Assignment 1: Familiarization with Aviation Data Sets

Date Due: January 28, 2015   Professor: Dr. Trani

Problem 1

Briefly answer the following questions:

a) Name and briefly describe two agencies and regulations of importance to airport engineers.

b) In recent years new generation, very large capacity aircraft have been introduced into the market (Boeing 747-8 and Airbus A380). Consult the aircraft manufacturer data (available as links on our web site) and state some of the relevant parameters for these aircraft (i.e., wingspan, length, landing gear width, etc.). Explain the implications of such vehicles in airport design.

Problem 2

Airport Statistics using the Bureau of Transportation Statistics (BTS) web site.

Go to the BTS web site (accessible through our page with "Interesting Web Sites)" and look at the following 2 airports using the airport snapshot link: http://www.transtats.bts.gov/airports.asp.

1) Miami International airport.

2) Phoenix Sky-Harbor International airport.

For each airport answer the following questions.

a) Find the total number of passengers boarding U.S. Flights at the airport in the last two years of data.

b) Find the market share for the top three airlines operating at the airport (market share means the percent of passengers carried by an airline at the airport).

c) Find the top 3 destinations from the airport selected. Comment on the destinations.

d) Comment on the departure delays experienced by aircraft operating at the airport in the past three years and compare them to the national average. Are the on-time performance numbers improving with time?

Problem 3

Airport features using the Airnav.com web site.

Go to the Airnav web site (accessible through our page with "Interesting Web Sites" and look at the following airports:

1) Miami International Airport (MIA)

2) Los Angeles International Airport (LAX)
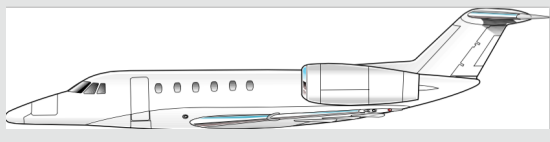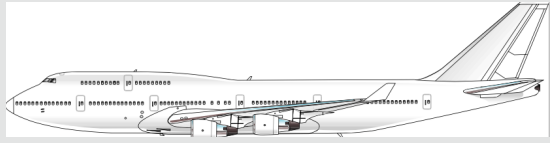
For each airport create a table with the following data:
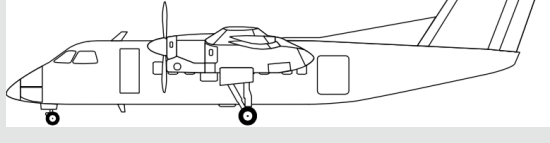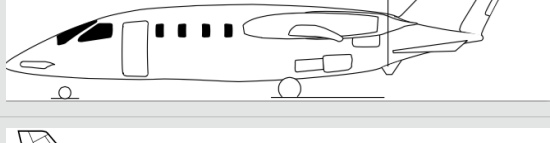
a) Find the number of runways and the runway length and width for each runway at the airport.

b) Find the elevation of each runway end (in feet). Note: A runway has two runway ends labeled numerically. For example Runway 18/36 indicates the number of degrees from the magnetic North multiplied by 10. So an aircraft landing on runway end 18 would be flying South (180 degrees from the magnetic North).

c) State which runway(s) at Los Angeles have an Instrument landing system.

Problem 4

Read the class notes before attempting this part of the homework and familiarize yourself with Appendix 1 of the FAA Advisory Circular AC 150/5300-13A available on the <u>main page of our CEE 4674 web site</u> and answer the following questions:

Name the following aircraft and state their FAA aircraft design group. Use the course notes and the Internet as needed.

a) Name the aircraft presented in the chart below. Here is a list of possible choices (more choices than pictures to add a little challenge): Airbus A320, Cessna Citation X, Douglas DC-3, Boeing 767-200, Boeing 777-200, Airbus A-380, Piper Malibu Mirage, Embraer 170, Boeing 747-400, Bombardier DHC-8C (Dash-8), Raytheon/Beechcraft King Air B200, Piaggio Avanti, Airbus A330-200.

b) Identify the FAA Airport Design Group (ADG), Taxiway Design Group (TDG) and Aircraft Approach Category (AAC) for the aircraft in the space provided.

Picture	Aircraft Name	ADG	TDG	AAC

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