Advanced Materials for Fusion

Academic Year: (2020 / 2021) **Review date: 10-07-2020**

Department assigned to the subject: Department of Physics

Coordinating teacher: LEGUEY GALAN, TERESA

Type: Electives ECTS Credits : 3.0

Year : 2 Semester :

STUDENTS ARE EXPECTED TO HAVE COMPLETED

Basic knowledge of Atomic Physics, Electrodynamics, Material Science and Solid State Physics (graduate level).

DESCRIPTION OF CONTENTS: PROGRAMME

1. Structural Materials requirements for Fusion Reactors
2. Basic concepts from Materials Science
3. Principles of Radiation Damage (RD)
4. Effects of RD on Microstructure
5. Modelling RD: The SRIM code
6. Particular Effects of Ion irradiation
7. Effects of RD on Mechanical Properties
8. Ferritic/Martensitic and Ferritic steels
9. Oxide Dispersion Strengthened (ODS) Steels
10. Tungsten alloys , Vanadium alloys and other relevant materials

LEARNING ACTIVITIES AND METHODOLOGY

Classroom lectures plus post-lecture assignments.

ASSESSMENT SYSTEM

Evaluation shall take into account attendance, class participation, homework assignments and the mark obtained by the student in a questionnaire at the end of the course.

% end-of-term-examination:	60
% of continuous assessment (assigments, laboratory, practicals…):	40