

**Carleton University**  
**Department of Civil and Environmental Engineering**

**CIVE5403 (CVG7158) Airport Planning**

**Dr. David Bell (dave.bell@rogers.com)**

**Lectures: 3 hours per week**

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<b>Week</b>	<b>Topic</b>
1.	<b>Introduction to Airport Planning.</b> Air transportation, growth, organizations, airport planning procedures, integrating the airport into the urban environment. Canadian airport policy.
2.	<b>Airport Site Selection.</b> Site selection criteria, fine tuning site selection, location models. Environment impacts.
3.	<b>Demand Forecasting.</b> Methods of forecasting, annual and peak hour forecasts, aircraft movements, seats per aircraft, peak hour movements, cargo, general aviation, Transport Canada forecasting models. Case Study.
4.	<b>Aircraft Characteristics.</b> Aircraft trends, factors affecting aircraft development, capacity, weight, wingspan, body length, landing gear, wheel base, turning radii, take off length.
5.	<b>Airport Geometry and Layout.</b> Runway orientation, runway configuration, airport layout, siting of terminal, simulation, runway capacity analysis, runway separation. Case study.
6.	<b>Geometric Design.</b> Runway design, runway length, width and grades, taxiway design, apron design.
7.	<b>Air Traffic Control and Nav aids.</b> Electronic aids, radar, instrument landing system, microwave landing system, flight rules, separation criteria, visual aids, radio aids.
8.	<b>Land Use Planning.</b> Obstruction zoning, electronic zoning, land use zoning, noise, environmental impacts, pollution.
9.	<b>Passenger Terminal Building.</b> Evolution of concepts, terminal development, number of gates, preliminary sizing, public space, concession, baggage handling. Case study.
10.	<b>Air Cargo Terminal Building.</b> Functions of the terminal, air cargo characteristics, terminal concepts, sizing. Case Study.
11.	<b>Ground Transportation.</b> Planning approach, facility sizing, functional planning, parking, curb, public transportation.
12.	<b>Planning of Small Airports.</b> Aircraft, planning procedure, airport licensing, operation and maintenance.

**TEXT** Ashford, Norman and Wright, Paul, *Airport Planning*, Third Edition, John Wiley & Sons, New York, 1992.

**MARKING SCHEME**

4 sets of problems @ 5% each	=	20%
Term Paper Progress Report	=	5%
Term Paper Final Report	=	25%
Final Examination	=	<u>50%</u>
		100%

## REFERENCES

### A. Books

1. DeNeufville, Richard L. and Odoni, Amedeo R., *Airport Systems Planning Design and Management*, McGraw Hill Companies, April 2002.
2. Horonjeff, Robert D. and McKelvey, Francis X., *Planning and Design of Airports*, McGraw Hill Companies, December 1993.
3. Ashford, Norman and Moore, Clifton A. and Stanton, H. Martin, *Airport Operations*, McGraw Hill Companies, December 1996.
4. Wells, Alexander T., and Young, Seth, *Airport Planning and Management*, McGraw-Hill Companies, October 2003.
5. Ashford, N. and Wright, Paul H., *Airport Engineering*, Third Edition, John Wiley and Sons, New York, 1992.
6. Ashford, N. and Wright, Paul H., *Airport Operations*, John Wiley and Sons, New York, 1984.
7. *Guide for the Planning of Small Airports*, RTAC, Ottawa, 1980.
8. DeNeufville, Richard, *Airport Systems Planning*, MIT Press, Cambridge, MA, 1976.
9. Readings in Airport Planning, Dept. of Civil Engineering, University of Toronto, 1972.
10. Stewart, Walter, *Paper Juggernaut, Big Government Gone Mad*, McClelland and Stewart, Toronto, 1979.
11. Transport Canada documents.
12. ICAO documents.
13. IATA documents.

### B. Periodicals

1. *Airport Forum*, Bauverlang, Germany.
2. *Airport International*, International Business Press, England.
3. *Transportation Engineering Journal of ASCE*, American Society of Civil Engineers.

## TERM PAPER

Each student will prepare a term paper on an Airport Planning topic of his/her choice in accordance with the following requirements:

1. **Written Proposal.** Submit written proposal on your topic. State the purpose of your paper and how you intend to proceed.
2. **Progress Report.** Submit a typed progress report on your paper. Clearly define your problem, identify deficiencies, document research to date (showing some detail on data collection, analysis in progress, etc.) and show an outline of the completed paper.
3. **Oral Presentation.** Give an oral presentation on your paper at a seminar at the end of the term. The presentation will be 20 minutes long, with 10 minutes for questions and discussion.
4. **Final Report.** Submit a typed, formal engineering report at the last class. Follow the report writing guidelines shown in "Guidelines for Writing an Engineering Report", Department of Civil Engineering, January 1989.