



COURSE: Industrial Wastes and Sustainable Development

ACADEMIC YEAR: 2019-2020

TYPE OF EDUCATIONAL ACTIVITY: Characterizing

TEACHER: Milena Marroccoli (6 ECTS) and Antonio Telesca (3 ECTS)

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mobile (optional):

Language: Italian

ECTS: 9

n. of hours: 81

Campus: Potenza
School of Engineering
Engineering for the Environment
and Territory

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

Knowledge of:

- environmental legislation on industrial wastes management;
- industrial processes mainly characterized by the generation of high quantities of wastes and/or consumption of relevant quantities of energy.

Skills: the student will be able to determine the best methods for the management and/or the recover of industrial wastes.

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**

Exhaust gas treatment systems. Dust removal systems.

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.

TEACHING METHODS

Theoretical lessons. Laboratories visit. Technical visits.

EVALUATION METHODS

Written examination lasting 2 hours.

TEXTBOOKS AND ON-LINE EDUCATIONAL MATERIAL

Lesson notes.

Educational material provided by the teachers on Dropbox.



Università degli Studi della Basilicata
Scuola di Ingegneria

INTERACTION WITH STUDENTS

Wednesday from 3 to 5 pm.

Further appointments can be arranged by e-mail.

EXAMINATION SESSIONS (FORECAST)

2020 year:

4/2; 20/3; 8/5; 12/6; 2/7; 17/9; 6/11; 11/12

SEMINARS BY EXTERNAL EXPERTS YES NO

FURTHER INFORMATION
