APPROVED CURRICULUM FOR B.S. DEGREE IN AEROSPACE ENGINEERING SCIENCES (128 total credit hrs)
Fall 2015 – TRACK 1

ASEN courses are offered and must be taken in this specific sequence

		Credit Hours	Prerequisite ("C" or better)/ Co-req. (CR)
FRESHMAN YEAR	**Fall Semester**	**15**	
	APPM 1350 Calculus 1 for Engineers	4	2 years high school algebra, 1 year geometry, 1/2 year trigonometry & a 76% or above on the ALEKS test
	COEN 1500 Intro to Engineering	1	Freshman in Engineering (required for ASEN Freshmen, offered fall only)
	GEEN 1400 Engineering Projects/ASEN 1400 Gateway to Space	3	Freshman standing in Engineering
	CSCI 1320 MATLAB and C++ Programming	4	no required prerequisite courses
	Lower-division Humanities/Social Science Elective	3	Variable
	Spring Semester	**17**	
	APPM 1360 Calculus 2 for Engineers	4	"C" or better in APPM 1350
	ASEN 1022 Material Science for Aerospace Engineers	3	"C" or better in APPM 1350 & 1 yr high school chemistry, CR of Programming (ECEN 1310, CSCI 1300 or COEN 1300)
	PHYS 1110 General Physics 1	4	CR or Pre-Requisite of APPM 1350
	Lower-division Humanities/Social Science Elective	6	Variable
SOPHOMORE YEAR	**Fall Semester**	**16**	
	APPM 2350 Calculus 3 for Engineers	4	"C" or better in APPM 1360
	ASEN 2001 Aerospace 1: Intro Statics, Structures, Materials	4	"C" or better in: APPM 1350, 1360, PHYS 1110, ECEN 1310 or CSCI 1300 or COEN 1300, CR APPM 2350
	ASEN 2002 Aerospace 2: Intro Thermodynamics, Aerodynamics	4	"C" or better in: APPM 1350, 1360, PHYS 1110, ECEN 1310 or CSCI 1300 or COEN 1300, CR APPM 2350
	ASEN 2012 Experimental & Computational Methods in AES	2	"C" or better in CSCI 1300, COEN 1300 or ECEN 1310, CR with ASEN 2001 & 2002
	Free Electives	2	Variable
	Spring Semester	**17**	
	APPM 2360 Intro Diff Equations w/Linear Alg	4	"C" or better in APPM 1360
	ASEN 2003 Aerospace 3: Intro Dynamics & Systems	5	"C" or better in APPM 2350, ASEN 2001, 2012; CR APPM 2360
	ASEN 2004 Aerospace 4: Vehicle Design & Performance	5	"C" or better in APPM 2350, ASEN 2001, 2002, 2012; CR APPM 2360
	Upper-division Humanities/Social Science Elective	3	Variable
JUNIOR YEAR	**Fall Semester**	**16**	
	ASEN 3111 Aerodynamics	4	"C" or better in APPM 2350, ASEN 2002, 2004
	ASEN 3112 Structures	4	"C" or better in APPM 2360, ASEN 2001, 2003, 2004
	ASEN 3113 Thermo & Heat Transfer	4	"C" or better in APPM 2350, ASEN 2002
	PHYS 1120 General Physics 2	4	"C" or better in PHYS 1110, CR APPM 1360
	Spring Semester	**16**	
	ASEN 3128 Aircraft Dynamics	4	"C" or better in APPM 2360, ASEN 2002, 2003, 2004
	ASEN 3200 Orbit Mech/Att Det & Control	4	"C" or better in APPM 2360, ASEN 2003, 2004
	ASEN 3300 Electronics & Communications	4	"C" or better in APPM 2360, ASEN 2003, PHYS 1120
	Professional Area Electives	3	Variable
	Free Elective	1	Variable

		Credit Hours	Prerequisite (C or better); Co-req. (CR)

SENIOR YEAR

Fall Semester — 16

		Credit Hours	Prerequisite (C or better); Co-req. (CR)
ASEN 4013	Foundations of Propulsion	3	"C" or better in APPM 2360, ASEN 3113
ASEN 4018	Senior Projects 1: Design Synthesis **(Note 1)**	4	"C" or better in **all** 3000-level ASEN courses (3111, 3112, 3113, 3128, 3200, 3300) & ASEN 1022
Professional Area Electives		6	Variable
Upper-division Writing (WRTG 3030, 3035, HUEN 3100, HUEN 1010)		3	pre-reqs variable

Spring Semester — 16

		Credit Hours	Prerequisite (C or better); Co-req. (CR)
ASEN 4028	Senior Projects 2: Design Practicum	4	"C" or better in ASEN 4018
Professional Area Electives		6	Variable
Upper-division Humanities/Social Science Elective		3	Variable
Free Electives		3	Variable

(*) Programming is a prerequisite for all ASEN courses =>2000-level. Recommend CSCI 1300-4 Computer Science 1, Programming, ECEN 1310-4 C Programming for EE/ECE, or COEN 1300-3 Intro to Engineering Computing. All AES students must be proficient in MATLAB. MATLAB Student Version: http://www.mathworks.com/academia/student_version/

Note 1: Senior Projects 1 & 2 must be completed in the same Academic Year. Senior Standing in Aerospace Engineering = satisfactory completion of all junior-level Aerospace course requirements.

- **Professional Area Electives (PAEs):** 3000, 4000, or 5000-level Math, Science or Engineering Courses. Total number of PAE credits = 15. Use the Degree Audit to get a full list of approved PAEs.
- **Free Electives: Total = 6 credit hrs.** Free Electives can be anything (except for remedial coursework like MATH 1150, APPM 1235, CHEM 1021, etc.)
- **Humanities & Social Sciences (HSS):** 9 credit hours of LDHSS, 6 credit hours of UDHSS & 3 credit hours of UDWRTG. Total HSS=18 credit hours – all courses must be on the approved list
  - **Approved list of HSS courses**: http://www.colorado.edu/engineering/academics/policies/hss

Useful Links:
- **Aerospace Dept. Homepage:** http://www.colorado.edu/aerospace/, **ASEN UG Opportunities:** **http://www.colorado.edu/aerospace/current-students/undergraduates/opportunities**
- **List of Aerospace Faculty (TO SELECT A FACULTY MENTOR):** http://www.colorado.edu/aerospace/people/faculty, **AES SR PROJECTS:** http://www.colorado.edu/aerospace/industry-home-page/senior-design-projects **Academic Calendar & Deadlines:** http://registrar.colorado.edu/calendar/calendars_schedules.html, **Best CU site w/all of the important links:** http://www.colorado.edu/audience/students
- **Engineering Forms:** http://www.colorado.edu/engineering/academics/advising-and-registration (Independent Study, Petitions, Change of Major, Course Schedule Approval, etc.).
- **HONOR CODE:** http://honorcode.colorado.edu/.
- **MINORS:** http://advising.colorado.edu/students/current-students/minors-available-to-arts-sciences-students & http://www.colorado.edu/engineering/academics/degrees-minors-certificates/minors
- **CERTIFICATES: http://www.colorado.edu/engineering/academics/degrees-minors-certificates/certificates. CUBIC: http://leeds.colorado.edu/cubic#overview,**
- **AES BS/MS PROGRAM:** http://www.colorado.edu/aerospace/current-students/undergraduates/bsms-degree
- **FAQs- Engineering**: http://engineering.colorado.edu/students/faqs.htm, **ASEN:** http://www.colorado.edu/aerospace/current-students/undergraduates/faq
- **FINANCES: http://www.colorado.edu/engineering/admissions/finances** **Scholarships:** http://www.colorado.edu/engineering/admissions/finances/scholarships **Financial Aid**: http://www.colorado.edu/finaid/. **Tuition & Fees:** http://www.colorado.edu/bursar/
  - **CLUBS & Orgs: http://www.colorado.edu/aerospace/current-students/student-groups**
    Engineering: http://engineering.colorado.edu/students/student_programs.htm, **Student Activities & Clubs:** http://www.colorado.edu/studentlife/activities/
- **Maps**: Campus: http://engineering.colorado.edu/prospective/map_campus.htm, **Engineering Center**: http://engineering.colorado.edu/Advising_Guides/Engineer_Map.pdf
  ASEN (ECAE) wing: http://www.colorado.edu/cs/sites/default/files/attached-files/Engineering%20Center%20Floor%20Plans%205.17.13.pdf , **Boulder**: http://www.bouldercoloradousa.com/visitor/maps/
- **Study Abroad Program:** http://studyabroad.colorado.edu/ **International Engineering Certificates:** http://engineering.colorado.edu/academics/international.htm, ,
- **MATH: APPLIED MATH COURSE LIST**: http://amath.colorado.edu/course-pages , www.**ALEKS.COM** – math assessment & subscription (pre-calculus skills),
- **ACADEMIC RESOURCES & TIPS:** http://engineering.colorado.edu/academics/support.htm, **Free Tutoring – SGT:** http://www.colorado.edu/studentgroups/sigmagammatau/tutor.html
  - Study Skills -**"Being Smart is Not Enough":** http://www.colorado.edu/engineering/sites/default/files/dilaura.pdf. **Schaum's Outlines:** http://www.mhprofessional.com/category/?cat=145,
  - **Counseling & Psychological Services: https://counseling.colorado.edu/,** Disability Services: **http://www.colorado.edu/disabilityservices/,** Wardenburg: **http://healthcenter.colorado.edu/,**
- **CAREER** Services http://careerservices.colorado.edu/public/ or call to make an appointment w/Rachel Killam **at 303-492-6541. Career Buffs/CSO:** http://careerservices.colorado.edu/students/CSO.aspx
  - **Resumes:** http://careerservices.colorado.edu/students/resumes.aspx **Interviews:** http://careerservices.colorado.edu/students/interviewing.aspx & http://www.jobinterviewquestions.org/questions/behavioral-interview.asp
  - **Job & Internship Search links**: **Career Builder.Com** http://www.careerbuilder.com/; **Engineer Gigs**: http://www.engineergigs.com/Default.asp, **LinkedIn**: http://www.linkedin.com/home?trk=hb_home
  - **Colorado Space Companies**: http://www.spacecolorado.org/companies-projects/directory.aspx, **US Aerospace Companies -** **MANTA**: http://www.manta.com/mb?search=aerospace&x=37&y=7
  - **AIA Daily Lead:** https://www.smartbrief.com/aia/index.jsp. **Aeroindustryjobs:** http://www.aeroindustryjobs.com/home/home.cfm?site_id=13641. **CAMT & links:** http://www.camt.com/useful-links/useful-links
  - **CO-Ops:** http://engineering.colorado.edu/activelearning/co-op.htm, **AES Co-Ops:** http://www.colorado.edu/aerospace/co-ops.html, **NASA:** http://intern.nasa.gov
- **Transfer Credit – Transferology:** http://www.colorado.edu/admissions/undergraduate/transfer/crediteval **Students in Transition**, IUT process, etc.: http://advising.colorado.edu/students/current-students/students-in-transition,
- **RESEARCH Opportunities**: **Aerospace Faculty**: http://www.colorado.edu/aerospace/people/faculty **UROPS**: http://www.colorado.edu/UROP/, **REU:** http://www.nsf.gov/crssprgm/reu/index.jsp **Discovery Learning (DLAs):** http://engineering.colorado.edu/activelearning/aboutdiscovery.htm, **College of Engineering:** http://engineering.colorado.edu/research/index.htm, CU Research Institutes & Centers: http://www.colorado.edu/research/index.html