Program Assessment

Department of Aeronautical Science

EMBRY-RIDDLE
Aeronautical University™
PRESCOTT, ARIZONA

AABI 3.10 Continuous Assessment & Improvement

1. Students
2. Program mission and educational goals
3. Student learning outcomes
4. Curriculum
5. Faculty and staff
6. Facilities, equipment & services
7. Institutional structure & support
8. Safety Culture and Program
9. Relations with Industry

Program Assessment Plan

Annual Academic Assessment

(Taskstream)

Annual Academic Assessment

Closing the Loop! Results reviewed by faculty and any recommendations forwarded to Chair. PROGRAM Outcomes not meeting criteria re-evaluated following year.

Assessment Coordinator uses Taskstream to enter course learning outcomes and analyze results for selected Program Learning Outcomes and Educational Goals

Selected Course Learning Outcomes from selected courses are mapped to Program Learning Outcomes and Educational Goals which are assessed on a given timeline

Course Monitors assess every Course Learning Outcomes in all courses every semester

Every MCO lists Course Learning Outcomes

MCO (Master Course Outline)

Master Course Outline (MCO)

EMBRY – RIDDLE AERONAUTICAL UNIVERSITY
MASTER COURSE OUTLINE FOR

Course No: AS 350 **Title:** Domestic and International Navigation
Cr. Hrs: 3

Lecture Hour: 3 **Laboratory:** 0

COURSE DESCRIPTION:

This course will study FAR Part 121 domestic and flag regulations and evaluate their impact on long-range domestic and international flights. The student will be able to use ICAO, JAA and FAA operational requirements and typical air carrier Ops SPECS to plan domestic and transoceanic flights. CBT simulation programs may be utilized as necessary to demonstrate actual flight scenarios. High altitude airspace, navigation and approach procedure chart interpretation will be examined in detail. Students will study and use the concepts of MNPS and RVSM airspace, dispatch procedures, ETOPS, ETP, drift down, track messages, LRN accuracy checks, Oceanic Air Traffic Control clearances, International METARs and TAFs and emergencies and contingencies while on oceanic tracks. Communication systems requirements and methodology will be examined to include satellite, digital and analog devices.

GOALS:

This is a required course in the Aeronautical Science degree program. This course will provide in-depth instruction and analysis of Domestic and International navigation, planning, procedures, and techniques. The students will be able to successfully flight plan and 'navigate' using appropriate Departure Procedure (DP or SID), Enroute Chart, Arrival Procedure (STAR), Instrument Approach Procedure, or Computer Flight Plan. This course will provide a basic understanding of the rules and procedures for IFR domestic and international flights and give the student a fundamental knowledge of international contingency planning and emergency procedures.

LEARNING OUTCOMES:

1. Compare and evaluate the impact of Part 91 and Part 121 regulations that affect domestic and international IFR flights.
2. Identify Domestic, Polar, North Atlantic and North Pacific long range navigation routes, diversions and contingencies. Demonstrate the proper calculations and applications of Drift Down, ETOPS, ETP, Gross Error Checks and Accuracy Checks.
3. Develop effective long range domestic and international flights using appropriate data, procedures, routing, charts and contingencies.
4. Apply the principles of RNAV flight planning and navigation systems.
5. Compare capabilities and limitations of current short and long range navigation systems.
6. Explain in writing domestic and international communications equipment and requirements.
7. Examine international METARs and TAFs and apply them properly to international flight operations. Describe the difference between "Transition Altitude and Transition Level".
8. Describe the importance of earth reference systems, chart projections and time zones to navigation procedures.

Academic Assessment Master Matrix

ERAU PRESCOTT - COLLEGE OF AVIATION: AERONAUTICAL SCIENCE ASSESSMENT MATRIX

Education Goal 1. Leadership			x	x	x	x	x				x		x		x	x	x	
Education Goal 2. Decision Making		x			x			x		x			x	x	x			x
Ed Goal 3. Awo. Knowledge	x	x			x		x	x	x	x	x			x	x	x	x	x
Education Goal 4. Critical Thinking	x	x			x			x	x	x			x		x		x	
PC COA AS OUTCOMES	1. Program graduates will demonstrate that they are adequately prepared and have the ability to apply knowledge of mathematics, science and applied sciences at various levels of education.	2. Program graduates will possess the ability to analyze and interpret data provided from various sources.	3. Program graduates will demonstrate the ability to make positive contributions and function on multi-disciplinary teams in a crew-type environment.	4. Program graduates will have an understanding of professional and ethical responsibility as it applies to the aviation industry.	5. Program graduates will demonstrate that they are adequately prepared and have the ability to effectively communicate using technical writing and verbal communication skills.	6. Program graduates will recognize the need for, and have an ability to engage in, lifelong learning.	7. Actions and attitudes of program graduates will reflect knowledge of contemporary issues affecting the aviation industry	8. Program graduates will possess the ability to use the techniques, skills and modern technology necessary for professional practice.	9. Program Graduates will possess an understanding of the national and international aviation environment.	10. Program graduates will demonstrate the ability to apply pertinent knowledge in identifying and solving problems.	11. Program graduates will demonstrate the ability to apply knowledge of accepted business practices to aviation issues.		PROFESSIONAL ISSUES	AIRCRAFT	SAFETY & HUMAN FACTORS	LEGAL, REGULATORY & LABOR ISSUES	AIRPORTS AIRSPACE ATC	ENVIRONMENTAL
GEN ED CURRICULUM	Mathematics, Basic Sciences	Computer Science / Information Technology	Social Sciences	Social Sciences	Communications		Social Sciences		Business		Business							
AABI GENERAL OUTCOMES (AABI 3.3.1)	A. Apply mathematics, science and applied science to aviation-related disciplines.	B. Analyze and interpret data.	C. Work effectively on multi-disciplinary and diverse teams.	D. Make professional and ethical decisions.	E. Communicate effectively, using both written and oral communication skills.	F. Engage in and recognize the need for lifelong learning.	G. Assess contemporary issues.	H. Use the techniques, skills, and modern technology necessary for professional practice.	I. Assess the national and international aviation environment.	J. Apply pertinent knowledge to identifying and solving problems.	K. Apply knowledge of business sustainability to aviation issues.		Describe the professional attributes, requirements or certifications, and planning applicable to aviation careers.	Describe the principles of aircraft design, performance and operating characteristics, and the regulations related to the maintenance of aircraft and related systems.	Evaluate aviation safety and the impact of human factors on safety.	Discuss the impact of national and international aviation law, regulations and labor issues on aviation regulations.	Explain the integration of airports, airspace and air traffic control in managing the National Airspace System.	Discuss the impact of meteorology and environmental issues on aviation operations.
Review Year -->	2014-2015	2014-2015	2014-2015	2014-2015	2015-2016	2015-2016	2015-2016	2015-2016	2016-2017	2016-2017	2016-2017		2014-2015	2015-2016	2015-2016	2016-2017	2017-2018	2017-2018
	2016-2017	2017-2018	2017-2018	2017-2018	2017-2018	2018-2019	2018-2019	2018-2019	2018-2019	2019-2020	2019-2020		2018-2019	2018-2019	2018-2020			
A.S. REQD.																		
AS121	3 8	1 2 3 4 5 6 9	***	2 8	***	***	***	3 7 10	***	3 4 8	***	AS121	1	5 6 7	1 3 5 8	1 2 3	3	4
AS221	2 7	1 2 7 9	10	10	4	***	***	2 7 10	***	7 9 10	***	AS221	8	1 2 7	10	8	4 5 6 7	9
AS254	***	***	***	***	***	6 7	***	***	***	***	3 4 5 6 7	AS254		***	2 3 4 5 6 7			
AS309	1 2 3 4 9 10	1 2 3 4 7 9 10	***	***	***	***	***	1 2 3	***	1 2 3 4 6 7 9	***	AS309		3 4 5 6 7 8 9 10	4 5 6 8 10			2 3
AS310	1 4	1 3	***	***	1 2 3 4	***	***	1 2 3	***	1 2 3	***	AS310	1 2 3 4	4				1
AS311	2	***	***	***	***	***	***	2 6	***	6	***	AS311		1 2 3 4 5 6 7 8	8			
AS321	3 8 10	1 4 5 6 7 8 10	***	8	***	***	***	3 4 7 9	***	3 5 6 8	***	AS321	1	3 4 6 9	1 2 6	1 2 7	7	5 10
AS350	2 3 4 7 8	2 3 4 7 8	3	***	***	***	***	2 3 4 6 7	1 THRU 8	1 2 3 4 7	***	AS350		5		1	1 2 3 4 5 6 7	
AS356	4	5 6	***	7	***	***	***	1	***	1 3 5	***	AS356	8	1 2 3 4 5 6 7	8	8		
AS357	***	***	3 5 6 7	3 7	***	***	10	3 4 5 6 7 9				AS357			1 thru 12			1 4 5 6
AS360	***	***	***	8	***	8	8	***	***	***	***	AS360	1 2 3 4 5 6 7 8					
AS367	***	2 4 5 7	6 7 8	6 7	***	2 5	2 5	4 5 6 7 8	***	6 7	***	AS367	1 2 3 4 6 7 8		1 2 3 4 5 6 7 8			
AS403	***	2 3 5 7	2 3 5 7		2 3 5 7	***	***		5	***	2 3 4 5 6	AS403	2 4 6 10			1 2 4 6 7 9 10		
AS405	***	2 3 4		1	4	***	1	4	1 4	1 2 3 4	2 3 4 5 6	AS405				1 2 3 4 5 6		
AS408	***	4 5	***	3	4 5	***	1	***	1	1 4 5	***	AS408			1 2 3 4 5 6 7			
AS410	3 4 5	3 4 5 6 7	2 6 9	3 4 5 6 9	1 3 9	1	9	3 4 5 7	3	3 4 5 6 9	3 4 5	AS410	1 2	4 5 7	6 9	1 2 3 9	3 6	3 5 6 7
AS411 (capstone)	1 2 3	1 3	3	***	***	***	2 3	1 2 3	3	1 2 3	***	AS411 (capstone)		1 2 3 4				
AS420 (capstone)	1 2 3 4 7 8 9	5 6 7 8 9	1 3 4 9 10	***	1 4 10	***	***	1 THRU 10	***	1 2 4	***	AS420 (capstone)		2 3 4 5 6 7 8 9	1 10			8
AS435 (capstone)	2	4	7	***	5	***	***	1 3		7	***	AS435 (capstone)		1 2 3 4 5 6 7			2	
FA323	***	***	***	***	***	***	***	FA 323 PASS RATE	***	FA 323 PASS RATE	***	FA323	1	1 2 3 4 5	1 3 5			1 3
WX201	2 3 4 6	6	***	***	***	***	1	6	***	6 7	***	WX201						6
WX203L (NEW 2014)	All											WX203L (NEW 2014)						1 2
WX301	1 5 6 7	2 8	***	***	***	***		4 6	***	3 4 5 8 9	***	WX301						2 5 6 7 8 9
WX364 (NEW 2014)												WX364 (NEW 2014)						1 2 3 4 5 6 7 8

Academic Assessment Master Matrix

PC COA AS OUTCOMES	1. Program graduates will demonstrate that they are adequately prepared and have the ability to apply knowledge of mathematics, science and applied scie various levels of education.	2. Program graduates will possess the ability to analyze and interpret data provided from various sources.
GEN ED CURRICULUM	Mathematics, Ba Sciences	
AABI GENERAL OUTCOMES (AABI 3.3.1)	A. Apply mather science and app science to aviati related disciplin	
Review Year -->	2014-2015	
	2016-2017	
A.S. REQD.		
AS121	3 6	
AS221	2 7	
AS254	***	
AS309	1 2 3 4 9 10	
AS310	1 4	
AS311	2	***
AS321	3 6 10	1 4 5 6 7 8 10
AS350	2 3 4 7 8	2 3 4 7 8

LEARNING OUTCOMES:

Upon completion of this course, the student will be able to:

1. Compare and evaluate the impact of Part 91and Part 121 regulations that affect domestic and international IFR flights.
2. Identify Domestic, Polar, North Atlantic and North Pacific long range navigation routes, diversions and contingencies. Demonstrate the proper calculations and applications of Drift Down, ETOPS, ETP, Gross Error Checks, and Accuracy Checks.
3. Develop effective long range Domestic and International flights using appropriate data, procedures, routing, charts, and contingencies.
4. Apply the principles of RNAV flight planning and navigation.
5. Compare the capabilities and limitations of current short range and long range navigation systems.
6. Compare domestic and international communications equipment and requirements.
7. Examine international METARs and TAFs and apply them properly to international flight operations. Describe the difference between 'Transition Altitude' and Transition Level'.
8. Describe the importance of earth reference systems, chart projections, and time zones to navigation procedures.

Outcome Analysis

PC COA AS OUTCOME	1. Program graduates will demonstrate that they are adequately prepared and have the ability to apply knowledge of mathematics, science and applied sciences at various levels of education.
GENERAL EDUCATION CURRICULUM	Mathematics, Basic Sciences
AABI GENERAL OUTCOME	A. Apply mathematics, science and applied science to aviation-related disciplines.

FALL 2014 & SPRING 2015 Assessment Results
ERAU Prescott - College of Aviation
Aeronautical Science Department

Course	2014-2015	1F	1S	2F	2S	3F	3S	4F	4S	5F	5S	6F	6S	7F	7S	8F	8S	9F	9S	10F	10S	PASS	FAIL
AS121 (PREV AS119)	3 6					Y	N					Y	N									2	2
AS221	2 7			Y	Y									Y	Y							4	0
AS309	1 2 3 4 9 10	Y	Y	Y	Y	Y	Y	Y	Y									Y	Y	Y	Y	12	0
AS310	1 4	Y	Y					Y	Y													4	0
AS311	2			Y	Y																	2	0
AS321	3 6 10					Y	Y					Y	Y							Y	Y	6	0
AS350	2 3 4 7 8			Y	NA	Y	Y	N	Y					Y	Y	Y	Y					8	1
AS356	4							NA	Y													1	0
AS410	3 4 5					Y	Y	Y	N	Y	Y											5	1
AS411 (capstone)	1 2 3	NA	Y	NA	Y	NA	N															2	1
AS420 (capstone)	1 2 3 4 7 8 9	Y	N	N	Y	Y	Y	Y	N					Y	Y	Y	N	N	Y			9	5
AS435 (capstone)	2			NA	Y																	1	0
WX201	2 3 4 6			Y	Y	Y	Y	Y	Y			Y	Y									8	0
WX301	1 5 6 7	NA	Y							NA	Y	NA	Y	NA	Y							4	0
																						64	10

Notes:

AS350 Objective 2 - Only Fall 2014 data considered due to discovery that Canvas cannot provide statistics for any insturment that has over 100 questions.

AS350 Objective 4 - Fall 2014 criteria did not pass but Spring 2015 did pass. Future monitoring to be conducted by course monitor.

AS356 Fall 2014 data not available; data deemed unreliable by course monitor who discovered academic integrity issues (cheating).

AS410 Objective 4 - Spring 2015 criteria did not pass but Fall 2014 did pass. Future monitoring to be conducted by course monitor.

PASS RATE: 86.5%

AS411 Fall 2014 data not available.

AS435 Fall 2014 data not available.

AS420 One semester did and one semeseter did not meet criteria for objectives 1, 2, 4, 8 and 9. Future monitoring to be conducted by course monitor.

AS301 Fall 2014 data not provided.

Taskstream

2014-2015 Assessment Cycle

- Contact Information
- Assessment Plan

BS Aeronautical Science Outcome Set

Outcome

1A. Prepared to apply basic knowledge

Program graduates will demonstrate that they are adequately prepared and have the ability to apply knowledge of mathematics, science and applied sciences at various levels of education.

Measure: Student performance in course outcomes associated with basic knowledge of mathematics, science and applied sciences.
Course level; Direct - Other

Details/Description: Analysis of applicable student learning outcomes as diagrammed in the Taskstream curriculum map and attached Excel spreadsheet defining specific course outcomes associated with each program outcome.

Aeronautical Science Courses included in the analysis are AS121, AS221, AS309, AS310, AS311, AS321, AS350, AS356, AS410, AS411, AS420, and AS435. Meteorology Courses included are WX201, 203L, WX301 and WX364. Helicopter Specialty courses are <<TO BE DETERMINED>>

Criterion for Success: 80% or more of of individual course outcome criteria analyzed shall pass the criteria stated in the Master Course Outline Assessment Document.

Timeframe of Data Collection: Course assessment data from two prior semesters within the previous 3 semesters.

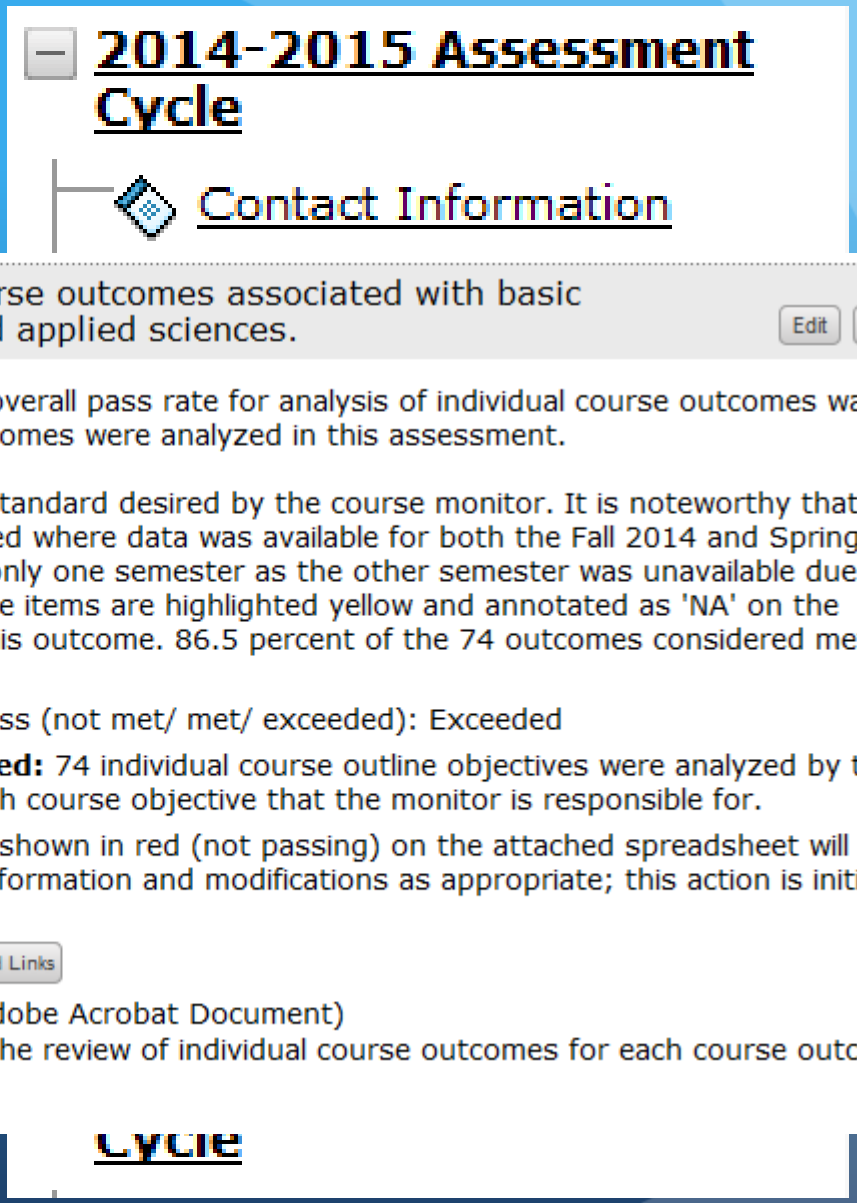
Key/Responsible Personnel: 1) Course monitor responsible for data collection, analysis and submission on university shared drive. 2) Assessment coordinator. 3) Aeronautical Science Chair.

Supporting Attachments:

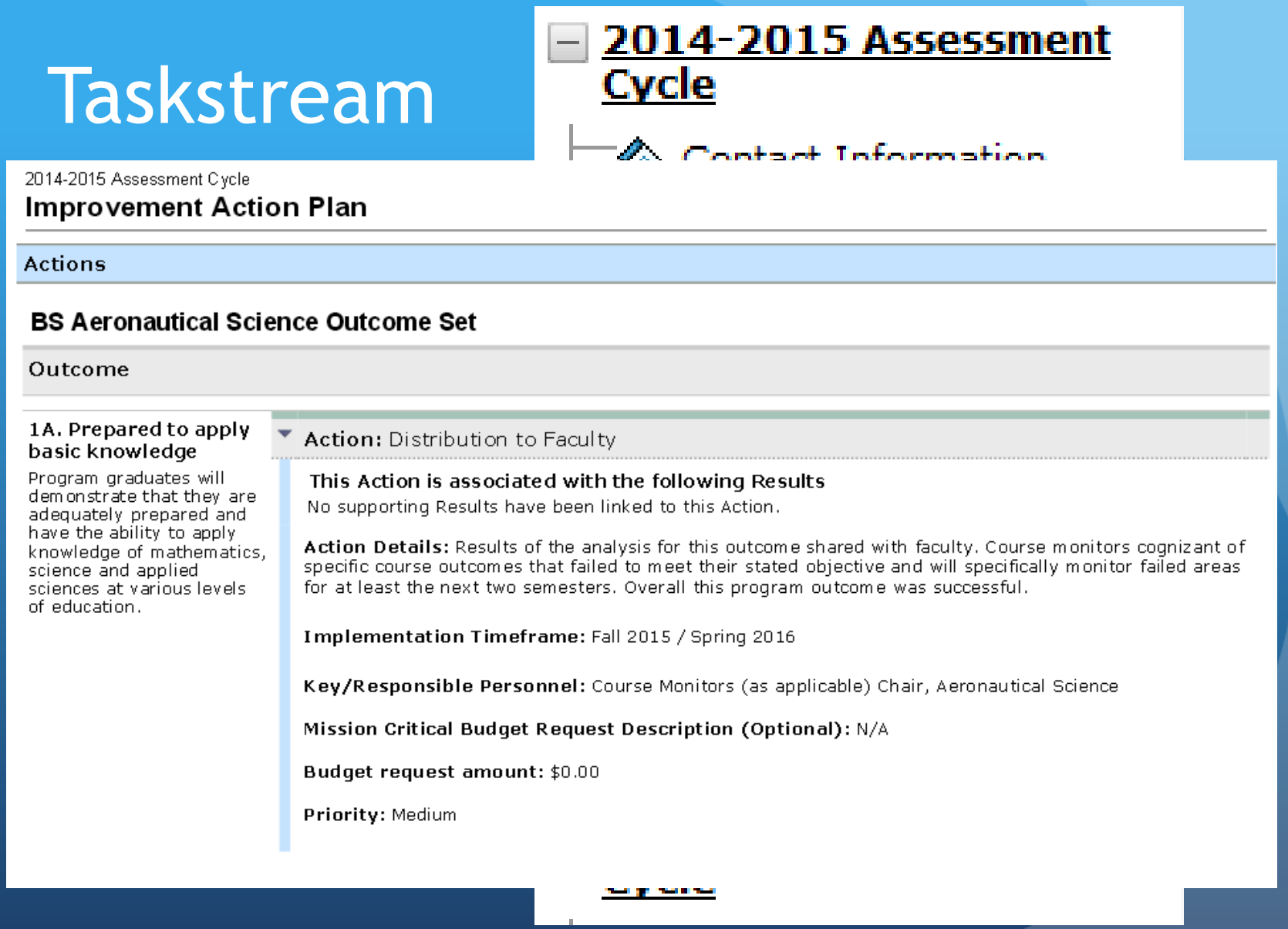
PRC BSAS_AABI Outcomes Matrix_2015-11-02.pdf (Adobe Acrobat Document)

The Prescott BSAS_AABI Master Matrix document maps Program Outcomes, AABI General Outcomes, General Education Curriculum and AABI Core Topics to courses.

Taskstream


2014-2015 Assessment Cycle
Contact Information
Results for Student performance in course outcomes associated with basic knowledge of mathematics, science and applied sciences.
Edit
Remove
Summary of Results: The criterion of 80% overall pass rate for analysis of individual course outcomes was exceeded. A total of 74 individual course outcomes were analyzed in this assessment.
Ten (10) individual criteria failed to pass the standard desired by the course monitor. It is noteworthy that no criteria failed in both of the semesters analyzed where data was available for both the Fall 2014 and Spring 2015 semesters. Ten (10) outcomes had data for only one semester as the other semester was unavailable due to problems in the data gathering process. These items are highlighted yellow and annotated as 'NA' on the corresponding spreadsheet attachment for this outcome. 86.5 percent of the 74 outcomes considered met the objective set by the course monitor.
Results: Attainment level: Criterion for Success (not met/ met/ exceeded): Exceeded
Sample Size/ Number of Students Assessed: 74 individual course outline objectives were analyzed by the course monitors. Criterion is designed for each course objective that the monitor is responsible for.
Proposed Improvements: Ten (10) criteria shown in red (not passing) on the attached spreadsheet will be monitored in future semesters for trending information and modifications as appropriate; this action is initiated by course monitors for their respective courses.
Substantiating Evidence:
Add/Edit Attachments and Links
Assessment Matrix for Criteria 1A (Adobe Acrobat Document)
The attached pdf file maps and documents the review of individual course outcomes for each course outcome used to assess criteria 1A.
Cycle

Taskstream


2014-2015 Assessment Cycle
2014-2015 Assessment Cycle
Improvement Action Plan
Actions
BS Aeronautical Science Outcome Set
Outcome
1A. Prepared to apply basic knowledge
Program graduates will demonstrate that they are adequately prepared and have the ability to apply knowledge of mathematics, science and applied sciences at various levels of education.
Action: Distribution to Faculty
This Action is associated with the following Results
No supporting Results have been linked to this Action.
Action Details: Results of the analysis for this outcome shared with faculty. Course monitors cognizant of specific course outcomes that failed to meet their stated objective and will specifically monitor failed areas for at least the next two semesters. Overall this program outcome was successful.
Implementation Timeframe: Fall 2015 / Spring 2016
Key/Responsible Personnel: Course Monitors (as applicable) Chair, Aeronautical Science
Mission Critical Budget Request Description (Optional): N/A
Budget request amount: $0.00
Priority: Medium

Outcome Analysis

PC COA AS OUTCOME	3. Program graduates will demonstrate the ability to make positive contributions and function on multi-disciplinary teams in a crew-type environment.
GENERAL EDUCATION CURRICULUM	Social Sciences
AABI GENERAL OUTCOME	C. Work effectively on multi-disciplinary and diverse teams.

FALL 2014 & SPRING 2015 Assessment Results
ERAU Prescott - College of Aviation
Aeronautical Science Department

Course	2014-2015	1F	1S	2F	2S	3F	3S	4F	4S	5F	5S	6F	6S	7F	7S	8F	8S	9F	9S	10F	10S	PASS	FAIL
AS221	10																			Y	Y	2	0
AS350	3					Y	Y															2	0
AS357	3 5 6 7					Y	Y			N	Y	N	N	Y	N							4	4
AS387	6 7 8											Y	Y	Y	Y	Y	Y					6	0
AS402	2 3 5 7					Y	N	Y	N			N	Y			N	N					3	5
AS410	2 6 9			Y	Y							Y	Y					Y	Y			6	0
AS411 (capstone)	3					NA	N															0	1
AS420 (capstone)	1 3 4 9 10	Y	N			Y	Y	Y	N									N	Y	Y	Y	7	3
AS435 (capstone)	7													NA	NA							0	0
																				Totals:		30	13

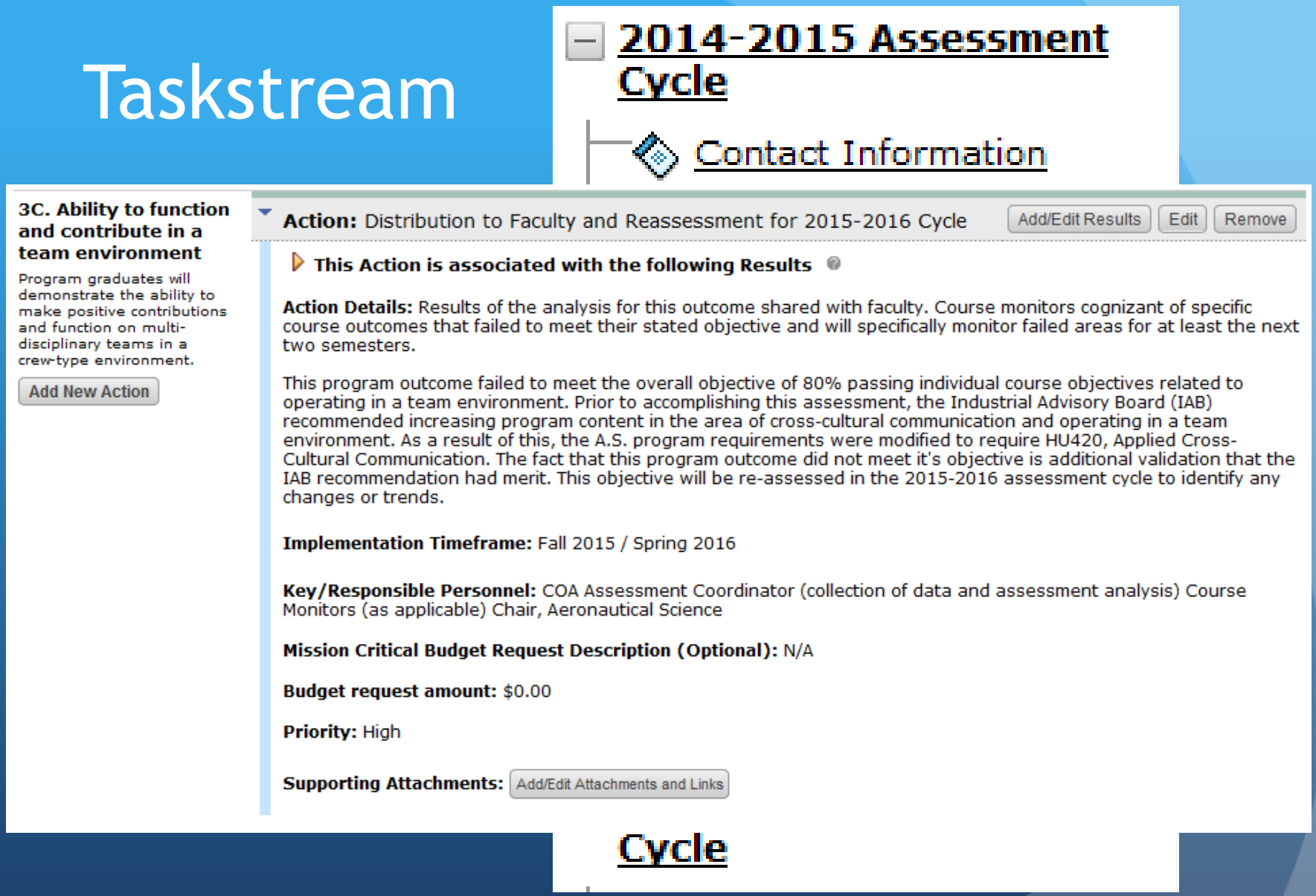
Notes:

PASS RATE: 69.8%

AS411 Fall 2014 data not available.
AS435 data not available.

Totals: 30 13
Pass Rate: 69.8%

Taskstream


2014-2015 Assessment Cycle
Contact Information
3C. Ability to function and contribute in a team environment
Program graduates will demonstrate the ability to make positive contributions and function on multi-disciplinary teams in a crew-type environment.
Add New Action
Action: Distribution to Faculty and Reassessment for 2015-2016 Cycle
Add/Edit Results
Edit
Remove
This Action is associated with the following Results
Action Details: Results of the analysis for this outcome shared with faculty. Course monitors cognizant of specific course outcomes that failed to meet their stated objective and will specifically monitor failed areas for at least the next two semesters.
This program outcome failed to meet the overall objective of 80% passing individual course objectives related to operating in a team environment. Prior to accomplishing this assessment, the Industrial Advisory Board (IAB) recommended increasing program content in the area of cross-cultural communication and operating in a team environment. As a result of this, the A.S. program requirements were modified to require HU420, Applied Cross-Cultural Communication. The fact that this program outcome did not meet it's objective is additional validation that the IAB recommendation had merit. This objective will be re-assessed in the 2015-2016 assessment cycle to identify any changes or trends.
Implementation Timeframe: Fall 2015 / Spring 2016
Key/Responsible Personnel: COA Assessment Coordinator (collection of data and assessment analysis) Course Monitors (as applicable) Chair, Aeronautical Science
Mission Critical Budget Request Description (Optional): N/A
Budget request amount: $0.00
Priority: High
Supporting Attachments:
Add/Edit Attachments and Links
Cycle

Questions?