

FedIGS

JTC3 on Education and Training

Report by the JTC3 Chair

December, 2020

Joint Technical Committee on Education and Training, JTC3 – *Goal*

The goal of JTC3 is to contribute to broad cooperation between international geo-engineering societies and their members in teaching, training, and outreach facilities. JTC3 addresses to education (institution educators, graduate and undergraduate students) and industry.

Joint Technical Committee on Education and Training, JTC3 – *Terms of reference (proposed)*

1. To promote the exchange of information on the courses and their content that are taught on geotechnical engineering, engineering geology, rocks mechanics, and/or geosynthetics in different institutions
2. To closely interact with the related technical committees of ISSMGE, ISRM, IAEG, and IGS
3. To develop a list of recommended virtual/digital materials to be used for education and professional trainings, considering the current COVID-19 situation

Joint Technical Committee on Education and Training, JTC3 – *Activities in previous terms & backgrounds*

- In the previous terms, JTC3 conducted the following activities.
 - Contributions of papers to conferences by JTC3 leadership members
 - Website, Books list, Journals list, Videos list
 - Interaction and support of member societies
 - Paper on “Modern syllabus for introduction to geoengineering” (see next page)
- In-person meetings/events at the international conferences are restricted.
- Numerous digital/virtual educational materials have been provided by the geo-engineering societies.

Modern syllabus for introduction to geoengineering (developed in the previous term)

Joint Technical Committee on Education, JTC3

Chair: Anna SHIDLOVSKAYA

Paper on “Modern syllabus for introduction to geoengineering “

1. History of geotechnical engineering
2. Engineering geology and rocks
3. Elements of geophysics
4. Sampling and in situ testing
5. Soil particles and mineralogy
6. Weight volume relationships
7. Compaction
8. Classification and tests
9. Stresses and strains in soils
10. Soil constitutive models
11. Flow of fluids through soils (parameters and laws)
12. Flow of fluids through soils (lab and field tests)
13. Flow of fluids through soils (Flow nets and applications)
14. Compressibility of soils (elasticity and the modulus of soils)
15. Compressibility of soils (consolidation tests and settlement magnitude)
16. Compressibility of soils (time rate of consolidation)
17. Shear strength of soils (effective stress case)
18. Shear strength of soils (undrained case)
19. Shear strength of soils (tests and typical values)
20. Shallow foundations
21. Deep foundations
22. Slopes
23. Retaining walls
24. Innovations (reinforced earth, soil improvement)
25. Innovations (geo-environmental, geosynthetics)
26. Innovations (earthquakes, floods)
27. Probability and risk in geotechnical engineering

Joint Technical Committee on Education and Training, JTC3 – *Direction*

- Utilize “Modern syllabus for introduction to geoengineering” prepared in the previous term
- Utilize digital/virtual educational materials developed by the geo-engineering societies and/or other institutions.
- Create “**Geo-engineering introduction catalogue,**” in which 1 to 3 excellent digital material(s) available at the web are selected and listed for each subject of “modern syllabus” by the JTC3 members. Open this catalogue at the FedIGS web-page to be available for public

Joint Technical Committee on Education and Training, JTC3 – *Geo-engineering introduction catalogue*

Example of the list

Subject	Materials
1. History of geotechnical engineering	<ul style="list-style-type: none">• Lecture video by Prof. A. Bcde* (Nominated by ISSMGE)• Youtube by Prof. F. Ghij*[§] (Nominated by ISRM)
2. Engineering geology and rocks	<ul style="list-style-type: none">• Lecture video by Prof. K. Lmno[#] (Nominated by IAEG)• Leaflet by Prof. P. Qrst⁺ (Nominated by IGS)
3. Elements of geophysics	• • •

Note (example)

*: For the beginner

⁺: For the professional who is the member of a sister society but not familiar with this subject

[§]: For the non-professionals, such as policy makers and general citizens

[#]: Advanced

Joint Technical Committee on Education and Training, JTC3 – *Geo-engineering introduction catalogue*

Procedure and rule to create this catalogue will be discussed in the committee, but considerable examples are as follows:

- Not too many materials for one subject. Basically 1 to 3 materials.
- Update is necessary. Regularly (e.g., once per 6 months) or upon request?
- Note that the selection does not necessarily mean that the selected material is the best. There might be other better materials. The list provides the guidance of self-learning.

Joint Technical Committee on Education and Training, JTC3 – *Membership*

- 2 – 3 members from each FedIGS member society
- The following members (previous term) will be contacted, but nomination of new members by the sister society will be welcomed.

JTC3 members in previous term

Chair	Anna Shidlovskaya (Russia)		
Vice Chair	Scott Burns	IAEG	USA
Secretary	Anna Timchenko	IAEG	Russia
Member	Waldemar Hachich	ISSMGE	Brazil
Member	Michele Calvello	ISSMGE	Italy
Member	Chungsik Yoo	IGS	Korea
Member	Martin Ziegler	IGS	Germany
Member	K. Rajagopal	IGS	India
Member	Seokwon Jeon	ISRM	Korea
Member	Shuca Li	ISRM	China
Member	Tatiana Rotonda	ISRM	Italy