

# DEPARTMENT OF CHEMICAL ENGINEERING

**Creating Value from Chemistry**

**Ioanis Katakis**

**CEiCS FORUM 2011**

**Tarragona, 11 November 2011**



## UNIVERSITAT ROVIRA I VIRGILI

A triple mission University (Teaching, Research, Innovation)



7 Faculties

3 Engineering Schools

2 Higher Schools



24 Departments

Organised per "areas of knowledge"

Management of personnel, Research



**Chemical Engineering School  
(80%)**

Responsible for Teaching

(Chemical, Mechanical, Env. Engineering)



**Chemical Engineering Department**

4 "knowledge areas", 17+2 research groups

**6 Innovation Centres (3,5 of DEQ)**

Technology Transfer (Ministry of Industry)

## **FACULTY**

- 5 Emeritus Professors (PT)
- 33 FT teaching and research
  - 7 Full Professors
  - 16+5 Associate Professors
  - 5 Assistant Professors
- 5 FT research
  - 3 Tenured
  - 2 Tenure track
- 35 PT industry professionals

## **SUPPORT PERSONNEL**

- 2 FT Administration, HR, accounting
- 4 FT Teaching support technicians
- 1 FT Support to postgraduate progr.

## **RESEARCH PERSONNEL**

- 75 RAs and TAs (mostly PhD students)
- 7+8 Research technicians
- 8 post doctoral fellows

## **Some Statistics**

- Average age of FT faculty: 47,5 years (45,5 W/OUT emeritus)
- 18% of faculty, 70% of graduate students from outside of Spain
- 57% of FP hold University management positions or merit award



## INDICATOR

- Total academic personnel (PdD, 2010)	598	37 (6,2%)
- Personnel "official" (URV budget 2010)	686	34 (5,0%)
- Administrative personnel "official" (2010)	573	19 (3,3%)
- Teaching (credit hours, 2009-10)	22532	1159 (5,1%)
- Publications ISI (2010)	712	88 (12,4%)
- Techn. trans. contracts (k€/yr, 2008-10)	6518	721 (11,1%)
- Research projects (k€/yr, 2008-10)	7620	1951 (25,6%)
- Thesis defended (2009-10)	127	11 (8,7%)

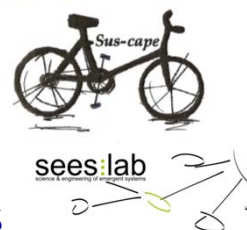
### Productivity/quality metrics:

- 84% of PDI achieves URV productivity bonus in 2010, 88% Ministry bonus
- h-index of Faculty: 52 (46 with URV affiliation)

OPTIMISING WATER USE, FOOD QUALITY AND HEALTH MANAGEMENT THROUGH PRODUCT AND PROCESS ENGINEERING

CROSS CUTTING AREAS

- Molecular Modelling and Simulation
- Complex Systems and Neural Networks
- Process Design and Optimisation



Dynamical Systems in Fluids Mechanics

TECHNOLOGIES

- Heterogeneous Catalysis and Catalyst Design
- Reactor Design and Optimisation
- Membrane Technologies
- Toxicity Assessment and Life Cycle Analysis
- Nano and Bio Technologies



METEOR

Droplets, Interfaces and Flows

APPLICATIONS

- Water treatment and (bio) remediation
  - Toxicity prediction and modelling
- Controlled release for fine chemicals and drugs
  - Biosensors and Biomedicine
  - Food processing and design



Intelligent Water Treatment Simulation and Control



## **Innovation in Teaching and Training**

- International reference in cooperative teaching and leadership
- Research in transversal competence quantification

## **Catalan Institute of Energy Research (IREC)**

- Bioenergy division promoted by DEQ faculty

## **Society and Science**



- APQUA is a Spanish reference in high school and community activities

## **Industrial Risk Assessment Entity (EAR)**

- The government-accredited unit is directed by DEQ personnel

## **MBA**

- The URV programme is directed by DEQ personnel

## WHAT WE HAVE LEARNED

- Our decision to eliminate *inbreeding* in 1993 was fundamental for our department.
- The creation of a “research fund” including 27 DEQ scholarships guaranteed sustainable productivity.
- Our organisation as one unit without division in “areas of knowledge”.
- The faculty complicity helped the process.

## FUTURE CHALLENGES

- Aging faculty and renovation (with values propagation).
- The applications EEES within Spanish norms adding value.
- Achieve strategic planning in research.
- Adjust our model to modern perception of public education.

## THREE FUNDAMENTAL AXES

- HR: Headhunting (and resources), planning/professional career, orientation, professionalising the processes (ALL personnel). **Objective:** "Career path" y "second to none"
- EFFICIENT ORGANISATION: accountability, empowerment, management by objectives, clear rules (bylaws, service administrative personnel). **Objective:** efficiency, satisfaction, more opportunities/possibilities
- DEQ QUALITY SEAL: product accreditation, entrepreneurial, innovative, transversal capacities, (knowledge, graduates, society relations) unified strategic vision for future of research. **Objective:** International recognition





FOR MORE INFORMATION



Departament d'Enginyeria Química

DEPARTMENT OF CHEMICAL ENGINEERING

Avinguda Paisos Catalans, 26

Campus Sescelades

43007 Tarragona, SPAIN

Tel: +34 977 55 96 03

Fax: +34 977 55 96 21

CHAIRMAN

Ioanis Katakis (ikatakis@etseq.urv.es)

SECRETARY

Jordi Grifoll (jgrifoll@etseq.urv.es)