Program-Level Assessment Plan

Program: BS Aerospace Engineering	Degree Level (e.g., UG or Certificate, UG major, master's program, doctoral program, GR): UG major
Department: Aerospace & Mechanical Eng	College/School: School of Science and Engineering
Date: (What do the program faculty	

2	Students will be able to	apply engineering methods to design aerospace systems that meet specified mission needs with consideration of public		

	contexts.		Design II- professional panel review of end-of-semester presentation	

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Use of Assessment Data

1. How and when will analyzed data be used by program faculty to make changes in pedagogy, curriculum design, and/or assessment practices?
   The appropriate outcomes will be assessed each fall based on prior academic year(s) data in meetings of the full department. The outcomes of these meetings will include plans for changes to classes, curriculum, and assessment. The overall assessment plan will be reviewed every two years.

2. How and when will the program faculty evaluate the impact of assessment-informed changes made in previous years?
   The full department assessment meetings also include review of prior changes to assess their effectiveness.

Additional Questions

1. On what schedule/cycle will program faculty assess each of the program's student learning outcomes? (Please note: It is not recommended to try to assess every outcome every year.)
   Review meetings in even years – even outcomes and an overall review of the assessment plan
   Review meetings in odd years – odd outcomes

Example Rubrics

Example rubrics are provided below. Not all rubrics are available at this time. Updated versions will be provided with the annual reports for the appropriate outcomes.

OUTCOME 1:

MENG 2150 Dynamics

Indicator	Below Expectations	Meets Expectations	Above Expectations
Ability to analyze and solve two dimensional rigid body kinematic problems involving rotation around an external instantaneous center of zero velocity.	Student fails to solve the problem due to significantly improper procedures, incorrect equations, incomplete work, and/or significant mathematical errors.	Student uses mostly proper procedures to formulate and solve the resulting governing equation with at most a few errors.	Student uses proper procedures to formulate and solve the governing equations with minimal errors.

MENG 3200 Fluid Dynamics

Indicator	Below Expectations	Meets Expectations	Above Expectations
Ability to formulate and solve a two-dimensional control volume mass momentum conservation problem.	Student fails to solve the problem due to significantly improper procedures, incorrect equations, incomplete work, and/or significant mathematical errors.	Student uses mostly proper procedures to formulate and solve the resulting governing equation with at most a few errors.	Student uses proper procedures to formulate and solve the governing equations with minimal errors.

Indicator	Below Expectations	Meets Expectations	Above Expectations
Ability to formulate and a Buckingham-PI dimensional analysis problem.	Student fails to solve the problem due to significantly improper procedures, incorrect		

OUTCOME 2:
AENG 2020 Introduction to Aerospace Engineering

Indicator	Below Expectations	Meets Expectations	Above Expectations
1) Ability to conduct design analysis to predict prototype performance	Multiple expected analyses in the project report are absent and/or have major errors	All the primary analyses are included and reasonably completed but with some errors	All primary analyses are included and completed with minimal errors
2) Ability to prototype and			

Indicator	Below Expectations	Meets Expectations	Above Expectations
1) Ability to communicate in an orderly and complete manner.	Sections of the project report		

5) Overall communication quality.	Report fails to convey main points of the lab without significant parsing and re-reading of sections, if at all.	Report conveys information in a sufficiently logical, efficient, precise, and complete manner such that the main points of the lab are generally understood with a single read.	Report conveys information in a logical, efficient, precise, and complete manner such that the lab is fully understood with a single read.

OUTCOME 4:
AENG 2020 Introduction to Aerospace Engineering

Indicator	Below Expectations	Meets Expectations	Above Expectations
1) Ability to identify and describe an ethical issue related to engineering.	Unable to identify and/or accurately describe an ethical issue in a manner relevant to engineering	Able to identify and accurately describe the ethics of an engineering situation	Able to identify and accurately describe the ethics of an engineering situation and place it in a broader context
2) Ability to explain the impact of engineering decisions in a global, economic, environmental, and/or social context.	Explanation of impact is absent or rudimentary; the context is poorly defined.	Explanation of impact is substantive and its relation to at least one broader context is clearly defined	Explanation of impact is thorough and substantively connected to multiple types of broader context.
3) Ability to apply engineering ethical codes to specific situations	No specific application of an engineering ethical code is made.	At least one aspect of an engineering ethical code is applied in a relevant manner.	Multiple aspects of engineering ethical codes are applied in a relevant and contextualized manner.

OUTCOME 5:
AENG 4014 Flight Vehicle Analysis and Design II

	Unsatisfactory	Marginal	Good	Excellent	Outstanding
Team Management	Team fails repeatedly in terms of preparation, work structure, work expectations, and maintaining schedules.	Team has lapses in preparation, work structure, work expectations, and maintaining schedules which are sometimes allowed to linger.	Team has lapses in preparation, work structure, work expectations, and maintaining schedules, but consistently corrects these issues in a prompt fashion.	Team is mostly prepared, mostly follows a defined work structure and expectations, and is generally on schedule.	Team is consistently prepared, has a defined work structure and expectations, and is on or ahead of schedule.
Collaborative Work	Some team members are effectively excluded from participating in project planning, development, and work.	The full team does not regularly participate in project planning, development, and work efforts, with consistent unevenness .001 Tw -1.771 -1.229 Td 2(,)]TJ 0 T349 (e)9 (s)-1.-9.1 (t)-Td 3etvbu,			

3) Discussion and Conclusions	There is no significant discussion or conclusions drawn from the lab.	The discussion and conclusions cover expected topics	The discussion and conclusions provide further information than the standard expectations.

AENG 4111 Aerospace Lab

Grading Rubric – Aerospace Lab

Category Excellent 95%

OUTCOME 7:
SE 1700 Engineering Fundamentals

Criteria	Ratings					Pts
First Research Question The research question is a) relevant to your part of the project, b) involves a question to be answered or something to be learned, and c) is narrow enough that it can be resolved with a search.	**6 pts Full Marks**	**5 pts Some answers are incomplete or missing**	**4 pts Mostly there**	**2 pts Lots of missing items**	**0 pts Didn't do this**	6 pts
Second Research Question The research question is a) relevant to your part of the project, b) involves a question to be answered or something to be learned, and c) is narrow enough that it can be resolved with a search.	**6 pts Full Marks**	**5 pts Some answers are incomplete or missing**	**4 pts Mostly there**	**2 pts Lots of missing items**	**0 pts Didn't do this**	6 pts
Third Research Question The research question is a) relevant to your part of the project, b) involves a question to be answered or something to be learned, and c) is narrow enough that it can be resolved with a search.	**6 pts Full Marks**	**5 pts Some answers are incomplete or missing**	**4 pts Mostly there**	**2 pts Lots of missing items**	**0 pts Didn't do this**	6 pts

Reference 1-1

Explanation for Reference 1-1 [Note: the first number is the question, the second is the reference] Explains why this reference was selected and what was learned Repeat for References 1-2 to 1-3, 2-1 to 2-3, and 3-1 to 3-3.	**3 pts** **Full Marks**	**2.5 pts** **Decent effort, but incomplete answers**	**1.5 pts** **Only did 1 of the 2 (why selected or what was learned)**	**0 pts** **Didn't do this**	3 pts

Criteria	**Ratings**				**Pts**
Found a technical citation style	**3 pts** **Full Marks**		**2.5 pts** **Found a style, but it's not a technical one**	**0 pts** **Did not cite a style**	3 pts
Implemented the Style consistently	**6 pts** **Full Marks**	**5 pts** **Mostly there**	**3 pts** **A few egregious mistakes**	**0 pts** **Wildly inconsistent or no style evident**	6 pts
Total Points: 90					