Università degli Studi della Basilicata
Scuola di Ingegneria

COURSE: Hydraulic-Hydrological Risk			
ACADEMIC YEAR: 2019/2020			
TYPE OF EDUCATIONAL ACTIVITY: Affine			
TEACHER: Prof. Vito Telesca			
	website: http://ingegneria.unibas.it/site/home/didattica/insegnamenti.html		
phone: +39 (0)971 205149	mobile (optional):		
Language: Italian and English			
ECTS: (lessons e tutorials/practice) 6	n. of hours: (lessons e tutorials/practice) 54	Campus: Potenza Dept./School: School of Engineering Program: Master's Degree in Environmental and Territorial Engineering	Semester: II

EDUCATIONAL GOALS AND EXPECTED LEARNING OUTCOMES

The overall objective of this course is that students are able to familiarize with criteria and methods to evaluate the hydraulic and hydrological risk applying numerical modelling and analytical methods. The main knowledge areas cover theoretical, methodological and practical aspects of hydraulic and hydrological phenomena. At the end of the course and when the exam has been passed, the student shall be able to identify, independently, and argue, clearly and technically, the main procedures and techniques regarding to hydraulic and hydrological risk evaluation. Moreover, the student shall be able to use one and two dimensional simulation models and analytical methods to perform hydrological analysis, evaluate the flood-prone areas and quantify the damages from hydrological and hydraulic risk.

PRE-REQUIREMENTS

The course includes the following pre-requirements: knowledge of differential and integral calculus; knowledge of statistics and probability; knowledge of fluid mechanics and hydrology.

SYLLABUS

The course opens with a first part dedicated to hydrology and hydraulics with a focus on the free surface flow and to hydrological and hydraulic risks (10 hours).
The second part deals with the use of freeware software for the rainfall-runoff modelling (15 hours).
The third part deals with the use of freeware software for the hydraulic simulation of steady and unsteady flow profiles (15 hours).
Finally, applications and a project are provided (14 hours).

TEACHING METHODS

The course includes 54 hours of teaching in and classroom tutorials. At the end of the course the student will elaborate a project which will be discussed during the exam.

EVALUATION METHODS

The evaluation method consists of an oral examination based on the topics covered in the course and a discussion of the project work. The examination aims to evaluate the degree to which student learning outcomes meet the educational goals of the course with particular attention to the student's skill in flood risk evaluation by hydrological and hydraulic models. The oral examination will last approximately 1 hour. The maximum grade is 30, the lowest is 18 out of 30. Brilliant exams are graded as 30 "cum laude"

TEXTBOOKS AND ON-LINE EDUCATIONAL MATERIAL

Lecture notes provided by the teachers.
Textbooks:

- U. Maione, Le piene fluviali, La Goliardica Pavese;
- V. Ferro, La sistemazione dei bacini idrografici; McGraw-Hill;
- A. Murachelli, V. Riboni, Rischio idraulico e difesa del territorio, Dario Flaccovio Editore;
- V.T. Chow, Open Channel Hydraulics, McGraw-Hill, Singapore;
- L. Giosa e A. Sole, La modellazione monodimensionale nello studio delle aree inondabili. Linee guida all'uso del

modello HEC-RAS, Errecci Edizioni

INTERACTION WITH STUDENTS

After describing educational goals, syllabus, teaching and evaluation methods, textbooks and on-line educational materials will be made available to the students at the beginning of the course. A student class list containing: student ID, name, surname, and e-mail address will be set concurrently. Professor's office hours are as follows: Tuesday from 10:00 AM to 12:00 AM. and Thursday from 10:00 AM to 12:00 AM at Macchia Romana Campus – School of Engineering (on the 5th Floor – professor's room). However, students can contact the professor at the end of each lesson.

EXAMINATION SESSIONS (FORECAST)[1]

25/06/2020, 16/07/2020, 17/09/2020, 15/10/2020, 12/11/2020, 17/12/2020, 14/01/2021, 18/02/2021, 18/03/2021

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.