Transforming Education:

Time to reflect, revise and reimagine

Teaching and Learning Conference

Tuesday 2nd July

LSBU | GROUP

Geotechnical Engineering Module (Level 6, Final Year)

- BEng (Hons) **Civil Engineering** course and a BEng (Hons) **Civil Engineering Apprenticeship** course

- First semester,12 weeks, 48 hours, 20 credits, 4 hours classes for Civil Engineering courses

- Coursework (50%) report submitted via Moodle ("**engagement**")

- Exam (50%) written on campus ("**ensure learning outcomes are fulfilled**")

- Numer of students in the module:

$$2019/20 => \textbf{46}$$
$$2020/21 => \textbf{67}$$
$$2021/22 => \textbf{63}$$
$$2022/23 => \textbf{106}$$
$$2023/24 => \textbf{144}$$

Module leader aim

Provide the **opportunity to learn GE** ensuring **continuation**, **completion**, and **progression** to support the course associated with the module.

Module leader main objectives

- Provide the **material** to learn and face the assessments (**self-contained**)

- Organise **Moodle** in an effective way (Teams can be used as a backup)

- Set effective assessments (**completion**, and **progression**)

- Monitor students' feedback to adjust the strategy

Challenges

- **Low attendance (50-55%) and engagement (I can implement a strategy)**

- **Lack of willingness to learn (I can implement a strategy)**

- **Big number of students (I can implement a strategy)**

- Accreditations (JBM, Ofsted, etc. I can contribute to this as a module leader)

- Latecomers and early leavers (there is nothing I can do to change culture)

- IT and administrative limitations (there is nothing I can do)

- Infrastructure limitations (there is nothing I can do)

- Disruption (I can try to control but I cannot solve it)

- Behaviour (I can try to control but I cannot solve it)

- Spoon-feeding culture (I cannot solve it)

Why attendance and engagement are low?

Students have all sorts of issues

Not all the students want to learn

Some students find learning very difficult

Some students want to learn and do it effectively

Teaching needs to be set for a diverse group of students

My strategy is

Non-attendance proof hybrid/blended approach

- Every class (topic) has detailed notes
- Every topic is prerecorded or has a video that covers the content
- Every activity in the classroom can be done at home when attendance is not possible

(**students do not need to know this**)

If the student attends all the classes, the approach will be **blended** with online material for support.

If the student attends part of the classes, the approach will be a **hybrid** with **self-learning** for part of the contents.

In any case, all the students have **support** by asking questions **in person, via Teams** or **emails**.

Moodle organisation

1. **Module Administration -** This section contains the information you need to understand how this module is taught and assessed. (e.g., module orientation, guide, and team contact details)

2. **Learning and Teaching Activities and Resources** - This section includes lecture notes, presentation slides, reference materials, and a library

3. **Assessment and Feedback -** This section provides all the information required to complete your module assessment(s). You must submit your assignments electronically via the submission points in this section. You will also be able to access your feedback via the submissions

4. **Learner Support -** This section should help you complete the module and includes some useful links and a discussion forum where you can post questions or start discussions.

Module Leader and teaching staff
Dr Hector U. Levatti, levattih@lsbu.ac.uk 0207 815 7679, Room T-611

2. Learning and teaching activities and resources

This section includes presentation slides, presentation links, information from the client, reference materials and library.

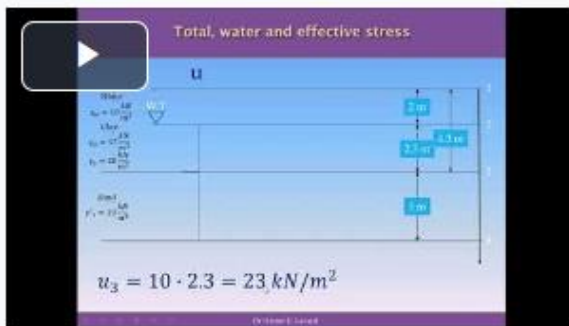|	
📁 Week 01 - Organisation, Coursework and Ansys Workbench tutorials	📁 Week 07 - Slope Stability theory and problems
📁 Week 02 - Sustainability in GE & Ansys Workbench	📁 Week 08 - Retaining Walls theory and problems
📁 Week 03 - Continuum Mechanics & Elasticity	📁 Week 09 - Foundations theory and problems
📁 Week 04 - Coursework in class	📁 Week 10 - Revision
📁 Week 05 - Mohr-Coulomb Failure Theory	📁 Week 11 - Revision
📁 Week 06 - Coursework in class	📁 Week 12 - Revision
	📄 Formulae 🔘 A⬇ 222.2 KB

Week 08 - Retaining Walls theory and problems

Week 08 - Retaining Walls theory and problems

Effective Stress in Soils

Total, water and effective stress

$u_3 = 10 \cdot 2.3 = 23 \, kN/m^2$

Unpropped Wall Theory

Rotational failure mechanism

Edit

- Week 07 Part 5 of 5 - Tables and Formulae.docx
- Week 08 Coeffients of active and passive pressure.xlsx
- Week 08 Part 1 of 5 - Effective Stress in Soils.pdf
- Week 08 Part 2 of 5 - Unpropped wall Theory.pdf
- Week 08 Part 3 of 5 - Unpropped wall Problem.pdf
- Week 08 Part 4 of 5 - Propped wall Theory.pdf
- Week 08 Part 5 of 5 - Propped wall Problem.pdf
- Week 08 Unpropped wall problem 1.xlsx

Coursework (50%)

Sustainability and geotechnical analysis of the Tower of Pisa using Ansys Workbench

- Two mandatory sessions of 4 hours (weeks 4 and 6) were dedicated to work on the coursework in class and included a draft submission at the end.

- **20% of the coursework mark was assigned depending on the engagement**.

- These sessions were designed to improve engagement and attendance.

- The coursework helps to prepare for the exam

Exam (50%)

The exam covered all the topics studied during the semester

- The exam had four questions with a weight of 25% each and have usually three parts each

- All the topics of the module are covered in the exam (problems or theoretical questions)

- Two questions are easy (usually numerical resolution of relatively simple problems)

- Two questions are more difficult (they require theoretical understanding)

- **In this way, all the range of the marks are used when assessing**

Students feedback

Mid-semester survey comments

"The 4-hour lecture in my opinion is a little extensive. Similarly, as for Hydraulics in year 2, it is a lot of information for the beginning of the day. If the lecture was split into two, 2-hour lectures from 11-1 pm, and then 2-4 pm it would be more manageable". (FT student?)

"The teaching style is a bit confusing - especially as it is unclear what we should be learning about/what tutorials we should be practicing". (a bit of confusion is good)

*"Geotechnical Engineering was the hardest class to focus on. There was often talking, and I found the **lectures slow**. The coursework was not very exciting and **lecture notes were difficult to interpret at times**. Moreover, the videos on Moodle were extremely helpful during the exam period and the module is certainly designed for us to pass and do well".*

# Students feedback

Apprentices representative feedback

"The coursework is like a mini dissertation; many are rather stressed about the work. Maybe consider next year not so much research-heavy coursework". (The idea is to help with the final year research dissertation)

"The draft submissions were helpful to get into good shape". (Yes!)

"Marking on engagement is not clear (20 marks), whether it is based on lecture engagement every week or based on the draft submission (if this is anonymous then they feel like they are being monitored)". (I know ☺)

Module marks 2023-24

Pass mark 40. 139 of 144 students passed the module
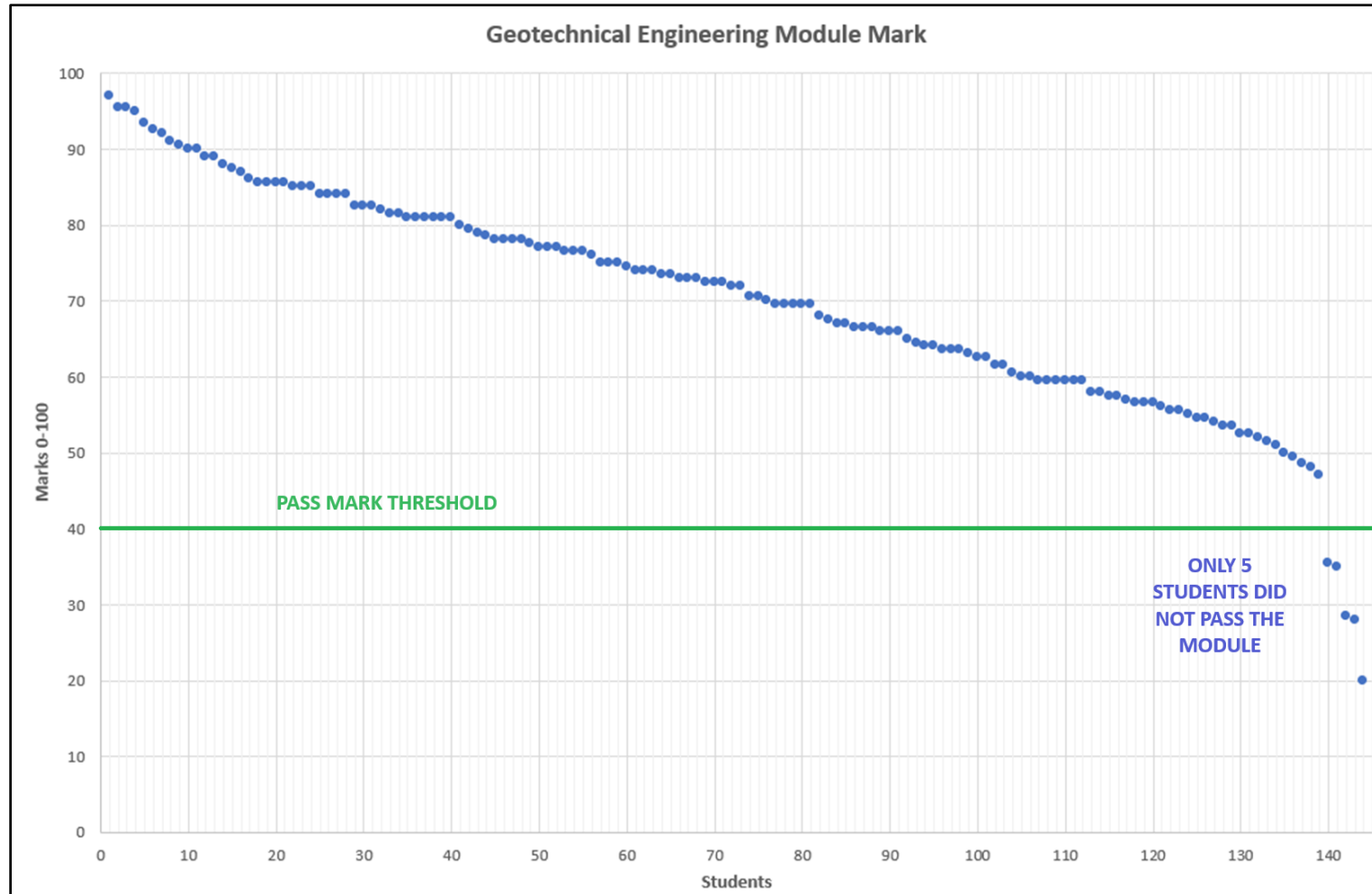
Module marks

Performance, and module progression in the module that contributes to the **continuation**, **completion** and **progression to work**.

Geotechnical Engineering	# students	Average module mark %	Module Progression %
2019/20	46	66%	98%
2020/21	67	59%	97%
2021/22	63	55%	97%
2022/23	106	62%	94%
2023/24	144	70%	97%