UNIVERSITAT POLITÈCNICA DE CATALUNYA

Aeronautical Engineering at ETSEIAT

UPC

Politechnical University of Catalonia

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SCHOOL OF INDUSTRIAL AND AERONAUTIC ENGINEERINGS

Objectives

Presentation's objectives

- Introduce the new studies of aeronautical engineering at ETSEIAT to the academic and industrial communities.
- Show the organization and structure of courses to consider academic collaboration possibilities.
- No technical contribution yet (but we promise to contribute in future workshops!)

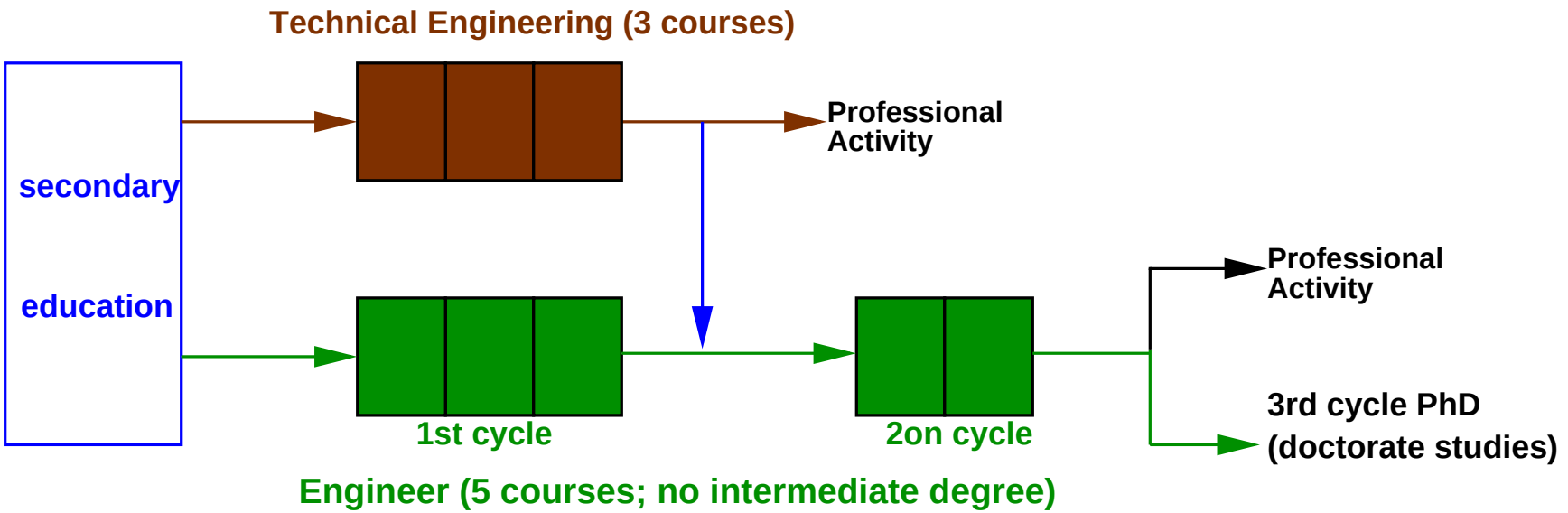
Engineering studies at Spain

Current Engineering studies in Spain

- Official engineering degrees regulated by the Ministry of Education.
- Most of them associated with functions regulated by law.
- Bologna Declaration not fully developed yet
  - ECTS and qualifications defined by law (October, 2003)
  - Awaiting for new degrees catalogue and directives for official degrees.
- Reason: Currently there are two differents degrees in most engineering titulations
  - "Advanced" engineer: 5 courses education, more general and "scientific" contents, full functions in all activities of their area.
  - "Technical" engineer: 3 courses, more specific formation, functions restricted to specific areas.
- Development of Bologna Declaration is expected to simplify this situation.

Current Engineering studies in Spain

Students flow in current scenario



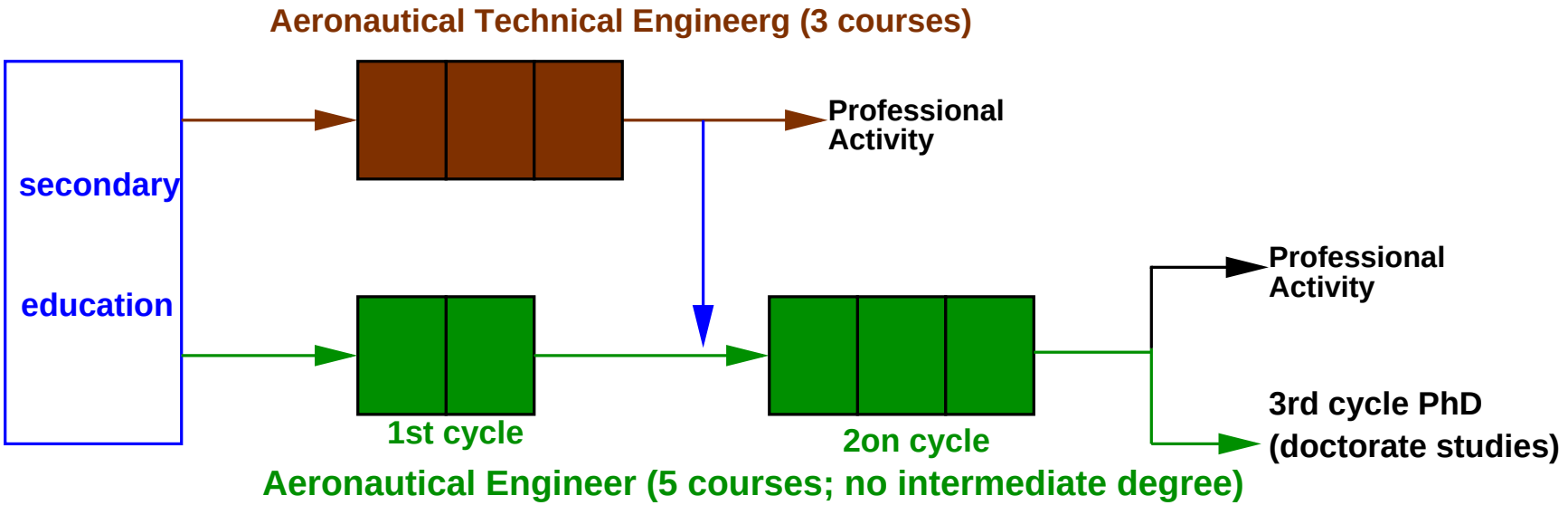
Aeronautical Engineering studies in Spain

Aeronautical Engineering in Spain

- Aeronautical Technical Engineer (3 courses): 5 TITULATIONS
  - Propulsion
  - Aircraft
  - Aerospatial Materials
  - Airports
  - Aeronavigation
- Aeronautical (“Advanced”) Engineer (5 courses)
  - Full functions in all above areas

Aeronautical Engineering in Spain

Aeronautical Engineering students flow in current scenario



Aeronautical Engineering in Spain

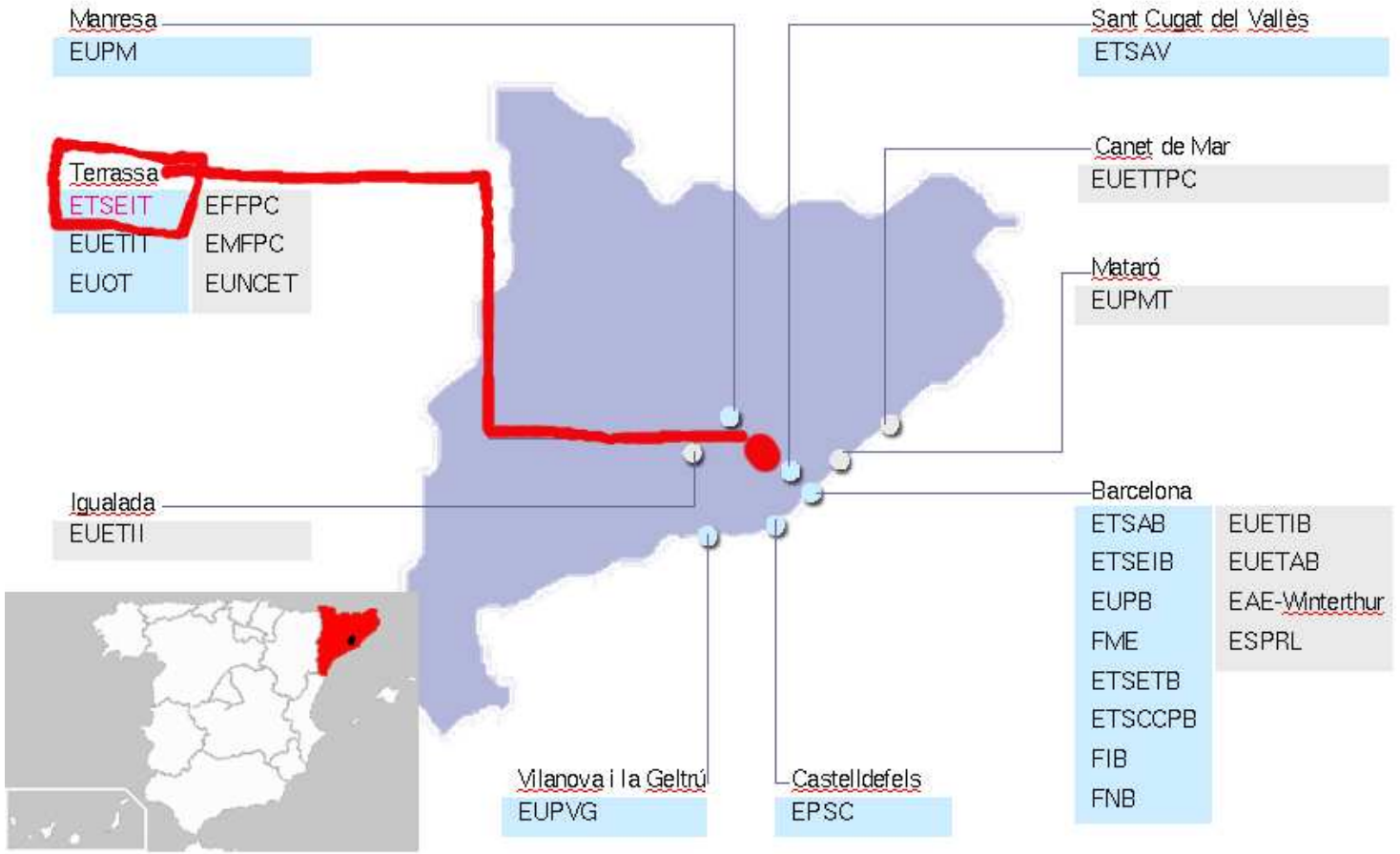
Aeronautical Engineering

SCHOOL OF INDUSTRIAL AND AERONAUTIC ENGINEERINGS

UPC and ETSEIT

UPC: organization

Territorial organization



SCHOOL OF INDUSTRIAL AND AERONAUTIC ENGINEERINGS

UPC and Campus Terrassa: some figures

	UPC	Campus Terrassa
Faculties and Schools	22	5
Lecturers & researchers	2604	400
Departments	40	21
Students	33.000	5400
Titulations	58	13
PhD programmes	46 (2004)	
PhD new students	763 (2004)	
PhD thesis	167 (2004)	

ETSEIAT: some data

- 2400 students / 240 lecturers & researchers
- Industrial Engineering (since 1904): 300 students/year
  - Mechanical Eng.
  - Electrical Eng.
  - Thermoenergetics
  - Construction
  - Organization
  - Textile
  - Paper
- Automatics and Industrial Electronics Engineering (since 1993) 40 students/year
- Industrial Organization Engineering (since 1998) 160 students/year
- Aeronautical Engineering (since 2004) 80 students / year. (Access mark requested $\geq$ 8.4/10)

SCHOOL OF INDUSTRIAL AND AERONAUTIC ENGINEERINGS

Terrassa

- Population 200,000
- 30 km away from Barcelona.
- Good comunications (train, highway, bus)
- 15,000 universitary students in faculties of 5 Universities.
- Area of influence 500.000 people.
- Diversified industry of all sizes.

Aeronautical Engineering at Terrassa

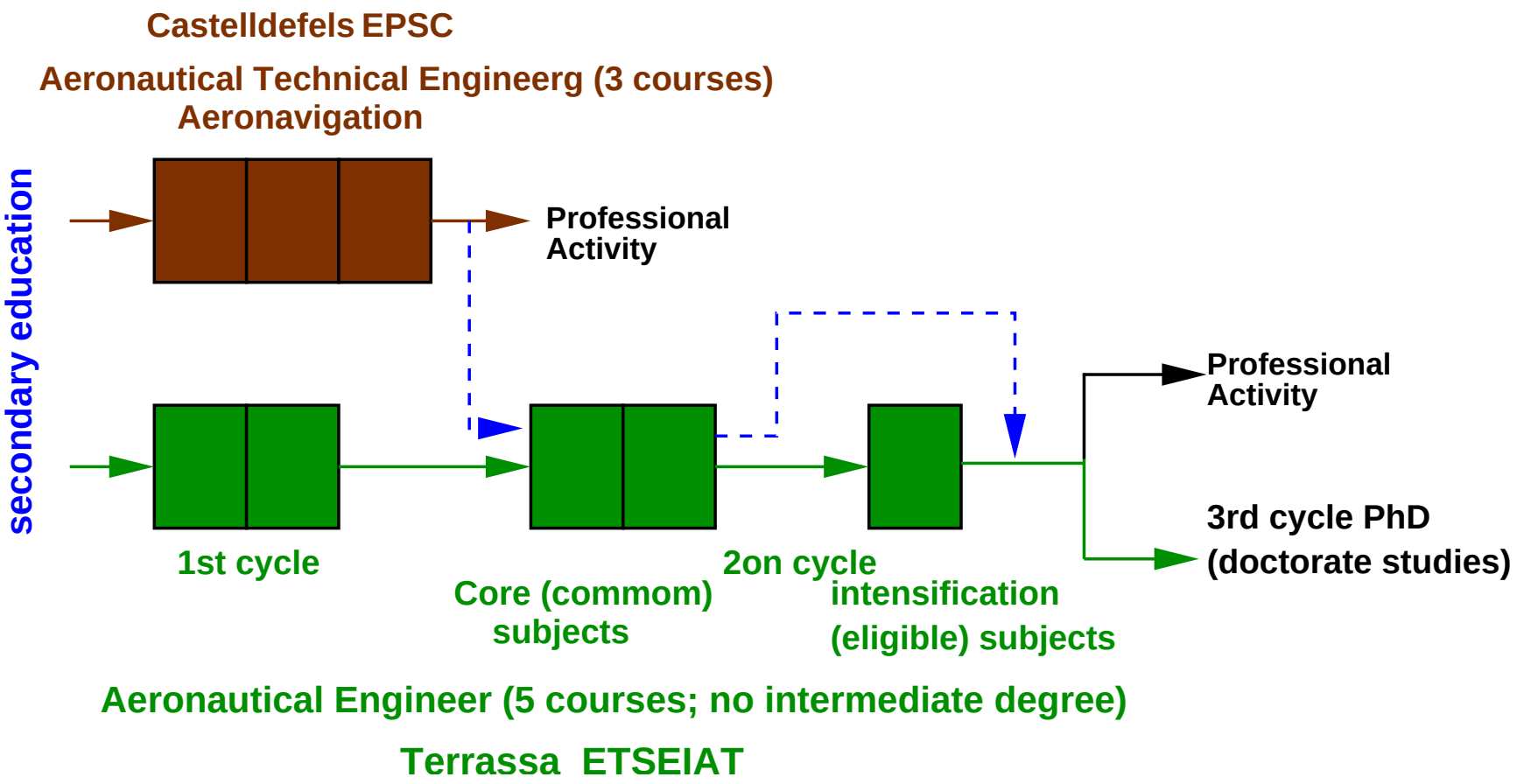
Why Aero. Eng. in Terrassa?

- Aeronautical industry is rapidly growing in Catalonia: some activity results from diversification of car and car components manufacturers.
- Local authorities has determined aeronautic industry to be a strategic sector for economical development.
- BAiE (association of companies related to aeronautic activity) demands an increase of educational and research activities in aeronautics.
- Educational and research tradition in engineering areas related to aeronautics engineering (mechanical eng, fluid mechanics, gasdynamics, electronics, etc..) for a century

Requirements

- Official Spanish degree following current directives (as in Madrid, Seville and Valence)
- Total 375 credits (= 3750 class hours)(no less than 350 and no more than 400 required by law).
- There were aeronavigation studies in UPC already: Castelldefels (since 2002).
  - Compatibility requested (no duplication of studies).
  - Ciclicity: students at Castelldefels pass 225 credits and they should be allowed to follow second cycle at Terrassa Requirements
    - No more than $375 - 225 = 150$ credits.
    - No more than $5 - 3 = 2$ years

Aeronautical engineering at UPC



Aeronautical engineering at ETSEIAT

Total 375 credits (1 credit = 10 class hours)

subjects / year	compulsory (common)	elective (coherent groups)	free election	final project
1	76.5		3.0	
2	67.5		6.0	
3	73.5			
4	67.5	12.0		
5		25.5	28.5	15.0
total	285.0	37.5	37.5	15.0

Aeronautical engineering at ETSEIAT

- Foundations (Mathematics, Physics, Chemistry, Computer Science)
- "General Engineering" (Materials science, materials mechanics, applied TD, fluid mechanics, electrical engineering, electronics, automatics)
- Specific technologic subjects (aerodynamics, aerospatial structures, avionics, aerospace materials, aircraft design, missiles, engines, propulsion, espace vehicles, airports, etc.)

year	Foundations	General	Specific
1	66 %	30 %	4 %
2	38 %	40 %	22 %
3		38 %	62 %
4			100 %
5			100 %

Intensifications

- No aeronavigation intensification in Terrassa as Castelldefels offers it.
- Two main intensification lines at Terrassa
  - Aircraft design and propulsion.
  - Airports and management

Questions ?