Areas of interest and areas of investigation:

- **Modeling and simulation of processes**
- **Application of new methodologies in the learning process of numerical methods in engineering.**

Research programs involved:

- **Thermal Comfort model applicable to clothing design – POCTI/EME/62786/2004**
- **Safety Control of Automated Problems Systems – POCTI/EME/61425/2004**
- **ICTs in engineering education: application of new methodologies in engineering education and assessment**

Main goals:

- **Thermal Comfort model applicable to clothing design – POCTI/EME/62786/2004**

Model development of transport of energy and mass through porous hygroscopic clothing material. Integrate this model with an existing human-thermal comfort model. Comparison and validation of numerical results with experimental work. Subjective evaluation of human thermal comfort and statistical analysis.

Main goals:

- **Safety Control of Automated Problems Systems – POCTI/EME/61425/2004**

Modeling and simulation with Dymola for identification of the type that may be formally verified when used plant models (pneumatics, hydraulics, electrical and mechanical systems.

Main goals:

- **ICTs in engineering education: application of new methodologies in engineering education and assessment**

Development, implementation and set available, in a Web environment, a virtual and remote laboratory applied to the Automation and Control teaching/learning in Engineering.

Candidate background:

- on distributed systems;
- experience on Human-computer interaction and user studies.
- Work on remote experiments for automation and control application areas.

2. Software development for the design and Thermoeconomics optimization of Cogeneration plant

Objectives:

- Development of an interactive software for the thermoeconomics optimization of cogeneration systems.

- It must include:
  - economic mathematical models adequate to the portuguese reality;
  - mathematical models that describes the several components of the system;
  - optimization numerical methods for non linear problems with constraints