UNIVERSITÀ DEGLI STUDI DI TORINO

ID

VP41_DIP_SCITER

Visiting Professor Program
Academic year 2020/2021

DEPARTMENT OF EARTH SCIENCES

TEACHING COMMITMENT: 20 hours

COURSE TITLE
Structural and Applied Geology

TEACHING PERIOD
2nd term

SCIENTIFIC AREA
Earth Sciences

LANGUAGE USED TO TEACH
English

COURSE SUMMARY
Processes that lead to development of fabric in rocks.

Methods for fabric quantification (a) shape preferred orientation, i.e., SPO analysis using microstructures (b) fractal tools to quantify rock anisotropy (b) magnetic methods.

Principles of anisotropy of magnetic susceptibility (AMS) and its relation to strain (including application to understand shear band development in landslides).

Kinematic analysis of deformed rocks using integration of AMS data with crystallographic preferred orientation (CPO) data from SEM-EBSD studies – natural examples from different geological terrains viz. fold and thrust belts of India (including Himalaya), Alps, Southern Calabria and Cameroon.

Fabric anisotropy, emplacement of veins/dykes and mineralization as well as volcano eruption forecasting (study of vein/dyke orientations for paleostress determination by plotting 3D Mohr circle).

LEARNING OBJECTIVES

Advanced knowledge of fabric quantification, kinematic and dynamic (paleostress) analysis using a variety of modern methods/tools that can be applied at different scales of observation. The knowledge will provide a foundation for working on various geological problems that deal with processes such as folding, fracturing, slope instability, mineralization, volcanic eruption.

TUTORSHIP ACTIVITIES (IF APPLICABLE)

LAB ACTIVITIES (IF APPLICABLE)

OTHER ACTIVITIES BESIDES THE COURSE

Seminars for PhD students in EaRth Sciences

ADDITIONAL COURSE

COURSE TITLE

Microtectonics with Laboratory

TEACHING PERIOD

2nd term

SCIENTIFIC AREA

Earth Sciences

LANGUAGE USED TO TEACH

English

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TUTORSHIP ACTIVITIES (IF APPLICABLE)

LAB ACTIVITIES (IF APPLICABLE)

OTHER ACTIVITIES BESIDES THE COURSE

VISITING PROFESSOR PROFILE

Expert in structural geology with knowledge of fabric quantification and kinematic analysis using various tools viz. magnetic methods, fractals techniques and crystallographic preferred orientation (CPO) determination using EBSD and their application to tectonic phenomena in orogens such as Alps, Himalaya amongst others. Expertise to relate fabric anisotropy quantification to applied aspects of vein/dyke emplacement, its use to determine paleostress and implications to understand volcano eruption forecasting and mineralization.

CONTACT PERSON AT THE DEPARTMENT

Prof. Rodolfo Carosi

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