UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

COURSE SYLLABUS

Plasma Physics Laboratory

2122-1-F1701Q131

Aims

experimental skills in plasma physics

Contents

Introductory lectures on plasma physics and diagnostics, vacuum systems and transmission lines.

Experiments: microwaves, vacuum, laboratory plasmas and magnetised plasmas.

Detailed program

Introductory lectures on plasma physics and diagnostics, vacuum systems and transmission lines. Experiments:

a) microwave propagation and transmission;

b) mass spectroscopy of residual gases in a vacuum chamber and leak detection;

c) electric discharge generation in vacuum and characterisation of magnetized plasmas;

d) characterisation of plasma discharges by Langmuir probes and optical emission spectroscopy

e) study of density fluctuations with different tecniques (Langmuir probes, fast imaging)

Prerequisites

none

Teaching form

Laboratory lectures, 120 hours (10 credits)

Introductory lessons (12 hours)

The laboratory experiments (108 hours)

The detailed calendar of activities will be published on the e-learning page in October 2021.

Textbook and teaching resource

F.F. Chen, *Introduction to Plasma Physics and Controlled Fusion,* 3rd Edition, Springer International Publishing, 2016.

Y.P. Raizer, *Gas Discharge Physics*, Springer-Verlag, 1991.

M.A. Lieberman and A.J. Lichtenberg, *Principles of Plasma Discharges and Materials Processing*, Wiley, 1994.

I.H. Hutchinson, *Principles of Plasma Diagnostics*, Cambridge University Press, 1990.

Semester

1st year, 1st semester

Assessment method

oral with free questions, after presentation and discussion of a written report in English on the experimantal activities.

Office hours

Prof Barni, Dept of physics, third floor room 3029

Informations about the teacher's c.v., telephone number, university room or other workplaces, office hours and e-mail can be found on the website: http://fisica.mib.infn.it/pages/it/chi-siamo/persone/who.php?user=barni, and also at web www.plasmaprometeo.unimib.it

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