

SLOPE STABILITY AND LANDSLIDE REMEDIATION

master/III/Module 3/Geotechnics

- I. Introduction. Landslide definition. Components of landslide. Geological conditions. Landslide classification. Rock slopes. Rockfalls. Instability of colluvial slopes.
- II. Landslide causes. Landslide investigation works. Geological and geotechnical data. Investigation of residual strength of soil. Geophysical investigations. Piezometers. Inclinometers.
- III. Slope stability calculations. Limit equilibrium methods. Factor of safety. Fellenius method. The simplified Bishop method. Janbu I and Janbu II methods.
- IV. Slope stability calculations. Limit equilibrium methods. Morgenstern-Price method. Spencer's methods. Maksimovic's method.
- V. Slope stability calculations. Numerical methods. Finite element method and shear strength reduction. Slope stability software (Phase2, Slide)
- VI. Seismic slope stability.
- VII. Landslide dynamics.
- VIII. Slope Stabilization Methods. Geometrical techniques and drainage systems.
- IX. Slope Stabilization Methods. Structures for stabilization of slopes (retaining walls, piles and buttresses.). Calculations. Software packages (Tower, LPile, GEO5)
- X. Slope Stabilization Methods. Soil reinforcement.
- XI. Rock slopes. Rockfall causes. Talus (Scree).
- XII. Rockfall remediation. Rockfall prevention and protection systems. Protective berms and barriers (gabions, concrete barriers, MSE barriers, rockfall net fences, rocks sheds). Anchors and retaining walls.
- XIII. Landslide and rockfall hazard in Montenegro.
- XIV. Case studies.

Literature:

Eddie Bromhead, *Stability of Slopes and Landslide Engineering*, 2nd edition, CRC Press, 2018.
Hoek E. & Bray J.W, *Rock Slope Engineering*, E & FN SPON, London
E. Nonveiller, *Kliženje i stabilizacija kosina*, Školska knjiga, Zagreb, 1987;
M. Maksimović, *Mehanika tla*, Gros knjiga, Beograd, 1995;, 1999. N. Gojković i drugi, *Stabilnost kosina površinskih kopova*, Gorapres, Beograd, 2004