

CORROSION SCIENCE, 7.5 p (F4H 5405) Course plan

General: The course is intended for graduate students or researchers working in academic or industrial environments with an interest in materials science and engineering.

Aim and contents: Corrosion is a truly interdisciplinary science and the aim is to discuss the underlying chemistry and physics of the most important forms of metal corrosion. Mechanistic as well as applied aspects will be dealt with.

Lectures: The course includes lecture hours on three consecutive days prior to EUROCORR 2011. Most lecturers are part of KorrosionsCentrum™ (a collaboration between Swerea KIMAB and KTH) in Stockholm and most competent experts in their respective fields. The lecture room belongs to the Institute of Surface Chemistry and is located on Drottning Kristinas väg 51 the KTH Campus area, see separate map.

<i>Date/Time</i>	<i>Lecturer</i>	<i>Topic</i>
<u>Sept 2, 2011:</u>		
10.15-12	C. Leygraf:	<i>Introduction. Repetition of Basic Concepts</i>
13.15-14	J. Pan	<i>Thin Oxide Film Formation</i>
14.15-16	J. Pan	<i>Passivity</i>
16.15-17	C. Leygraf	<i>Atmospheric Corrosion I</i>
<u>Sept 3, 2011:</u>		
9.15-11	R. Pettersson	<i>Pitting/crevice Corrosion</i>
11.15-12	R. Pettersson	<i>Stress Corrosion Cracking and Hydrogen Embrittlement</i>
13.15-16	D. Thierry:	<i>Corrosion Protection by Organic and Inorganic Coatings</i>
16.15-17	C. Leygraf	<i>Atmospheric Corrosion II</i>
<u>Sept 4, 2011:</u>		
9.15-12	P. Szakalos:	<i>High temperature corrosion</i>

Course material: Selected chapters in "Corrosion Mechanisms in Theory and Practice", 2nd edition, Ed. P. Marcus, Marcel Dekker, Inc., New York (2002). A third edition is appearing during 2011. The course book has to be purchased in advance by each participant, price around 150 Euros. In addition, lecture notes will be distributed by the lecturers.

Prerequisites: The participants are assumed to be graduate students at some university or researchers working in industry with a background in physics, chemistry or materials science. The introductory lecture covers necessary background information.

Examination: An individual project task must be completed within each of the topics of the course, and under supervision of the corresponding lecturer. The total amount of work of each task should be of the order of four weeks and should be completed by Dec 31, 2011

Contact person: Prof. Christofer Leygraf, Div. Surface and Corrosion Science, Dept. Chemistry, KTH Tel: 08- 790 64 68, e-mail: chrisl@kth.se