

Industry Meeting

Friday, April 3rd, 2015 at 7:00am at the Northrop Facilities

Minutes

I. Courses

- a. Course Descriptions
 - i. Discussed GE requirements for the BS Degree, the addition of a Meteorology, Aviation History, and Biology upper GE.
 - ii. See changes made for each course on subsequent pages
- b. Course Objectives
 - i. None developed at this meeting
- c. Course Outcomes
 - i. None developed at this meeting

II. BS Program

- a. Program Outcomes
 - i. Rod Black is going to produce some general overarching outcomes
 - ii. Foundation of core is related to the ME Level I and II job descriptions. Included with them are the IE, QE, MPE, Operations management, project management, and business management job description to a lesser degree.
 - iii. Significant hands on experience with ME processes.
 - iv. Quantity & Qualify their ability to problem solve (critical-thinking), but more practical.

III. Capstone Courses

- a. Capstone Descriptions
 - i. Possible capstone course discussed would be a Lean Management/Project Management Project that would consist of an actual unclassified Northrop, Lockheed, Scaled, etc. project that two to three groups of students would compete for.
 - ii. There would also be a generic or general project that would be a standby, if Northrop, Lockheed, Scaled, etc. would not be able to provide an unclassified real-life project for the students.
 - iii. The capstone course I would be the class where these real-life project will be distributed, and teams would develop proposals for industry/faculty. Workflow analysis and project management.
 - iv. Drawings convert to a language to assemble aircraft (assembly order of operations)
- b. Capstone Objectives
 - i. None developed at this meeting
- c. Capstone Outcomes
 - i. None developed at this meeting

IV. Timeline

- a. Meeting Schedule
 - i. Established by weekly meetings

V. Dacum Session

- a. Identifying Industry experts to attend
 - i. Rod will identify these experts, and also identify potential adjunct faculty and provide names in the upcoming meetings.
- b. Dacum session(s) meeting schedule
 - i. After individuals are identified meeting(s) will be established.

VI. Other

- a. Possible addition of lower level manufacturing tooling course as pre-requisite to the phase II manufacturing tooling course.
- b. AFAB 110 Basic Blueprint class, revise course COR to reflect more concentration on GD&T (ANSI Standards)
- c. Review AFAB 210 course: bid & proposal, engineering, planning and developing, inserted faults, MRB.
- d. Shop floor control systems: MES and MAP, basic material, such as recording and tracking of projects
 - i. Northrop may be able to provide screen shots of PowerPoint presentation for this area.
 - ii. Single-seat license cost for AVC – Northrop to help with software developer to provide the site licenses at a reduced cost.
- e. Look into having the program being STEM degree approved by Northrop.
- f. Northrop to cover the cost of a faculty to provide classes at the Northrop facility for Northrop employees.
 - i. Clinton to obtain a cost estimate for the classes.

Courses that need to be developed (Total of 14 classes)

Course Name	Credits:	Responsible for Developing
AERO 101, Introduction to Aviation	3.0	
<p>Possible Course Description: This course provides an understanding of the principles and practices critical to the aviation industry. Aviation, operation of heavier-than-air aircraft and related activities. Aviation can be conveniently divided into military aviation, air transport, and general aviation. Military aviation includes all aviation activity by the armed services, such as combat, reconnaissance, and military air transport. Air transport consists mainly of the operation of commercial airlines, which handle both freight and passengers. General aviation consists of agricultural, business, charter, instructional, and pleasure flying; it includes such activities as the operation of air taxis, as well as aerial surveying and mapping.</p> <p>OR Introduction to the Aviation Industry? With a focus aimed more toward Northrop, Lockheed, Boeing, work floor practices?</p> <p><u>No comments for this section at this meeting April 3 2015.</u></p>		
AERO 105, Vintage Aircraft Structures (this course would include areas like assembly & rigging)	3.0	Jack R Halliday & Ty Mettler
<p><u>Northrop wants to be involved with the development of this course.</u></p>		
Technical Writing for Aviation	3.0	Dr. Susan Lowry & Jack R. Halliday
Industrial/Organizational Behavior	3.0	Dr. Irit Gat & Ty Mettler
Theory of Low Observables	3.0	
<p>Possible Course Description: A program that focuses on the application of electromagnetic field theory, electro-optics and materials science to the reduction of radar, optical and acoustic signatures of weapons systems. Includes instruction in computational electromagnetics, electro-optics, acoustics, guided wave theory, radiation capture, antenna applications in layered environments, material characterization, radar cross-section analysis, sonar signature analysis, non-destructive testing, remote sensing, and applications to specific weapons systems and operational environments.</p> <p><u>No comments for this section at this meeting April 3 2015.</u></p>		
FOE Migration Paths	3.0	
<p>Possible Course Description: The for Foreign Object Elimination Elements of Basic Awareness addresses twelve industry identified basic knowledge areas, activities and functions designed to prevent foreign objects from entering aerospace products. The standards are derived from NAS 412 - Foreign Object Damage / Foreign Object Debris (FOD) Prevention.</p> <p><u>For this class the addition of Ground Flight Representatives (GFR) and Ground Operations Representative (GOR) (DLAI 8210 Rev. C government document regarding these areas)</u></p> <p><u>Need to include extensive hands-on projects: i.e. boroscope inspections looking for FOD for close-outs, use of flash lights and mirrors, etc. Possible projects could include metal box with compartments, the use of a jet engine contain FOD, and the students identifying all FOD items and their locations.</u></p> <p><u>Possible field trip opportunities to Northrop Grumman and other industry partners.</u></p>		
Safety in Aviation	3.0	
<p>Possible Course Description: This course provides supervisors with aviation safety principles and practices needed to manage the problems associated with aircraft maintenance operations. In addition, it prepares attendees to assume safety responsibilities in their areas of operation. It does not teach aircraft maintenance and assumes the attendee has a maintenance background.</p> <p><u>No comments for this section at this meeting April 3 2015.</u></p>		

Lean Management (Six Sigma and 5S's)	3.0	
<p>Possible Course Description: Understand lean management; focus on greater value to the customer by eliminating waste throughout business processes. Students will gain knowledge and experience in the engineering aspects of designing and the maintenance side of aircraft. As mentioned before, some of the graduates will apply for jobs at major aircraft manufacturers, where the challenge is to fill the gap between the production floor and the engineering department. In addition to manufacturing liaison positions, graduates also get jobs in scheduling, tooling design, and even purchasing. To better prepare the students for these careers, these new courses are designed to teach the students not just to follow instructions, but to give them a set of tools to truly understand the design or improvement process</p> <p><u>If a standard project is included with this class, students can earn a "green belt" for this class.</u></p> <p><u>Include the following sections for this class: project management, workflow analysis, these subjects will be incorporated into the standard project. In addition this class will be the foundation class for the possible capstone courses.</u></p>		
Manufacturing Testing & Inspection	3.0	
<p>Reliable bonds are essential to the integrity of aircraft composite structures throughout their service life. Therefore, NDT methods have been developed to assess bonding quality during maintenance.</p> <p><u>To included hands-on with testing equipment related to: rigging, high pressure lines and fittings, seals, electrical testing, gases, fluids, and curing.</u></p> <p><u>MMP – Need to look at incorporating some elements of industry standards into the A&P's Material & Processes section.</u></p>		
AERO, Capstone Project I	2.0	
<p><u>See Lean management section.</u></p>		
Aviation Labor	3.0	
<p><u>Discussed whether or not this course is needed. Recommendation is to remove and replace with more relevant course per degree requirements.</u></p>		
Aviation Logistics Productivity/Affordability	3.0	
<p><u>Return on Investment (ROI): Do changes fix a problem, do changes reduce cost</u></p> <p><u>AFAB 210 as a possible pre-requisite for this class.</u></p>		
AERO, Capstone Project II	6.0	
<p><u>See Lean management section.</u></p>		
Airframe Manufacturing Tooling Phase II	3.0	
<p>This class is definitely needed.</p>		