Code: 1496 **Irrigation and Drainage**
Degree: 2nd cycle – Tropical Agriculture and Sustainable Development; Agriculture
Stream: Agriculture - Agriculture and Animal Production; Agricultural Engineering; Horticulture
Curricular Year: 2nd **Semester Course: 1st**
Credits: 6 ECTS **Compulsory** (EAgr - Agricultural Engineering)
Language: Portuguese/English **Optional** (TASD; EAgr - Agriculture and Animal Production; Horticulture)
Responsible: Luís Alberto dos Santos Pereira
Other lecturer(s): -
Web Site: http://www.isa.utl.pt/home/node/3743

1. Contact hours:
Lecture/Practicals 70 **Others** 14 **Total** 84

2. Objectives:

To prepare for irrigation project e irrigators advice, irrigation fields planning, management of irrigation systems and integrated management of water and natural resources.

3. Programme:

Luís S. Pereira
Water and agriculture, basic concepts
Water requirements, irrigation methods
Water use indicators
Reference evapotranspiration
Crop Evapotranspiration; single and dual crop coefficients
Water balance and crop irrigation requirements; irrigation-production relations
Irrigation scheduling and management; modelling and use of models
Surface irrigation: methods and modernization
Surface irrigation: design, evaluation, and simulation models
Sprinkler irrigation: systems
Sprinkler irrigation: design, evaluation, models
Micro-irrigation: systems,
Micro-irrigation: design, evaluation, models
Surface irrigation networks: operation, control and management principles
Pressurized irrigation networks: operation, control and management principles, design and analysis models
Drainage: drainage requirements and impacts, drainage systems
Drainage and salinity control
Irrigation and drainage impacts: assessment, control and minimization

4. Bibliography:

Main Bibliography

Pereira LS, 2004. *Necessidades de Água e Métodos de Rega*. Publ. Europa-América, Lisboa, 313 p.

Other Bibliography

Allen RG, Pereira LS, Raes D, Smith M, 1998. *Crop Evapotranspiration. Guidelines for Computing Crop Water Requirements.* FAO Irrig. and Drain. Paper 56, FAO, Rome, 300p (also accessible in http://www.fao.org/docrep/x0490e/x0490e00.htm)

Keller J, Bliesner RD, 2000. *Sprinkler and trickle irrigation*. The Blackburn press, Jersey, 652 p.

5. Assessment:

3 project works relative to crop irrigation requirements, sprinkler irrigation and drip irrigation with use of appropriate computer simulation models

6. Estimated Workload: 168 Hours
7. Last Update: 16/7/2010