

Bachelor of Science in Aviation

Option in Operations

Last Updated: July 24, 2014

Advising packet:

List of courses

Course descriptions

Academic Planner

Major Form

GE Worksheet

Aviation and Technology Department

College of Engineering
San Jose State University
One Washington Square
San Jose, CA 95192-0061

fred.barez@sjsu.edu

408 924-3190

<http://www.sjsu.edu/avtech/>

Program Overview for the B.S. Aviation with option in Operations

(program appropriate for students with career goals in flight or air traffic control)

Required Courses in Aviation

Lower Division Courses

24 units

Avia 002:	Introduction to Aviation
Avia 031:	Aircraft Theory and Design
Avia 042:	Aircraft Systems
Avia 043:	Propulsion Theory
Avia 068:	Avionics and Airborne Communications
Avia 073:	Air Traffic Control
Avia 078:	Introduction to Aviation Management
Avia 091:	Aircraft Turbine Engines

Upper Division Courses

54 Units

Avia 128:	Aviation Safety and Security
Avia 141:	Human Factors in the Aviation Environment (Biol 141)
Avia 173:	Aviation Law
Avia 176:	Airline Operations and Management
Avia 177:	General Aviation Operations and Management
Avia 178:	Airport Planning and Management
Avia 192:	Instrument Flight Techniques
Avia 193:	Aerodynamics
Avia 194:	Introduction to Flight Engineering
Metr 110:	Aviation Meteorology
Bus 140:	Fundamentals of Operations Management
Bus 142:	Total Quality Management
Bus 149:	Negotiation and Conflict Resolution
Bus 170:	Fundamentals of Finance
Bus 186:	Professional and Business Ethics (Phil 186)
Tech 198:	Technology and Civilization
Engr 100W:	Engineering Reports
Avia 190:	Senior Capstone Seminar

Support Courses

26-27 Units

Bus 20 or 20N (3)
Bus 90 (3)
Chem 30A and Chem 30B (6) * or Chem 1A (5)
Phys 2A and Phys 2B (8) ** or Phys 50 and Phys 51 (8)
Math 71 (3) *** or Math 30P (5) or Math 30 (3)
Econ 1B (4)

Optional Minor in Business Management

A minor in Business is popular and very valuable for Aviation majors. Students electing to complete the Business minor should meet with their Aviation advisor to assure correct course selections and paperwork. No additional courses are usually required for this minor.

Course Descriptions for the B.S. Aviation with option in Operations

Lower Division

AVIA 002: Introduction to Aviation

Description: Concepts, responsibilities, and professional ethics of an aviation professional. History of aviation, FAA certification, qualifications and privileges of aviation professionals. Career opportunities, career paths and progression.

AVIA 031: Aircraft Theory and Design

Description: Aerodynamics and aeroelastics force. Load analysis of flight vehicles. Aircraft design optimization, material selection along with, safe-life, fail-safe and damage tolerance in design. Prerequisite: PHYS 2A, MATH 71. Misc/Lab: Lecture 2 hours/Lab 3 hours.

AVIA 042: Aircraft Systems

Description: Operational and analytical aspects of key aircraft systems such as propulsion, flight control, electrical, and hydraulic. Reliability and maintainability concepts related to the design of aircraft systems. Emphasis is placed on general aviation aircraft. Prerequisite: PHYS 2A, AVIA 2. Misc/Lab: Lecture 2 hours/lab 3 hours.

AVIA 043: Propulsion Theory

Description: Propulsion theory of piston engines. Aircraft fuel systems and components. Fundamental systems, maintainability, and reliability methods. Aviation regulations related to engines. Maintenance cycles for engines and components. Prerequisite: PHYS 2A. Misc/Lab: Lecture 2 hours/lab 3 hours.

AVIA 068: Avionics and Airborne Communication

Description: Communications and navigation systems installed on a typical general aviation aircraft. History of avionics. Laboratory exercises will include field-testing and airworthiness evaluation. Pre/corequisite: AVIA 42. Misc/Lab: Lecture 2 hours/lab 3 hours.

AVIA 073: Air Traffic Control

Description: Air Traffic Control System Structure and Communications. Current configuration and future design of the National Airspace System. Oceanic and International Air Traffic Control. Automation issues and Emerging Technologies. Prerequisite: AVIA 2.

AVIA 078: Introduction to Aviation Management

Description: History of aviation management. Safety, security, community relations, aviation unions, and private and governmental relationships. National Airspace System. Future Airspace System. International airspace systems.

AVIA 091: Aircraft Turbine Engines

Description: A study of gas turbine fundamentals, including various gas turbine cycles, components and component efficiency, thrust, specific fuel consumption, duct flow and inlet diffuser, centrifugal and axial compressors, combustion chambers and jet nozzles for aircraft propulsion. Prerequisite: AVIA 43.

Lower Division Aviation Courses total 24 units

Upper Division

AVIA 128: Aviation Safety and Security

Description: Safety in aviation design, operation, and maintenance; hazardous materials; airport environment issues; security regulations for aviation. Prerequisite: AVIA 2.

AVIA 141: Human Factors in the Aviation Environment (Biol 141)

Description: Effects of time zone changes, sleep disruption, drugs on pilot performance. Role of FAA inspectors, physicians, cabin attendants, unions. Cockpit crew coordination; pilot psychology; aviation safety and accident investigation. Experimental avionics. Prerequisite: Upper division standing. Notes: Not an elective in most department majors.

AVIA 173: Aviation Law

Description: Law and legal issues in aviation from both a national and international perspective. Rights and responsibilities of individuals, organizations, and the aviation community. Regulations and liability pertaining to the design, manufacture, operation and maintenance of aircraft. Prerequisite: AVIA 78.

AVIA 176: Airline Operations and Management

Description: Aspects of managing air transportation companies. Integration of technical, environmental, market and regulatory considerations in the decision-making process in airline management. Future planning techniques. Prerequisite: AVIA 78, BUS 140.

AVIA 177: General Aviation Operations and Management

Description: Aspects of managing general aviation companies, such as the structure of the general aviation industry, supply and demand of products, and technical and regulatory constraints. Prerequisite: AVIA 78, BUS 140.

AVIA 178: Airport Planning and Management

Description: Design, planning, and management of airports in the US including airport development and airport design. Legal responsibilities as an airport manager. Issues and regulations applicable to airport planning and management. Prerequisite: AVIA 78.

AVIA 190: Senior Capstone Seminar

Description: Current industry analysis and career development; leadership skills for an aviation professional. Aviation standard procedures. Ethical principles for Aviation. Student projects related to Aviation major. Prerequisite: Graduating senior, major form completed.

AVIA 192: Instrument Flight Techniques

Description: Flight procedures, radio navigation, air traffic control, use of instrument charts. Flight simulator exercises on instrument flight maneuvers, departure and approach procedures. Prerequisite: AVIA 2. Misc/Lab: Lecture 2 hours/lab 3 hours.

AVIA 193: Aerodynamics

Description: Aerodynamic forces involved in an airplane in flight. Fundamental flowing gas, incompressible and compressible flow, Bernoulli's Principles, circulation forces, boundary layer, airfoils, measurement methods, laminar and turbulent flow, force and vortex interactions. Prerequisite: PHYS 2A, MATH 71, AVIA 31. Misc/Lab: Lecture 2 hours/Lab 3 hours.

AVIA 194: Pilot Avionics and General Aviation Systems

Description: Operations of avionics as found on modern general aviation aircraft and turboprop/turbofan aircraft. Major systems used on general aviation aircraft including GPS, FMS, navigation systems, fuel systems, hydraulic systems, environmental systems, landing gear. Prerequisite: AVIA 42, AVIA 43.

Upper Division Aviation Courses total 54 units

Business courses	12
Other courses from other departments	9
Support Courses in Math, Chemistry, Physics, Economics, and Business	26-27
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Units for the degree	132

Major Academic Plan

Major: Aviation with an Option in Flight Operations

Degree: BS

This sheet is available electronically on the "All Major Forms" page of the AvTech website

implementation date: August 25, 2014

last updated July 3, 2014

Meet with your advisor each semester.

First Year

Fall Semester 20__		
Course	Prerequisites	Area Units
Avia 002	----	Major 3
GE Area E*	----	GE E 3
Math 071	Math 008 or Equivalent	GE B4 3
AMS 1A*	----	GE C1, D2 6
		Semester Total: 15

Spring Semester 20__		
Course	Prerequisites	Area Units
Engl 001A*	----	GE A2 3
AMS 1B*	AMS 1A	GE C2, D3 6
Phys 002A *	Math 008 or Equivalent	GE B3 4
Avia 073	Avia 2	Major 3
		Semester Total: 16

Second Year

Fall Semester 20__		
Course	Prerequisites	Area Units
GE Area A1 course *	----	GE A1 3
Avia 042	Phys 2A, Avia 2	Major 3
Phys 002B *	Phys 2A	GE 4
Avia 078	----	Major 3
		Semester Total: 13

Spring Semester 20__		
Course	Prerequisites	Area Units
Avia 031	Phys 2A, Math 71	Major 3
Avia 043	Phys 2A	Major 3
Chem 001A *	See Catalog	GE B1 5
Bus 020 or 020N		Minor 3
		PASS THE WST
		Semester Total: 14

Third Year

Fall Semester 20__		
Course	Prerequisites	Area Units
Avia 091	Avia 43	Major 3
BUS 090	Math 71	Minor 3
Avia 068	Pre/Coreq: Avia 42	Major 3
GE Area A3 course *	----	GE A3 3
Avia 177	(Option) Avia 78	Major 3
		Semester Total: 15

Spring Semester 20__		
Course	Prerequisites	Area Units
Avia 128	Avia 2	Major 3
Avia 173	Avia 78	Major 3
Metr 110	----	Major 3
Engr 100W **	ENGL 1B, Pass WST, Upper Division	GE R, Z 3
Avia 176	Avia 78, [Bus 140]--see advisor	Major 3
		Semester Total: 15

Fourth Year

Fall Semester 20__			
Course	Prerequisites	Area	Units
GE D1*	----	GE D1	3
Avia 112		Major	3
Avia 193	Phys 2A, Math 71, Avia 31	Major	3
Avia 062	Avia 2	Major	3
File for graduation			Semester Total: 12

Spring Semester 20__			
Course	Prerequisites	Area	Units
Avia 194	Avia 42, Avia 43	Major	3
Tech 198 **	100W, Pass WST, Upper Div Standing	GE V	3
Avia 179	(Option)	Major	3
Avia 195	(Option) Upper Division Standing	Major	1
Upper Division Electives in the Major (see your advisor)			Major
			2
Semester Total: 12			

Fifth Year

Fall Semester 20__			
Course	Prerequisites	Area	Units
Avia 190	Graduating Senior	Major	3
Avia 141	----	Major/GE B2	3
Avia 178	Avia 78	Major	3
Bus 186**	Upper Div Standing, Pass WST; Co-req: 100W	GE S	3
Semester Total: 12			

Spring Semester 20__			
Course	Prerequisites	Area	Units
Semester Total: 0			

NOTES

* course meets a core GE requirement

** course meets a SJSU Studies (UDGE) requirement

Notes to students (how to make this your personal academic planner):

- font format: Format > Cells > Font > Strikethrough)
- Move all courses you HAVE taken to past semesters
- Move all courses NOT TAKEN to current or future semesters
- Check each course for prerequisite take them FIRST
- Make sure you take your Math, Phys, Chem and BUS 90 classes as early in your program as possible.
- When you modify this academic planner for your personal academic schedule, **do not move** any class from the Fall to the Spring semester **OR** vice versa, without meeting with your program advisor first. Some courses are offered **ONLY** in the Fall semester and some only in the Spring semester.
- actual semester. Ex.: Fall '14'

Minor in Business

Most students will elect to complete two additional courses to obtain a minor in Business. Please see your advisor and the Business Student Advising Center (BSAC) in BBC008.

Note to Aviation students from earlier Aviation programs:

Students in the BS Aviation admitted prior to Fall 2014 may elect to migrate to thenew Aviation programs. To do this you must make the request with your advisor and establish an approved, signed Academic Planner. Any exceptions or changes to the published new program must be included on the Planner.

SAN JOSE STATE UNIVERSITY - DEPARTMENT of AVIATION AND TECHNOLOGY
Bachelor of Science in AVIATION

MAJOR FORM FOR B.S. AVIATION

Proposed Date of Graduation:

Option: Operations

NAME:

Student ID:

Maximum Number of Units for the Degree: 132

Catalog:

REQUIRED COURSES FOR THE MAJOR									
ALT. INST.	COURSE NUMBER.	COURSE TITLE	UNITS	GRADE	ALT. INST.	COURSE NUMBER.	COURSE TITLE	UNITS	GRADE
	Avia 002	Introduction to Aviation	3			Avia 192	Instrument Flight Techniques	3	
	Avia 031	Aircraft Theory and Design	3			Avia 193	Aerodynamics	3	
	Avia 042	Aircraft Systems	3			Avia 194	Introduction to Flight Engineering	3	
	Avia 043	Propulsion Theory	3			Avia 78	Introduction to Aviation Management	3	
	Avia 068	Avionics and Airborne Communication	3			Metr 110	Aviation Meteorology	3	
	Avia 073	Air Traffic Control	3			Bus 140	Fundamentals of Operations Management	3	
	Avia 091	Aircraft Turbine Engines	3			Bus 142	Total Quality Management	3	
	Avia 128	Aviation Safety and Security	3			Bus 149	Negotiation and Conflict Resolution	3	
	Avia 141	Human Factors in the Aviation Environment	3			Bus 170	Fundamentals of Finance	3	
	Avia 173	Aviation Law	3			Bus 186	Professional and Business Ethics	3	
	Avia 176	Airline Operations and Management	3			Tech 198	Technology and Civilization	3	
	Avia 177	General Aviation Operations and Management	3			Engr 100W	Engineering Reports	3	
	Avia 178	Airport Planning and Management	3						
	Avia 190	Senior Capstone Seminar	3						

APPROVED UPPER DIVISION ELECTIVES FOR THE MAJOR									
ALT. INST.	COURSE NUMBER.	COURSE TITLE	UNITS	GRADE	ALT. INST.	COURSE NUMBER.	COURSE TITLE	UNITS	GRADE

PREPARATION FOR THE MAJOR									
ALT. INST.	COURSE NUMBER.	COURSE TITLE	UNITS	GRADE	ALT. INST.	COURSE NUMBER.	COURSE TITLE	UNITS	GRADE
	Econ 1B	Principles of Economics: Microeconomics	3			Math 71	Calculus for Business and Aviation	5	
OR	Bus 20	Financial Accounting	3			Chem 1A	General Chemistry	5	
	Bus 20N	Survey of Accounting	3			Phys 2A	Fundamentals of Physics	4	
	Bus 90	Business Statistics	3			Phys 2B	Fundamentals of Physics	4	

Support Courses:

Chem 1A may be used to substitute for Chem 30A and Chem 30B
 Math 30 may be used to substitute for Math 71
 Phys 50 and Phys 51 may be used to substitute for Phys 2A and Phys 2B

The student listed above will have completed all the departmental requirements for the Bachelor of Science degree

- (a) Successful completion of the above work.
- (b) An audit of the student's transcript of record to verify that all appropriate data have been entered accurately.
- (c) A minimum 2.0 GPA has been achieved in all AVIATION COURSES.
- (d) A grade of C- or better is required for all courses used to satisfy any major, minor, or preparation courses.

SIGNATURE OF MAJOR ADVISOR

SIGNATURE OF Chair
Department of Aviation and Technology

DATE SUBMITTED:

DATE SUBMITTED:

