Università degli Studi della Basilicata
Scuola di Ingegneria

COURSE: HYDRAULIC STRUCTURES II				
TEACHER: Prof. GIUSEPPE OLIVETO				
e-mail: giuseppe.oliveto@unibas.it		website:		
Language: Italian/English				
ECTS: 9	n. of hours: 81	Academic year: 2015/2016	Campus: Potenza, Italy	Semester: II

TOPICS

The course is concerned with lectures and a suite of practical applications on: Hydraulic structures for water-flow storage and diversion, Water-power plants, Pumping plants, River flood controls, Water distribution piping systems, Sewer systems, Earth-channel hydraulics, and Water-Structure interactions. Other activities include seminars and technical visits to major hydraulic structures and/or plants.

TEACHING METHODS (please tick one or more options)

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

TEXTBOOKS

1) F. Arredi. Costruzioni Idrauliche, UTET, Torino; **(2)** G. Ippolito. Appunti di Costruzioni Idrauliche, Liguori Editore, Napoli; **(3)** V. Milano. Acquedotti, Hoepli Editore, Milano; **(4)** AA.VV. Sistemi di Fognatura – Manuale di Progettazione, Hoepli Editore, Milano; **(5)** U. Moisello. Idrologia Tecnica, La Goliardica Pavese, Pavia; **(6)** G. Evangelisti. Impianti Idroelettrici (Volumi I e II), Pàtron Editore, Bologna; **(7)** V.T. Chow, Open-Channel Hydraulics, McGraw-Hill, Singapore; **(8)** P. Novak et al., Hydraulic Structures, Taylor & Francis, Abingdon, UK; **(9)** W.H. Hager, Wastewater Hydraulics, Springer-Verlag, Berlin, Germany; **(10)** W.H. Graf, Fluvial Hydraulics: Flow and Transport Processes in Channels of Simple Geometry, John Willey and Sons, England.

ON-LINE EDUCATIONAL MATERIAL

web address:

LEARNING OUTCOMES

The overall objective of this course is to familiarize students with criteria, methods, and models for design of hydraulic structures and plants.

REQUIREMENTS

Course prerequisites include: Fluid Mechanics and Hydraulic Structures I.

EVALUATION METHODS (please tick one or more options)

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

DETAILED CONTENT

Review of hydrologic engineering methods for water resources management and flood control. **Hydraulic structures for water-flow storage and diversion:** basic hydrologic and hydraulic concepts and methods on dams and water diversions. **Water power plants:** planning and design criteria, hydraulic calculations, waterhammer analysis and control. **Pumping plants:** planning and design criteria, types of water pumps, waterhammer analysis and control. **River flood controls:** hydrologic and hydraulic fundamentals on flood lamination structures and strategies. **Water distribution piping systems:** types of water piping systems, planning and design criteria, design features, hydraulic modeling and management, valves and devices. **Sewer systems:** types of sewer systems, planning and design criteria for combined, sanitary, and storm sewers, design features, hydrologic and hydraulic modelling and management,

overflow devices. **Earth-channel hydraulics:** sediment transport models, hydrologic and hydraulic modeling and management. **Water-structure Interaction:** bridge hydraulics, local and contraction scour at bridges.

EXAMINATION SESSIONS (FORECAST)
20.1.2016; 18.2.2016; 18.3.2016; 20.4.2016; 20.5.2016; 21.6.2016; 26.7.2016; 20.9.2016; 20.10.2016; 18.11.2016; 20.12.2016.

SEMINARS BY EXTERNAL EXPERTS YES ✓ NO □

FURTHER INFORMATION