UNIVERSITÀ DEGLI STUDI DI TRIESTE

DIPARTIMENTO DI INGEGNERIA ED ARCHITETTURA

SEZ. STRADE TRASPORTI TOPOGRAFIA

VIA A.VALERIO 6/2 - 34127 TRIESTE, ITALIA - TEL. +39 040 558.3582 FAX +39 040 558.3580

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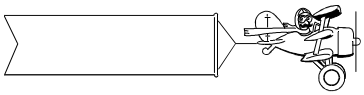

Corso di laurea magistrale: **Ingegneria civile**
Corso di: **Infrastrutture Aeroportuali**
Docente: **Roberto Roberti**
Programma: **Anno Accademico 2015/2016**

A. TOPICS AND CONTENTS OF THE COURSE

LESSON N. 1 (5 hours).
General information about the course: Student List, schedule, conduct exams, course objectives, course program, bibliography, definition of airport infrastructure, problems of an airport infrastructure.
Historical evolution of air transport: Evolution of aviation and aircrafts, definition of air traffic, Evolution of air traffic, air traffic indicators, air traffic safety, comparison with other means of transport.

LESSON N. 2 (5 hours)
The air transport market: Deregulation and airlines, profitability and cost of air travel, flight connections (point to point and hub and spoke).
Aviation legislation: international standards and organizations, national institutions.
The air traffic control: Rules of the air, flight assistance services, airspace division, navigation tools and assistance.

LESSON N. 3 (5 hours)
The characteristics of aircrafts: Size, Weight and flight range, resistances, Lift, propulsion systems, speed, gears, maneuverability, Evolution of the characteristics of the aircraft in relation to the airports, aircraft classifications.
Airport infrastructure: Development of airport infrastructure, Heathrow example, features an airport infrastructure, classifications airports, airport management, airport certification, operating modes of an airport (landings, takeoffs, circulation).

LESSON N. 4 (5 hours).
The airport planning: Hierarchy of planning, Master paln Airport, Lax example.
Methods of forecasting demand: Forecast of air traffic forecast movements.
The choice of the airport site: Surfaces limiting obstacles, Runway orientation.

LESSON N. 5 (5 hours)
Air side geometry: Reference data of an airport, takeoff and landing maneuvers, take-off and landing lengths, Declared and required distances , Geometric features of the runway and taxiway rapid exit, holding bay, separation distances .

LESSON N. 6 (5 hours).
Terminal area: apron, terminal, landside access.

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LESSON N. 7 (5 hours)
Airport capacity: capacity runway, Capacity taxiway, Capacity gates, delays.

LESSON N. 8 (5 hours)
Environmental Impact: Air Pollution, Noise in airport field, Evaluation of noise annoyance, mitigation measures.

LESSON N. 9 (5 hours)
Airport pavements: Type, Functions, difference than if road, bearing capacity and structural design, the FAA method, the LCN method, the ACN / PCN method.

LESSON N. 10 (5 hours)
Functional characteristics of pavements: skid resistance, regularity; surface treatments.

B. PRACTICAL APPLICATIONS (10 hours)

Runway Orientation. Usability factor calculation.
Determination of runway length.
Determining the capacity of an airport.
Determination of acoustic noise by evaluation index NEF (approximate method).
Design of rigid and flexible pavements.
Evaluation of the skid resistance through measures on site.

C. TEXTBOOK AND MATERIALS

- N. ASHFORD, P. H. WRIGHT - Airport Engineerig - WILLEY-INTERSCIENCE PUBBLICATION.
- C. DE GREGORIO - Tecnica ed Economia dei Trasporti Aerei - PATRON EDITORE.
- R. HORONJEFF, F. X. Mc KELVEY - Planning and Design of Airports - Mc GRAW HILL.
- G. IACOPINO, A.R. Dal FIUME - Elementi di Progettazione Aeroportuale - LEVROTTO&BELLA.
- M. MATASSA - Elementi di Meccanica del Volo - ATENEO EDITRICE FORLì.
- G. TESORIERE - Strade Ferrovie Aeroporti - UTET.
- TOCCHETTI - Infrastrutture Aeroportuali - ARACNE.
- TOCCHETTI, R. MALANGONE - La Capacità di Traffico degli Aeroporti - IDELSON NAPOLI.
- M. COSA – Rumore e vibrazioni, effetti, valutazioni e criteri di difesa – MAGGIOLI EDITORE.
- ICAO – Annesso 14, Annesso 16, Manuali n° 9137, 9150, 9157, 9184, 9476.
- P. DI MASCIO, L. DOMENICHINI, A. RANZO - Infrastrutture aeroportuali - CASA EDITRICE INGEGNERIA2000
- Infrastrutture Aeroportuali - Dispense del corso fornite dal Docente. (moodle2.units.it)

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D . OBJECTIVES:

Provide knowledge regarding the planning, design, execution and management of an airport.
In particular will be analyzed: Organization of air transport and airport regulations; The characteristics of the aircraft and how these affect the airport design (geometric characteristics of the air side, pavements); The interaction between airport infrastructure and territory; The air transport demand and capacity of an airport infrastructure; The characteristics of the airport terminal.