Code: 1568 **Vinification**
Degree: 2nd cycle – Viticulture and Oenology
Curricular Year: 1st **Semester Course: 2nd**
Credits: 6 ECTS **Compulsory**
Language: Portuguese/English
Prerequisites: Wine Microbiology
Responsible: Jorge Manuel Rodrigues Ricardo da Silva
Other lecturer(s): -
Web Site: http://www.isa.utl.pt/home/node/3906

1. **Contact hours**:
Lectures 28 **Practicals/Laboratory** 42 **Others** 14 **Total** 84

2. **Objectives:**

Knowledge of the evolution of the main grape compounds during ripening and implications in the wine characteristics. Study of the mechanical and technological operations used in wine-making.
Characterization of the technological diagrams for the production of the different types of wines.

3. **Programme:**

Vine and wine – relevance and world panorama. The Enology in Portugal – the wine sector. Portuguese wine regions and vine varieties most used. The raw material – grapes. Grape developing steps, grape cluster composition: Grape maturation: Grape transformations and evolution of the principal components-grape growing, sugars, acids minerals, phenolic compounds, aromatic compounds, nitrogen compounds, evolutions of other grape compounds. Factors that influenced grape maturation. Maturation types. Harvest date decision – parameters and methods. Evolution criteria for the grape payment. Vinifications: Mechanical and technological operations: harvest, transport, reception, grape selection; sampling; weighing, crushing, destemming, draining, pressing, must clarification, cup punching/maceration, to put in vats, vat discharge.
Before fermentation transformations: oxidations, pectolytics, celulasics, hemicelulasics, glicosidasics, proteolytics.
Must corrections: sulfitation, acidification/desacidification, sugars, assimilable nitrogen, vitamins, temperature, yeasts, clarification products, aeration, enzymes. White wine vinifications : classic, skin contact, hyperoxigenation, fermentation in wood barrels, other white wine vinifications.
Rosé wine vinifications: must fermentation, fermentation with short maceration. Red wine vinifications: classic with maceration. Other vinifications: continuous vinification, thermovinification, carbonic maceration, "flash détente", vinification in rotative vats. Special vinifications: liquor wines, stuffy wines, veil wines, botritized wines, wines for distillation, Wines from "passerillés" grapes. Physico-chemical analysis of musts and wines (general).

4. **Bibliography:**

Main Bibliography

Flanzy, C.- Oenologie: Fondements Scientifiques et Technologiques, Tec&Doc Lavoisier, Paris, 1998
Boulton, R.; Singleton, V. L.; Bisson, L. F.; Kunkee, R. E.- Principles and Practices of Winemaking, Chapman & Hall, 1995
Ribereau-Gayon, P.; Dubordieu, D.; Donéche, B.; Lonvaud, A.- Traité d´Oenologie- Microbiologie du Vin, Vinifications, Tome 1, Dunod, Paris, 1998
Jackson, R (1994) - Wine Science. Principles and Applications, Academic Press, New York

Other Bibliography

Vine, R,P,; Harkness, E,M,; Browning, T.; Wagner, C (1997) – Winemaking. From grape growing to marketplace, Chapman & Hall.
Ricardo da Silva, J.M.R. (2000) - Acção de Enzimas Glicosidásicas no Aroma Varietal dos Vinhos: Utilização de Preparações Comerciais em Vinificação. Provas de Agregação, ISA (UTL).
Zoecklein, B.W.; Fugelsang, K.C.; Gump, B.H.; Nury, F.S (1994). – Wine analysis and production, Chapman & Hall.

5. Assessment:

Evaluation in final examination. Minimum of 75% of participation in practical courses, filling a small test at the end of each weekly course. Study visit with compulsory presence of the students

6. Estimated Workload:	168	Hours
7. Last Update:	8/2/2011	