CE354 Airport				**Lecture Time**	**Text pages**	**Homework (due in one week)**		
Planning and Design		chapter	**Topic**			**assn. #**	**probs. (back of book)**	
1-1	Tues 11 Jan		**no class**	**-**				
1-2	Fri 14 Jan	2,5	**intro, FAA, finance,econ. Eval.**	50	78-79,346-52,328	1	45-50	
2-1	Tues 18 Jan	3	**Aircraft Characteristics**					
			Aircraft types & general characteristics/web	20 min	77-84			
			Operating costs	5 min	93-96			
			Weight definitions	5 min	97-100			
			Payload & range/Example 3-1	20 min	100-105			
2-2	Fri 21 Jan	3	**Runway Length**			2	1,2	
			Runway length concepts	10 min	110-114			
			Runway length equations	15 min	114-115			
			Runway length example 3-2	10 min	115-116			
			more concepts/declared distances	10 min	116-119			
			more concepts/hot days	10 min	119-120			
			more concepts/obstacles	10 min	120-121			
3-1	Tues 25 Jan	3	**Runway Length/Noise Certification**			3	3,4	
			Use of flight manual to determine runway length	10 min	124-125			
			Use of advisory circulars for runway length concepts	10 min	125-126			
			Takeoff & landing distance by circular Example 3-3	10 min	126-129			
			Noise certification concepts and equations	10 min	131-134			
3-2	Fri 28 Jan	3	**Aeronautical Terms**			4	5,6,7	
			Aeronautical Terms - std. temperature and pressure	10 min	134-136			
			Aeronautical Terms - speed	10 min	136-137			
			Aeronautical Terms - crosswind	10 min	137			
4-1	Tues 1 Feb	15	**Environmental/Noise Concepts**			5	41	
			National Environmental Policy Act (NEPA)	5 min	719-720			
			Noise Policy	5 min	721			
			Air Quality	5 min	722-723			
			Water Quality	5 min	724			
			Noise concepts	15 min	725-731			
			Example 15-1- A-weighted	5 min	731			
			Noise equivalent concepts	10 min	731-732			
			Compute hourly average sound level Example 15-2	5 min	732-733			
4-2	Fri 4 Feb	15	**Noise Computations**			6	42,43,44	
			Noise Concepts - Day-night average sound level (DNL)	10 min	733-735			
			Example 15-3 DNL	5 min	734-735			
			Example 15-4 DNL of single event	5 min	735			
			Other quantitative noise factors	20 min	736-739			
5-1	Tues 8 Feb	15/5	**Landuse/Social Issues + GIS Lab**					
			Qualitative noise factors	10 min	740-744			
			Land use compatibility	10 min	744-746			
			Land use planning	10 min	204-208			
			Social and environmental factors/web	20 min	762-771			
			Introduction to GIS for Airport Planning					
5-2	Fri 11 Feb	15	**Noise Solutions**					
			Computer Models	5 min	746-748			
			Noise problem solutions	10 min	749-756			
			FAR requirements for noise	10 min	756-762			
6-1	Tues 15 Feb		**FAA Integrated Noise Model Lab**					

6-2	Fri 18 Feb		**Exam #1 (Lectures 1-2 through 4-2, HW 1-6)**					
7-1	Tues 22 Feb		**FAA Integrated Noise Model Lab (cont.)**					
7-2	Fri 25 Feb	6	**Forecasting**					
			Forecasting - data requirements	5 min	216-217			
			Forecasting - expert judgement	5 min	219-220			
			Forecasting - trend extrapolation	5 min	220-221			
			Forecasting - nonlinear extrapolation	10 min	221-224			
			Extrapolation - use of Excel	10 min				
			Market share/top-down models	5 min	225-228			
			Example 6-2	10 min	228-230			
8-1	Tues 29 Feb	6	**Forecasting (cont.)**			7	8,9,10,11	
			Market study (disaggregate	5 min	230-231			
			Multiple regression	5 min	231-232			
			Multiple regression w/ Excel	5 min				
			Statistical testing of Models - R^2	5 min	232			
			Statistical testing of models - standard error	5 min	233			
			Example 6-3	10 min	233-235			
			Sensitivity/elasticity	5 min	233-236			
			Econometric model	10 min	237-239			
8-2	Fri 3 Mar	7	**R/W Configuration & Wind Analysis**			8	12	
			Principles of Airport configuration	5 min	249-250			
			Runway types and capacities	5 min	250-255			
			Runway specifications - IFR, VFR	15 min	250-255			
			Relation of runway & terminal/web	10 min	256-259			
			Wind analysis concepts	10 min	259-265			
			Wind rose Example 7-1	10 min	265-274			
9-1	Tues 7 Mar	7	**Control Surfaces**			9	13,14,15	***Due Fri Mar 10!**
			Runway protection	10 min	274-278			
			Part 77 surfaces	10 min	278-282			
			Example 7-2	30 min	282-284			
			Other regulations	15 min	284-286			
			Example 7-3	10 min	286-287			
9-2	Fri 10 Mar	8	**Queuing Theory to Estimate Delay**			10	16,17(except a3, b3, C),19,20	
			Delay studies - what are they & why do them?	10 min	293-300			
			Definitions of capacity	5 min	300-301			
			Factors that affect hourly capacity	10 min	302-303			
			Queing theory introduction	10 min	303-304			
			Simple model	5 min	304			
			Mixed operations model	5 min	305			
	Tues 14 Mar		SPRING BREAK!					
	Fri 17 Mar		SPRING BREAK!					
10-1	Tues 21 Mar	8	**Space-time Approach to Estimate Capacity**					
			Example 8-1	10 min	305-306			
			Space-time concept	10 min	306-307			
			Space-time example 8-2	30 min	307-310			
10-2	Fri 24 Mar		**Exam #2 (Lectures 5-1 to 9-1, HW 7-9)**					
11-1	Tues 28 Mar	8	**Error Free and Postional Error Estimates of Capacity**			11	21	worth 20 points
			Ultimate capacity definition	5 min	310			
			Ultimate capacity factors	5 min	310-311			
			Error free matrix & capacity	10 min	311-312			

			Closing case	10 min	312			
			Opening case	10 min	313			
			Example 8-3	15 min	314-316			
			Consideration of position error	10 min	316-317			
			Closing case	10 min	317-318			
			Opening case	10 min	318-319			
			Example 8-5	15 min	322-323			
11-2	Fri 31 Mar	8	**FAA Chart Methods to Estimate Capacity**					
			Mix index & capacity	15 min	328-329			
			Example 8-7	10 min	329-330			
			Delay	30 min	330-333			
12-1	Tues 4 Apr	8	**FAA Chart Method and Deterministic Methods to Estimate Delay**			12	18,26	
			Example 8-8	15 min	333-336			
			Example 8-9	15 min	336-338			
			Graphical methods for approximating delay	15 min	339-341			
			Example 8-10	20 min	341-343			
12-2	Fri 7 Apr	8	**Annual service volume and Delay**			13	27	
			Annual service volume	10 min	343-345			
			Example 8-11	10 min	345-346			
			Estimating delay - tables, graphs & factors	20 min	346-351			
			Example 8-12	10 min	351-352			
13-1	Tues 11 Apr	9	**Airport Classification and Runway Systems**					
			Airport Classification	5 min.	364-366			
			runway length/temp. correction	5 min.	367			
			parallel runway separation	10 min.	368-370			
			runway systems - definitions	10 min.	373-373			
			ex. 9-1 Runway Dimensions	15 min.	373-381 + tables			
			Site distance	10 min.	373-377			
13-2	Fri 14 Apr	9	**Runway and exit taxiway design**					
			longitudinal design	10 min.	377-382			
			transverse design	5 min.	383			
			airfield separation tables	10 min.	386-387 + tables			
			exit taxiway design geometry	20 min.	395-399			
14-1	Tues 18 Apr	9	**Exit taxiways and aprons**			14	28,29	
			exit taxiway location	15 min.	400-402			
			example 9-3	5 min.	402			
			exit placement and occupancy time	10 min.	402-406			
			apron design	30 min.	422-428			
14-2	Fri 21 Apr	10	**Group Work on Problem 30**			15	30	**worth 30 points**
15-1	Tues 25 Apr		**Field Trip, Des Moines Airport - leave Town parking lot at 2:10 sharp!!!**					
15-2	Fri 28 Apr		**Exam #3 (Lectures 9-2 to 12-2, HW 10-13)**					
	Fri 5 May	12-2 pm	No final					