 2.
B. TRU BUS 1.
C. AC SERV BUS.

42. AC-powered electrical services connected to which CRJ700 electrical bus might be shed in the event of an engine driven generator failure?

A. The essential bus.
B. Both main buses.
C. The service bus.

43. The unit used to provide emergency AC electrical power in the event that AC electrical power generating devices such as the Integrated Drive Generators (IDGs) and the auxiliary power unit (APU) are inoperable in the CRJ700 is:

A. The main battery.
B. The transformer rectifier unit.
C. The air driven generator (ADG).

44. The unit used to supply emergency DC power in-flight should all AC power be lost and the ADG is unserviceable in a CRJ 700 is:
A. The battery power distribution system.
B. The DC battery charger located in the aft equipment bay.
C. An external DC power source.

45. The CRJ700 flight crew is alerted to the connection of external AC electrical power to the aircraft while on the ground by:

A. The “FAULT” portion of IDG switchlights located on the ELECTRICAL POWER SERVICES control panel illuminating.
B. The “AVAIL” portion of the AC EXT PWR switchlight located on the ELECTRICAL POWER SERVICES control panel illuminating.
C. The “AC ESS XFR” switchlight located on the external service panel illuminating.

46. What is the primary source of DC electrical power on the CRJ700 during normal operation?

A. Inverter unit.
B. Transformer rectifier unit powered from the AC electrical busses.
C. A source of DC ground power.

47. The alpha range of a variable pitch propeller is between:

A. The feather and flight low (fine) pitch positions.
B. The feather and ground low (fine) pitch positions.
C. The flight low (fine) pitch and reverse pitch positions.

48. The beta range of a variable pitch propeller is between:

A. The feather and flight low (fine) pitch positions.
B. The feather and ground low (fine) pitch positions.
C. The flight low (fine) pitch and reverse pitch positions.

49. Which force is used to move the blades to the feather position in a propeller installed on a turboprop engine?

A. Engine oil pressure.
B. Spring force and a compressed nitrogen pressure.
C. Governor oil pressure.
50. Which turboprop power lever cockpit setting is used to allow the flight crew to be able to control aircraft speeds while taxiing?

A. Flight idle.
B. Alpha range.
C. Beta range.

51. With the turboprop power lever in the reverse pitch position the Beta valve:

A. Opens further to increase the oil pressure to the propeller dome, moving the propeller blades to a negative blade angle.
B. Opens further to decrease the oil pressure in the propeller dome, moving the propeller blades to a negative blade angle.
C. Closes fully to allow the primary governor to supply the oil pressure necessary to move the propeller blades to a negative blade angle.

52. When a turboprop aircraft is taxiing on the ground the correct position of the cockpit power and propeller levers are:

A. Power levers in Beta range, propeller controls full back (feather).
B. Power levers in Beta range, propeller controls in a mid-range position.
C. Power levers in Beta range, propeller controls full forward (max RPM).

53. When the power lever of a turboprop aircraft is in the reverse range, the power lever controls:

A. The propeller's pitch only.
B. The engine's torque (power) output only.
C. The engine's torque (power) output and the propeller's pitch.
54. Towards which direction will the blades of a turboprop propeller move if the propeller rpm becomes lower than the value pre-determined by the flight crew (underspeed condition)?

A. The propeller blade pitch does not change in this situation.
B. The propeller blade pitch will move to a lower blade angle to increase the propeller rpm back to the pre-determined value.
C. The propeller blade pitch will move to a higher blade angle to increase the propeller rpm back to the pre-determined value.

55. What is the frequency of a generator with 8 poles running at 12,000 rpm?

A. 400 Hz.
B. 200 Hz.
C. 800 Hz.

\[ F = \frac{P \times N}{2 \times 60} = \frac{PN}{120} \]

56. What is the line voltage of a three phase star connected generator that has a phase voltage of 115V? Round your answer to the nearest 100th.

A. 200V.
B. 100V.
C. 400V.

**LINE VOLTAGE = 1.73 x PHASE VOLTAGE**

57. What is the inductive reactance in an AC electrical circuit that has a frequency of 400 Hz and an inductance of 0.05 ohms?

A. 62.83 ohms.
B. **125.66 ohms**.
C. 251.32 ohms.

\[ X_L = 2\pi fL, \]

Where:
\[ \pi = 3.1416 \]

58. What is the capacitive reactance in an AC electrical circuit that has a frequency of 400 Hz and a capacitance of 5 microfarads (0.000005 µF)?

A. **79.57 ohms**.
B. 1,256.64 ohms.
C. 159.15 ohms.

\[ X_C = \frac{1}{2\pi fC} \]

Where:
\[ \pi = 3.1416 \]
\[ f = \text{frequency in cycles per second} \]
\[ C = \text{capacitance in 0.000001 \, \mu F} \]
59. What is the phase relationship of the voltage and current sine waves in a purely inductive AC electrical circuit?

A. The voltage sine wave lags the current sine wave by 90°.
B. **The current sine wave lags the voltage sine wave by 90°.**
C. The voltage and current sine waves are in phase with each other.

60. What is the phase relationship of the voltage and current sine waves in a purely capacitive AC electrical circuit?

A. **The current sine wave leads the voltage sine wave by 90°.**
B. The voltage sine wave leads the current sine wave by 90°.
C. The voltage and current sine waves are in phase with each other.

**EXTRA CREDIT - up to 5 points**

Using the attached CRJ700 AC electrical system schematic, show the flow of AC electrical power to the correct bus bars in the event that the aircraft is operating normally in flight, when it suddenly has a **GEN 2 failure and the APU has not yet been turned on and made available for use.**
|   | 1. | 2. | 3. | 4. | 5. | 6. | 7. | 8. | 9. | 10. | 11. | 12. | 13. | 14. | 15. | 16. | 17. | 18. | 19. | 20. | 21. | 22. | 23. | 24. | 25. | 26. | 27. | 28. | 29. | 30. | 31. | 32. | 33. | 34. | 35. | 36. | 37. | 38. | 39. | 40. | 41. | 42. | 43. | 44. | 45. | 46. | 47. | 48. | 49. | 50. |
|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|---|

Total: 93
CRJ700 AC Electrical Schematic
Multiple choice questions: Place the letter of your answer on the answer sheet. Use the back of the answer sheet if you need to for any calculations. The extra credit question is attached to the answer sheet.

1. The gas turbine engine uses the principles of:
   A. Newton’s Third Law of Motion.
   B. Creating thrust equal to the weight of the aircraft.
   C. Expelling air at the same speed as that of the aircraft.

2. A pure turbojet engine provides:
   A. A small acceleration to a large mass of air.
   B. A large acceleration to a large mass of air.
   C. A large acceleration to a small mass of air.

3. During the Brayton Cycle, combustion takes place:
   A. Once every revolution of the compressor rotor.
   B. Continuously.
   C. Once every two revolutions of the engine.

4. The effect on air flowing through a divergent duct is:
   A. A pressure decrease and an increase in the temperature and velocity.
   B. An increase in pressure, temperature and velocity.
   C. An increase in pressure and temperature and a decrease in velocity.

5. The highest pressure in a gas turbine engine occurs:
   A. Between the compressor and the combustion chamber.
   B. At the outlet of the combustion chamber.
   C. In the jet pipe.

6. The addition of heat in the combustion chamber allows a:
   A. Large expansion of the volume of air with a large decrease in the pressure of the air.
   B. Large expansion of both the volume and pressure of the air.
   C. Large expansion of the volume of air with a relatively constant air pressure.
7. In a bypass engine, the bypass air:
   A. Increases the mass air flow and therefore increases propulsive efficiency.
   B. Reduces the mass air flow and therefore increases propulsive efficiency.
   C. Increases the mass air flow and therefore decreases propulsive efficiency.

8. The bypass ratio of a turbofan engine is the ratio of:
   A. Primary air to tertiary air.
   B. Cold stream air to the hot stream air flowing through the core of the engine.
   C. Exhaust gas pressure to intake air pressure.

9. The majority of thrust of a:
   A. Turbofan engine comes from the turbine exhaust.
   B. Turboprop engine comes from the turbine exhaust.
   C. Turbofan engine comes from the bypass air.

10. A bypass ratio of 5:1 means that:
    A. 5 pounds of air is bypassed for every 10 pounds entering the engine intake.
    B. 5 pounds of air is bypassed for every 1 pound of air that goes through the hot core of the engine.
    C. 1 pound of air is bypassed for every 5 pounds of air that goes through the hot core of the engine.

11. The fan in a ducted fan engine is driven by:
    A. The high pressure turbine.
    B. The intermediate pressure turbine.
    C. The low pressure turbine.

12. What is the term used to describe the output of a turbine engine?
    A. Thrust.
    B. Power.
    C. Torque.

13. What is the term used to describe the amount of time a turbine engine needs to respond to changes in power lever settings?
    A. Lag time.
    B. Spool up time.
    C. Power up time.
14. Using the formula below, determine the thrust produced by a turbojet engine installed on an aircraft that is flying at 600 mph (880 ft/sec), moves 65 pounds of air per second and produces an exhaust velocity of 1,400 ft/sec.

\[ F = \frac{M(V_2 - V_1)}{g} \]

A. 1,049.6 pounds.
B. 2,826.1 pounds.
C. 4,602.5 pounds.

15. The term “ram pressure recovery” refers to the time when:

A. EPR has attained the takeoff setting.
B. The high pressure compressor has reached its maximum amount.
C. The intake pressure has been re-established to ambient pressure.

16. The purpose of the turbine engine air inlet is to provide a relatively…….. supply of air to the…….. of the…….. compressor.

A. Turbulent free……..face……..low pressure.
B. Turbulent free……..rear……..low pressure.
C. Turbulent free……..face……..high pressure.

17. The term used to describe how an increase in thrust is obtained due to more air being forced into the gas turbine engine as aircraft speed increases is:

A. Ram pressure recovery.
B. Ram effect.
C. Ram stabilization.

18. The shape of a typical air inlet on a supersonic aircraft is:

A. Convergent-divergent in shape.
B. Divergent-convergent in shape.
C. Convergent in shape.

19. The two types of compressor designs currently used in turbine engines are:

A. Axial flow and centrifugal flow.
B. Axial flow and in-line flow.
C. Centrifugal flow and rotational flow.
20. The two main elements of a stage of the turbine engine axial flow compressor are:
   A. Rotor and stator.
   B. Rotor and turbine.
   C. Inlet and rotor.

21. The ring of blades that sometimes precede the first rotor stage of an axial flow compressor are:
   A. The first stage stator blades.
   B. The inlet guide vanes.
   C. Nozzle guide vanes.

22. Compressor blades are designed to produce:
   A. A given pressure and velocity rise.
   B. A steady velocity with a pressure rise over the engine speed range.
   C. Turbulent air flow into the combustion chamber.

23. The purpose of the diffuser vanes in a centrifugal compressor is to:
   A. Convert pressure energy into kinetic energy.
   B. Increase the air velocity.
   C. Convert kinetic energy into pressure energy.

24. A major disadvantage of a centrifugal compressor is that:
   A. It cannot be used for a turbojet engine.
   B. It cannot handle as large of a mass air flow as the axial flow compressor.
   C. It is more prone to damage than the axial flow compressor.

25. A compressor blade can stall when:
   A. The speed of the gas flow through the turbine falls below 0.4 Mach.
   B. The mass air flow and speed relationship is constant.
   C. The air axial velocity and rotational speed relationship is disturbed.

26. The shape of the air annulus of the axial flow compressor is:
   A. Divergent.
   B. Convergent.
   C. Convergent-divergent.

27. A compressor stall causes:
   A. The vibration level to increase with a decrease in the turbine gas temperature.
   B. An increase in the turbine gas temperature and the vibration level.
   C. The airflow through the engine to stop suddenly.
28. The occurrence of compressor stalls is limited by:
   A. Bleed valves.
   B. Nozzle guide vanes.
   C. Cascade vanes.

29. A complete breakdown of airflow through a compressor is known as:
   A. Compressor turbulence.
   B. Compressor surge.
   C. Compressor buffet.

30. The purpose of the outlet guide vanes in the compressor is to:
   A. Cause turbulence of the air before it reaches the combustion section.
   B. Cause the mass of air to flow in a swirling motion that is in the direction of engine rotation.
   C. Eliminate any swirling motion or turbulence before the air reaches the combustion section.

31. Active Clearance Control (ACC) is used the size of the annulus in the compressors of some engines is controlled by:
   A. Directing cooling air flow at the compressor casing.
   B. Mechanically connecting the compressor case to the fuel control unit.
   C. Hydraulically actuating the compressor case by commands sent from the fuel control unit.

32. A compressor stall:
   A. Is overcome by increasing fuel flow to the engine.
   B. Is caused by a mechanical failure of the compressor.
   C. May affect only one stage or several stages of the compressor.

33. Variable inlet guide vanes:
   A. Deflect air past the compressor.
   B. Aid in preventing compressor stall.
   C. Direct air into the turbine.

34. Contamination of the compressor:
   A. Is not likely to cause a problem if the aircraft is not flown at low altitudes over the ocean.
   B. Will not decrease the performance of the engine if the fuel sulfur content does not exceed 0.001%.
   C. Can cause a reduction in the efficiency of the engine.
35. The CRJ700 aircraft incorporates a variable geometry (VG) compressor designed to regulate air flow:

   A. By changing the position of the last five stages of the stator vanes and the outlet guide vanes.
   B. By changing the position of the compressor annulus at the rear of the compressor.
   C. By changing the position of the inlet guide vanes and the first five stages of the stator vanes.

**EXTRA CREDIT - up to 5 points**

There are two parts to answering this question: Using Figure 1 attached to the answer sheet:

1. Identify the “N” stations of the engine.

2. Write a description of the paths that the mass airflow takes and how each path contributes to the overall thrust output of the engine.
Extra Credit: Write your answer in the space below.

Turbine fan (ram) N₁ through N₂ where it is compressed to N₃ in the combustion chamber, straight out the back as exhaust. From air that is ducted around the core.
1. The two types of compressor design currently used in turbine engines are:
   A. Axial flow and centrifugal flow.
   B. Axial flow and in-line flow.
   C. Centrifugal flow and rotational flow.

2. The two main elements of a stage of the turbine engine axial flow compressor are:
   A. Rotor and stator.
   B. Rotor and turbine.
   C. Inlet and rotor.

3. The ring of blades that sometimes precede the first rotor stage of an axial flow compressor are referred to as:
   B. The first stage stator blades.
   C. Nozzle guide vanes.

4. Compressor blades are designed to produce:
   A. A given pressure and velocity rise.
   B. A steady velocity with a pressure rise over the engine speed range.
   C. Turbulent air flow into the combustion chamber.

5. The purpose of the diffuser vanes in a centrifugal compressor is to:
   B. Convert pressure energy into kinetic energy.
   C. Convert kinetic energy into pressure energy.

6. A major disadvantage of a centrifugal compressor is that:
   A. It cannot be used for a turbojet engine.
   B. It cannot handle as large of a mass air flow as the axial flow compressor.
   C. It is more prone to damage than the axial flow compressor.
7. A compressor blade can stall when:
   - A. The speed of the gas flow through the turbine falls below 0.4 Mach.
   - B. The mass air flow and speed relationship is constant.
   - C. The air axial velocity and rotational speed relationship is disturbed.

8. The shape of the air annulus of the axial flow compressor is:
   - A. Divergent.
   - B. Convergent.
   - C. Convergent-divergent.

9. A compressor stall causes:
   - A. The vibration level to increase with a decrease in the turbine gas temperature.
   - B. An increase in the turbine gas temperature and the vibration level.
   - C. The airflow through the engine to stop suddenly.

10. The occurrence of compressor stalls is limited by:
    - A. Bleed valves.
    - B. Nozzle guide vanes.
    - C. Cascade vanes.

11. A complete breakdown of airflow through a compressor is known as:
    - A. Compressor turbulence.
    - B. Compressor surge.
    - C. Compressor buffet.

12. The purpose of the outlet guide vanes in the compressor is to:
    - A. Cause turbulence of the air before it reaches the combustion section.
    - B. Cause the mass of air to flow in a swirling motion that is in the direction of engine rotation.
    - C. Eliminate any swirling motion or turbulence before the air reaches the combustion section.

13. Active Clearance Control (ACC) is used to control the size of the annulus in the compressors of some engines by:
    - A. Directing cooling air flow at the compressor casing.
    - B. Mechanically connecting the compressor case to the fuel control unit.
    - C. Hydraulically actuating the compressor case by commands sent from the fuel control unit.
27. The jet pipe is insulated from the airframe by:
   A. Heat insulation materials only.
   B. A cooling air supply only.
   C. A combination of heat insulation materials and a cooling air supply.

28. Some high-bypass turbofan engines utilize an integrated exhaust nozzle that:
   A. Separates the hot and cold air mass streams as they exit the engine.
   B. Mix the hot and cold air mass streams internally before they exit the engine.
   C. Only allow the cold air mass stream to exit the engine.

29. Oil seals used in gas turbine engines are pressurized with compressor bleed air to:
   A. Ensure oil is forced into the bearings.
   B. Ensure a minimum oil loss in the lubrication system.
   C. Minimize the amount of heat loss in the bearing housing.

30. The main bearings in an axial flow gas turbine engine are normally pressurized by:
   B. A source of air taken from the turbofan bypass air.
   B. The compressor's bleed air.
   C. Gases flowing past the second stage turbine disk.

31. A modern turbofan engine utilizes which type of oil cooler as the main unit and which type to supplement the main unit when needed?
   A. The air-cooled oil cooler is the main unit supplemented by the fuel-cooled oil cooler.
   B. The fuel-cooled oil cooler is the main unit supplemented by the air-cooled oil cooler.
   C. An air-cooled oil cooler is the main unit supplemented by a second air cooled oil cooler.

32. Magnetic chip detectors are fitted in the engine:
   C. To facilitate early detection of cracks in the compressor blades.
   B. To facilitate early detection of a failing turbine blade.
   A. To collect wear debris and provide a warning of impending failure in the engine bearings.

33. What type of lubrication (oil) do gas turbine engines use in their lubrication system?
   C. Mineral oil with additives (compound).
   B. Ashless dispersant multi-grade oil 20/50 oil.
   A. Synthetic oil.
34. The main difference between the turbine engine pressure relief valve lubrication system and the full flow lubrication system is:

A. The pressure relief valve is adjustable in the pressure relief valve lubrication system but is not adjustable in the full flow lubrication system.
B. The full flow lubrication system does not use oil filters in the system.
C. The full flow lubrication system does not incorporate a pressure relief valve in the system.

35. For a pressure relief valve lubricating system, select the correct statement:

A. The oil flow and pressure will change with engine speed.
B. The pressure relief valve is fitted in series with the oil pressure pump.
C. Once the proper oil pressure has been attained, the pressure will remain the same for all operating parameters.

36. In a gas turbine engine, the oil temperature is measured:

A. After it leaves the engine’s oil cooler and before it re-enters the engine.
B. After it leaves the engine and before it enters the engine’s oil cooler.
C. Anywhere within the engine.

37. The purpose of an oil fill in a gas turbine engine is to:

A. Minimize oil pressure loss.
B. Remove solid particles that are suspended in the oil.
C. Maximize oil pressure.

38. Gas turbine oil reservoirs are pressurized to:

A. Prevent oil pump cavitation.
B. Minimize oil pressure loss.
C. Aid the engine oil pressure pump in pressurizing the oil.

39. The Engine Oil Level Replenishment System in the CRJ700 is used to:

A. Maintain the oil quantity in the engine tanks during flight.
B. Recover the oil that has flowed to the low spots of the engines and return it to the respective nacelle tank.
C. Allow ground personnel to remotely fill the nacelle tanks from a replenishment tank located in the aft equipment bay.
40. If the oil pressure in an engine installed in the CRJ700 drops below 25 PSI, the messages provided to alert the flight crew of the problem are:

A. A red “Oil Pressure” warning message appears on the EICAS primary page and the “ENGINE OIL” audio alert is sounded.
B. A yellow “Oil Pressure” caution message appears on the EICAS primary page and the “ENGINE OIL” audio alert is sounded.
C. A white “Oil Pressure” warning message appears on the EICAS status page.

**EXTRA CREDIT - up to 5 points**

Please place your response on the “Extra Credit” section of the answer sheet:

1. Write a description of what occurs to the velocity and pressure of the exhaust gas stream as it moves through the convergent/divergent exhaust jet nozzle.

As the exhaust gas moves through the convergent/divergent exhaust jet nozzle, the velocity of the gas increases while the pressure decreases. The convergent section speeds the gas up to around sonic speeds (Mach 1) while the divergent section increases its velocity more to supersonic speeds all while its pressure decreases.
1. The type of ignition system typically used on a gas turbine engine is the:

   A. Low-tension magneto ignition system.
   B. High-energy magneto ignition system.
   C. High-energy capacitance discharge system.

2. Gas turbine engines equipped with a continuous ignition setting utilize the:

   A. Low-tension magneto ignition system.
   B. High-energy magneto ignition system.
   C. High-energy capacitance discharge system.

3. A gas turbine engine re-light is:

   A. What must be prevented after a wet start.
   B. The action of re-starting a flamed out engine, usually while airborne.
   C. What occurs when the engine drain valve is stuck open.

4. A high energy ignition system used on a gas turbine engine works on the principle of:

   A. Obtaining energy from the discharge of a capacitor.
   B. Magneto static induction.
   C. Obtaining power from a step up transformer of the aircraft’s AC power system.

5. In a gas turbine engine high energy igniter unit, the ignitors fire:

   A. Once every 10 seconds.
   B. Once during the start sequence.
   C. 60-100 times per minute.

6. The CRJ700 aircraft’s ignition system is turned on during an engine start by:

   A. Pressing in on the IGNITION CONT switchlight in the ENGINE START/IGNITION panel.
   B. Pressing in on the associated ENGINE START switchlight in the ENGINE START/IGNITION panel.
   C. Turning on the aircraft’s master switch.
7. The ignition mode of the CRJ700 aircraft is used:

   A. Only during the engine starting sequence.
   B. Only during takeoff on contaminated runways.
   C. At any time the possibility of a flameout exists.

8. A typical APU can provide:

   A. Air for engine starting.
   B. Air for air conditioning on the ground.
   C. Electrical power for ground or in flight use.
   D. All of the above.

9. What is a typical location for an APU in the aircraft?

   A. The forward accessory section of the aircraft.
   B. The aircraft’s left engine nacelle.
   C. The tail section of the aircraft.

10. What is the term used to describe the pneumatic power used for operation of the various aircraft systems?

    A. Compressor bleed air.
    B. Power turbine takeoff air.
    C. APU high pressure air.

11. What is the purpose of an APU load control valve?

    A. To control the amount of bleed air taken from the APU.
    B. To control the amount of electrical power taken from the APU.

12. Which aircraft component is used to provide a flow of cooling air to the APU and other components such as the APU’s oil cooler?

    A. The APU air intake.
    B. The aircraft’s eductor draws cooling air through the APU.
    C. A fan that operates only when the APU’s EGT reaches a predetermined level.
13. The primary function of a transport category’s APU is to:

A. Provide bleed air for air conditioning the cockpit and cabin.
B. Provide hydraulic power for ground operation of the flap system.
C. Provide electrical power for operation of the aircraft electrical systems.

14. Refer to Figure 1. What does the AVAIL light illustrate to the pilot when it is illuminated?

A. The APU is available to be started.
B. The APU is available to be used for electrical and pneumatic power distribution to the aircraft.

![Figure 1](image)

15. At what event during the CRJ700 aircraft’s APU start sequence will be APU bleed air be available for the aircraft’s pneumatic systems?

A. When the APU reaches 99% rpm and four seconds.
B. When the APU reaches 50% rpm.
C. When the APU START switchlight extinguishes.

16. The switches and switchlights used by the CRJ700 aircraft’s flight crew to connect APU electrical power to the aircraft are located in:

A. The APU control panel.
B. The circuit breaker panel located behind the copilot’s seat.
C. The ELECTRICAL POWER SERVICES control panel.

17. The purpose of a starter-generator is to:

A. To start the engine and provide AC power only for ground operations.
B. To start the engine and to provide DC power for the DC-electrically operated systems.
C. To start the engine and to convert to an AC-generator used for all phases of flight.
18. After an engine start, the gas turbine engine’s igniters are normally deactivated by:

A. An electronic interlock system.
B. A speed sensor switch.
C. The timer switch.

19. The term “self-sustaining speed” means that:

A. The speed from which the engine can accelerate to full power within 5 seconds.
B. The engine will run independently of external help.
C. The speed from which the engine can accelerate without the help of the starter motor.

20. A hung start occurs when:

A. The engine accelerates but does not light up.
B. The engine lights up but does not accelerate to self sustaining speed.
C. The engine stabilizes above the self sustaining speed.

21. Before the gas turbine engine’s high pressure fuel shut off valve can be opened during the engine start:

A. The compressor must be turning at the correct RPM.
B. The compressor must be stationary.
C. The high pressure turbine must be turning faster than the high pressure compressor.

22. In a twin-spool engine, the self sustaining speed is normally reached at:

A. Approximately 90% N2 RPM.
B. Approximately 45% N2 RPM.
C. Approximately 5% N2 RPM.

23. The air supply for an air start system is:

A. At a relatively low pressure, but high volume.
B. Filtered to prevent damage to the starter motor.
C. Preheated to avoid icing in the starter motor nozzle guide vanes.
24. The type of starter unit used on the engine installed in the CRJ700 aircraft is the:

A. Electric starter motor.
B. Pneumatic air turbine starter.
C. Combustion starter.

25. During deceleration, if the fuel being delivered is decreased more rapidly than the airflow through the engine, an incombustible fuel/air mixture could result in a condition known as:

A. Lean die-out.
B. Rich blow-out.

26. What is used in the Fuel Control Unit to measure both P1 and P3 pressure so that the pressure being created does not go above the structural limits of the compressor?

A. An RPM limiter.
B. A power limiter.
C. An acceleration unit.

27. What is used in some engines that have duplex fuel nozzles to cause any unused fuel in the engine to be drained into a drain tank so that extra fuel is not present in the engine during a subsequent start?

A. The high pressure fuel shut off valve.
B. A low fuel pressure drain system.
C. A pressurizing and dump valve system.

28. Which fuel control unit utilizes a speed sensitive governor that responds to the position of the power lever and the speed of the engine; also included is a servo valve that controls the rate of acceleration and deceleration, and two bellows that adjust fuel flow based on burner and inlet air pressure?

A. Hydromechanical.
B. Hydropneumatic.
C. Electronic.

29. Which type of fuel control unit is commonly used on turboprop engines?

A. Hydromechanical.
B. Hydropneumatic.
C. Electronic.
30. The function of the full authority digital engine control (FADEC) used on a gas turbine engine is:

A. To manage the fuel scheduling to the engine during starting.
B. To manage the fuel required to accelerate the engine.
C. To manage the fuel required to operate the engine during all phases of flight.

31. Which type of electronic engine control unit consists of an electronic control, a computer, and a conventional hydromechanical fuel control unit?

A. The supervisory electronic engine control.
B. The full-authority digital engine control.

32. To control the fuel scheduling during normal operation, the CRJ700 aircraft utilizes the:

A. Hydropneumatic fuel control.
B. FADEC fuel control.
C. Hydromechanical fuel control.

Use of the engine Synchronization system during operation of the CRJ700:

A. Will keep both the N1 and N2 engine speeds equal on both engines during the climb profile.
B. Will keep the turbine disk speeds of both engines equal to reduce noise levels in cruise flight.
C. Will keep either the N1 or N2 engine speeds equal on both engines to reduce noise levels in cruise flight.

33. Turbine blades are cooled by:

A. High pressure compressor air internally ducted through the blades.
B. High pressure air ducted from just before the inlet guide vanes.
C. Intermediate pressure air taken from the bleed valves.

34. The efficiency of a bearing chamber oil seal depends on its mechanical design and:

A. The engine compression ratio.
B. The compressor bleed air supply.
C. The turbine discharge pressure.
35. High pressure compressor bleed air that was used for cooling or sealing is typically disposed of by:

A. Mixing it with the exhaust gas stream.
B. Venting it into the burner section of the engine.
C. Returning it to the inlet of the high pressure compressor.

36. The bleed air used when low pressure bleed air is needed for pneumatic system services as required in the CRJ700 aircraft is obtained from the:

A. The 10th stage, low pressure compressor.
B. The 6th stage, low pressure compressor.
C. The 10th stage, high pressure compressor.

37. Refer to Figure 2. Which component of the pneumatic system is used to separate the left and right sides of the system?

A. The isolation valve.
B. The load control valve.
C. The APU one-way check valve.

Figure 2
38. Turbine engine accessory gearboxes typically utilize a stub shaft drive or idler gear drive to compensate for:

A. Expansion and contraction of the accessory gearbox drive shafts due to temperature variations.
B. Changes in how the gear teeth mesh together as engine RPM varies.
C. To compensate for gear teeth clearance as altitude varies.

39. The section of the engine used to drive for accessory section is normally taken from:

A. The low pressure fan section.
B. The intermediate compressor section.
C. The high pressure turbine section.

EXTRA CREDIT – 3 points

List at least four aircraft systems that typically use the aircraft pneumatic system (bleed air) for normal operation.
1. C
2. C
3. B
4. A
5. C
6. B
7. A
8. B
9. C
10. A
11. B
12. C
13. B
14. A
15. A
16. C
17. B
18. C
19. B
20. A
21. B
22. A
23. B
24. C
25. B

26. C
27. B
28. C
29. A
30. B
31. B
32. C
33. A
34. C
35. A
36. B
37. C
38. B
39. C
40. B
41. C
42. C
43. B
44. B
45. A
46. A
47. A
48. C
49. B
50. A

Place Extra Credit Answer Below

1) The system must be armed
2) The system needs a weight-on-wheels indication (ground/air logic)
3) Thrust levers must be idle

+5

-1 98
E.C. 45

103
Assignments: Use the Boeing 767-300 Technical Training CBT (Computer Based Training) software available in the Aviation Resource Laboratory to complete this assignment. Completion of this assignment is worth up to 5 (five) extra credit points towards your final grade.

1. The software is found on the eight computers in the laboratory numbered S1-S8. Logon to the computer. The username is AVSCSTU. No password is required.
2. Click on the 767 Technical Training icon on the desktop to start the courseware.
3. Follow the assignment to locate the page and chapter of the CBT course that you need to use for the assignment.
4. Click on the appropriate link to open the chapter.
5. Follow through the chapter and answer the questions given for the assignment.

Topic in class: Turbine Engines – Auxiliary Power Units; the corresponding 767-300 CBT chapter is found on page 4 of 15 and the chapter is titled, "AC Power System."

Questions 1 – 4 are taken from the AC Power System Components Topic of this chapter:

1. What are the four power sources that can provide AC electrical power to the left and right AC buses of the aircraft?
   - Left and Right Integrated Drive Generators, APU Generator, External Power Panel

2. To which component does an IDG directly supply its AC electrical power?
   - The corresponding generator circuit breaker

3. To which components does the APU provide its AC electrical power when on the ground or in flight?
   - The main AC buses

4. What are the four functions of the Bus Power Control Unit (BPCU) located in the Main Equipment Center?
   - Monitors external power system, controls the external power contacts, prevents AC power source overload by controlling the Utility Bus Relays and Safety electrical load control units to automatically reduce the electrical load, communicates with each Generator Control Unit, monitors system control, fault protection, and BITE, displays fault information
Questions 5 – 8 are taken from the Powering the Left and Right AC Busses Topic of this chapter:

5. What is the primary purpose of the Electrical System Control Panel located on the flight deck?
   It is used for the pilot(s) to switch electrical components on/off and to show the pilot(s) the status of all electrical components.

6. What occurs when the APU manual reset switch is pushed?
   The APU generator field relay closes.

7. What occurs when a generator field control relay of an IDG is in the ON position?
   The generator field relay closes. Enables the generator circuit breaker to operate automatically.

8. After starting the engines, which component of the AC electrical power system must close to allow the Left IDG and the Right IDG to supply AC electrical power to the Left AC Bus and the Right AC Bus?
   The Left and Right GCB must close.

Questions 9 – 10 are taken from the AC Power Shedding and GCU Fault Protection Topic of this chapter:

9. When does automatic load shedding occur in the AC electrical power system?
   Power source overload, Engine start Using APU, one generator in the Air mode.

10. What are the typical conditions when load shedding normally occurs in the AC electrical power system?
    Engine start, In flight with a single IDG or APU generator running on the main buses, on the ground if the AC power system is in Air mode or both thrust levers advanced 10° from idle.
Extra Credit Assignments: Use the Boeing 767-300 Technical Training CBT (Computer Based Training) software available in the Aviation Resource Laboratory to complete this assignment. Completion of this assignment is worth up to 5 (five) extra credit points towards your final grade.

1. The software is found on the eight computers in the laboratory numbered S1-S8. Logon to the computer. The username is AVSCSTU. No password is required.
2. Click on the 767 Technical Training icon on the desktop to start the courseware.
3. Follow the assignment to locate the page and chapter of the CBT course that you need to use for the assignment.
4. Click on the appropriate link to open the chapter.
5. Follow through the chapter and answer the questions given for the assignment.

Topic in class: Turbine Engines – Auxiliary Power Units; the corresponding 767-300 CBT chapter is found on page 14 of 15 and the chapter is titled, “Introduction to Powerplant (PW Engines).”

Questions 1 – 3 are taken from the Specifications and Features Topic of this chapter:

1. What are the available thrust ratings of the PW 4000 series engine?
   
   52,100 pounds, 56,000 pounds, 60,000 pounds

2. What are the specifications of the PW 4060 series engine?
   
   Thrust ratings 60,000 pounds
   
   Jet diameter
   5’1 bypass ratio

3. Which engine component is used to drive the Low Pressure Compressor (N1); the High Pressure Compressor (N2) systems?
   
   Low pressure system uses a 4 stage turbine
   High pressure system uses a 2 stage turbine

Question 4 is taken from the Deactivating the Thrust Reverser Topic of this chapter:

4. Why must the thrust reverser system be deactivated prior to having any service or maintenance functions accomplished?

   It prevents the movement of the translating sleeves
Questions 9 – 10 are taken from the Starting the Engine – An Overview Topic of this chapter:

9. What engine indications are to be monitored during an engine start procedure?

   \[ N_2 \text{ - initial compressor rotation, oil pressure increases} \]
   \[ N_1 \text{ - initial compressor rotation, } N_2 \text{ at max } N_1 \text{ initial } \Delta \text{ fuel flow, EGT for light off, EGT and } N_2 \text{ for hot or hung start} \]

10. Which manual is to be used to isolate and correct the cause of a non-normal engine start prior to a restart attempt of the engine?

    Fault isolation manual
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Topic in class: Turbine Engines – Lubrication Systems; the corresponding 767-300 CBT chapter is found on page 13 of 15 and the chapter is titled, "Powerplant Systems: Oil (GE Engines)."

1. What are the three systems that combine to make up the engine’s oil system?
   - storage system
   - distribution system
   - indication system

2. Where does the oil tank receive its oil from?
   - receives oil from the scavase system

3. Which engine components does the lube (pressure) pump supply oil to?
   - engine bearings
   - gearboxes

4. What is the purpose of the five scavange oil pumps?
   - return oil to the tank

5. What type of indication is provided to the flight compartment or ground crew in the event that a lube pump’s oil filter is about to be bypassed?
   - there is no indication of a filter bypass
6. Which component allows the scavenge pump oil to bypass the fuel/oil heat exchanger during cold weather operations or in the event that a blockage exists in the fuel/oil heat exchanger?

   pressure relief valve

7. The engine oil indicating system is comprised of which main components?

   flight compartment displays & the sensors

8. What types of oil system indications are provided to the flight compartment?

   oil pressure, oil temp, oil quantity & filter bypass

9. The engine oil temperature sensor sends its signal to which component, which then sends the temperature data to the EICAS?

   sensor sends signal to the EEC, then EEC sends the temp. data to the EICAS

10. Which engine oil system component sends a signal to the EICAS to display the engine’s oil quantity?

    oil transmitter

11. Which component sends a signal to the EICAS to warn of an impending scavenge pump filter bypass?

    scavenge oil filter differential pressure switch
Extra Credit Assignments: Use the Boeing 767-300 Technical Training CBT (Computer Based Training) software available in the Aviation Resource Laboratory to complete this assignment. Completion of this assignment is worth up to 5 (five) extra credit points towards your final grade.

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5. Follow through the chapter and answer the questions given for the assignment.

Topic in class: Turbine Engines – Turbine Power; the corresponding 767-300 CBT chapter is found on page 14 of 15 and the chapter is titled, “Powerplant Systems: Engine Indicating.”

When prompted, select the Engine Pressure Ratio Indicating System Topic from this chapter.

1. How many channels does the engine’s EEC have and how are they labeled?
   - \( \text{eng. 1, 2, 3} \)

2. Where does the EEC send its signal to?
   - \( \text{ECAS and the standby engine indicator} \)

3. What does the Engine Pressure Ratio (EPR) show?
   - \( \text{Engine \, \text{rpm}} \)

4. What are the four types of EPR indications provide?
   - \( \text{Actual, Adverse Maximum, Commanded} \)

5. Which pressures are measured to calculate the engine’s actual EPR?
   - \( \text{Seng, Inter-p Groove, Turbo exhaust pressure} \)
6. Where is the PT2 fan inlet pressure probe located?
   
   Inlet cowl

7. Where are the PT2 exhaust pressure probes located?
   
   Low pressure turbine exhaust case

8. What is the engine's reference EPR (target) starting point?
   
   1.55

9. What is used to set the commanded EPR?
   
   Throttle lever position

10. Which unit sends the thrust lever angle position to the engine's EEC?
    
    Thrust lever angle position
# FSCI 3700 Principles of Flight Instruction I

## FSCI 3700 Principles of Flight Instruction: Practice Lesson Rubric

**Name:** Class Average  
**Lesson:** Overall Class Performance

<table>
<thead>
<tr>
<th>Component</th>
<th>CFI PTS</th>
<th>Needs Improvement</th>
<th>Meets Expectations</th>
<th>Exceeds Expectations</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Setting instructional outcomes</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stating the purpose</td>
<td></td>
<td>Instructional outcomes are too general, and / or do not reflect CFI Practical Test and Appropriate Airman Certification Standards.</td>
<td>Instructional outcomes are stated as goals reflecting high-level learning and curriculum standards that align with CFI Practical Test and Appropriate Airman Certification Standards.</td>
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<td></td>
<td>1/6</td>
<td>4/6.</td>
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<tr>
<td><strong>Demonstrating knowledge of content and pedagogy</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Giving an accurate, comprehensive oral description</td>
<td></td>
<td>Instructor’s plans and practice reflect some awareness of the important concepts and prerequisite relations between them.</td>
<td>Instructor’s plans and practice reflect solid knowledge of the content, and prerequisite relations between important concepts.</td>
<td>Instructor’s plans and practice reflect extensive knowledge of the content and of the structure of the discipline. Instructor actively builds on knowledge of prerequisites and misconceptions when describing instruction or seeking causes for student misunderstanding.</td>
</tr>
<tr>
<td></td>
<td>0/6</td>
<td>5/6</td>
<td>1/6</td>
<td></td>
</tr>
<tr>
<td><strong>Designing coherent instruction</strong></td>
<td></td>
<td></td>
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<tr>
<td>Use of instructional aids, as appropriate</td>
<td></td>
<td>The series of learning experiences demonstrates partial alignment with instructional outcomes, some of which are likely to engage students in significant learning. The lesson or unit has a recognizable structure and reflects partial knowledge of students and resources.</td>
<td>Instructor coordinates knowledge of content, of students, and of resources, to design a series of learning experiences aligned to instructional outcomes. The lesson or unit has a clear structure and is likely to engage students in significant learning.</td>
<td>Instructor coordinates knowledge of content, of students, and of resources, to design a series of learning experiences aligned to instructional outcomes, differentiated where appropriate to make them suitable to all students and likely to engage them in significant learning as they relate to concepts and processes in Ohio standards and school/district curriculum. The lesson or unit’s structure is clear and allows for different pathways according to student needs</td>
</tr>
<tr>
<td></td>
<td>1/6</td>
<td>5/6</td>
<td>0/6</td>
<td></td>
</tr>
<tr>
<td><strong>Using Assessment in Instruction</strong></td>
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<tr>
<td>Recognition, analysis, and correction of common errors</td>
<td></td>
<td>Assessment is occasionally used in instruction, through some monitoring of progress of learning. Feedback to students is uneven, and students are aware of only some of the assessment criteria used to evaluate their work.</td>
<td>Assessment is regularly used in instruction, through self-assessment by students, monitoring of progress of learning by instructor, and through high quality feedback to students. Students are fully aware of the assessment criteria used to evaluate their work.</td>
<td>Assessment is used in a sophisticated manner in instruction, through student involvement in establishing the assessment criteria, self-assessment by students and monitoring of progress by both students and Instructors, and high quality feedback to students.</td>
</tr>
<tr>
<td></td>
<td>3/6</td>
<td>3/6</td>
<td>0/6</td>
<td></td>
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</tbody>
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