



COURSE: Industrial Wastes and Sustainable Development

ACADEMIC YEAR: 2016-2017

TYPE OF EDUCATIONAL ACTIVITY: Characterizing

TEACHER: Milena Marroccoli

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mobile (optional):

Language: italian

ECTS: 9

n. of hours: 81

Campus: Potenza
School of Engineering
Program: Mechanical Engineering

Semester: I

EDUCATIONAL GOALS AND EXPECTED LEARNING OUTCOMES

Aim of the course is to provide students with an overview of the utilization of industrial wastes in the environmental safeguard for a sustainable development of the modern society

PRE-REQUIREMENTS

None

SYLLABUS

Italian Decree n. 152/2006 regarding special wastes and related operational decrees.

Obligations for special wastes producer and user.

Wastes employed as raw material or fuel. Coal main characteristics. Refuse-**derived fuel**

Main special wastes categories and brief description of their technological process.

Metallurgical industry slags: blast furnace and steel slags.

Construction and demolition wastes, municipal solid waste incineration residues.

Sludges from pollutant abatement plants, residues from reservoir rehabilitation.

Ashes from solid fuel combustion: fly and bottom ash from plants firing pulverized coal or biomass; fluidized bed combustion residues. Wastes from CO₂ capture/reduction process.

Chemical gypsums coming from: flue gas desulfurization, neutralization of sulfuric acid containing waters, industrial manufacture of mineral acids and titanium dioxide.

Residues from extraction activities: excavated soil and rock, limestone dust, muddy and solid from oil extraction

Anodization mud, alumina powders from the aluminium secondary manufacture, condensed silica fumes.

Manufacturing process and technical properties of wastes based materials: cement, concrete, building preformed components, inorganic polymers.

Natural and wastes derived fuels.

Environmental impacts of industrial products: Life Cycle Assessment (LCA).

TEACHING METHODS

Theoretical lessons. Laboratories visit. Technical visits.

EVALUATION METHODS

Written examination

TEXTBOOKS AND ON-LINE EDUCATIONAL MATERIAL

Lesson notes.

Educational material provided by the teacher on Dropbox

INTERACTION WITH STUDENTS

Wednesday from 3 to 5 pm.

Another appointment can be arranged by e-mail.



Università degli Studi della Basilicata
Scuola di Ingegneria

EXAMINATION SESSIONS (FORECAST)¹

2017 year

15/02, 22/03, 26/04, 24/05, 28/06, 24/07, 18/09, 18/10, 29/11, 13/12

SEMINARS BY EXTERNAL EXPERTS YES NO

FURTHER INFORMATION

¹ Subject to possible changes: check the web site of the Teacher or the Department/School for updates.