Università degli Studi della Basilicata
Scuola di Ingegneria

COURSE: Industrial Wastes and Sustainable Development				
TEACHER: Milena Marroccoli				
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Language: Italian				
ECTS: 9	n. of hours: 81	Academic year: 2015-2016	Campus: Potenza	Semester: I

TOPICS

Italian laws on special wastes. Special wastes derived from civil and industrial activities. Dangerous and non-dangerous wastes. Simplified procedures of using wastes as sources of raw materials and energy. Main features of the manufacturing cycles of chemical, metallurgical, mining and power generation industries. Utilization of industrial wastes and by-products in civil engineering works and building materials industry.

TEACHING METHODS (please tick one or more options)

x Theoretical lessons
□ Tutorials in classroom
□ Tutorials in laboratory
□ Project works
□ Technical visits
Other activities (please specify) _____

TEXTBOOKS

Lesson notes.
Educational material provided by the teacher.

ON-LINE EDUCATIONAL MATERIAL

web address:

LEARNING OUTCOMES

Understanding of the role played by the utilization of industrial wastes in the environmental safeguard for a sustainable development of the modern society.

REQUIREMENTS

None

EVALUATION METHODS (please tick one or more options)

□ Intermediate verifications
x Written examination
□ Discussion of a project work
□ Practical test
□ Oral examination
Other methods (please specify) _____

DETAILED CONTENT

Italian Decree n. 152/2006 regarding special wastes and related operational decrees.
Obligations for special wastes producer and user.
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 CO_2 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).

EXAMINATION SESSIONS (FORECAST)
2016 year: 14/01, 27/02, 14/04, 23/05, 27/06, 21/07, 19/09, 17/10, 21/11, 19/12.

SEMINARS BY EXTERNAL EXPERTS

FURTHER INFORMATION