IDP- BALCO ENTERPRISE COLLABORATION PROGRAM

(MAC2021 – JULY2021)

INFRASTRUCTURE DESIGN PROJECT(IDP) CEC594

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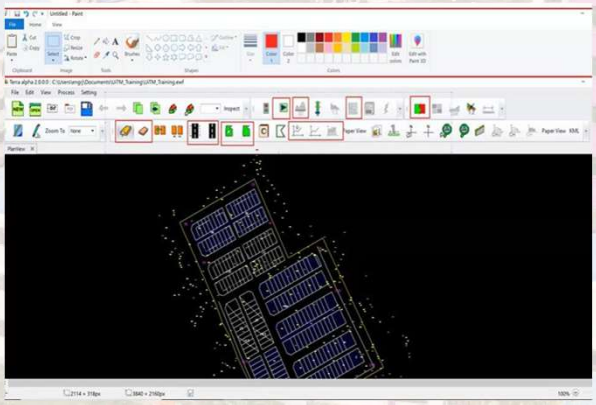
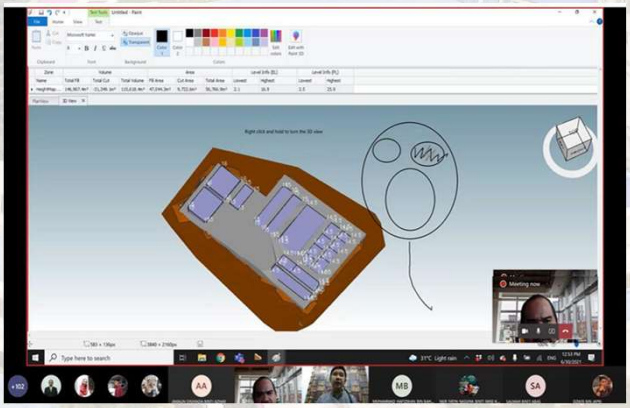
Infrastructure Design Project (IDP) (CEC594) course is designed to describe the synthesis of structural and infrastructure engineering fundamentals into an integrated and systematic analysis and design processes that would enable students to tackle complex engineering problems associated to a real-world construction project effectively and comprehensively. Emphasis is however given to infrastructural aspect of the engineering problem and solution such as earthworks, road and drainage, water supply network, and sanitary and sewerage network. This subject also involves many elements of program outcomes that need to be achieved by students, namely Engineering knowledge (PO1), Design/Development of solutions, Modern tool usage (PO5), The engineer & society (PO6), Individual & Team work (PO9) and Project Management & finance (PO11). The initiative will be driven by the need to add new knowledge to students in their final year who will graduate. Balco Enterprise proposes the use of CivilStar software for free to students who take the IDP subject. The CivilStar software offering contains several modules, namely TerraAlpha (earthwork design), TerraDrain (drainage design), TerraSewer (sewerage design) and TerraWater (water supply design). Students are encouraged to register and use this software for IDP projects. Each module is provided by Balco Enterprise and accessible through online. One-hour session in each week, Balco Enterprise representative, Mr Jack Lin, explains how to use each module provided. The following week, a QA session will be conducted to identify and solve any problems arising from the used of software given. All these meetings are done online and recordings are made so that students can repeat the learning and also for students who do not have time to attend the meeting sessions that have been set. With the CivilStar software modules given to the students, it is hoped that students can enhance their knowledge of using latest modern tools and make comparisons with manual calculations.

Talk 1: Terra Alpha (Earthwork Design)

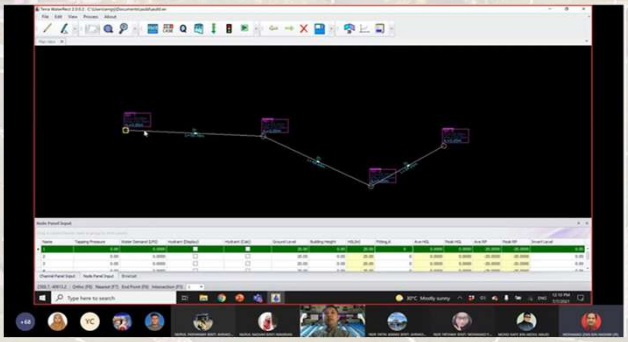


View of Terra Alpha module (Earthwork design)



3D view of Terra Alpha (Earthwork design)

Talk 2: Terra Water (Water Supply Design



View of Terra Water-Rect module (Water Recticulation design)

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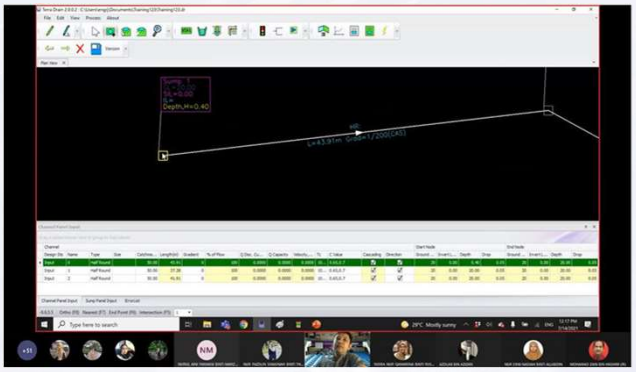
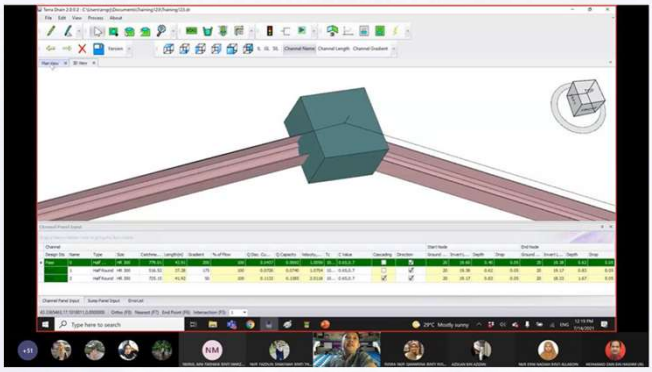
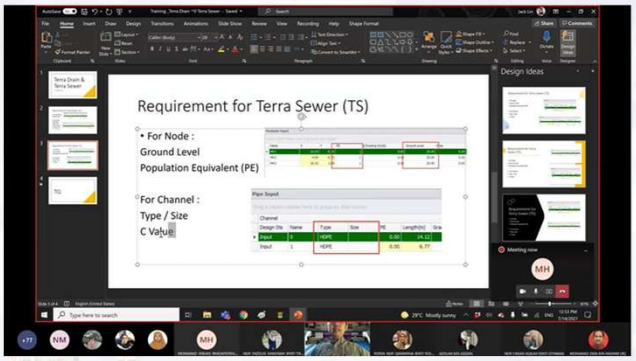
Talk 3: Terra Sewer (Sewerage Network Design) & Terra Drain (Drainage Network Design)



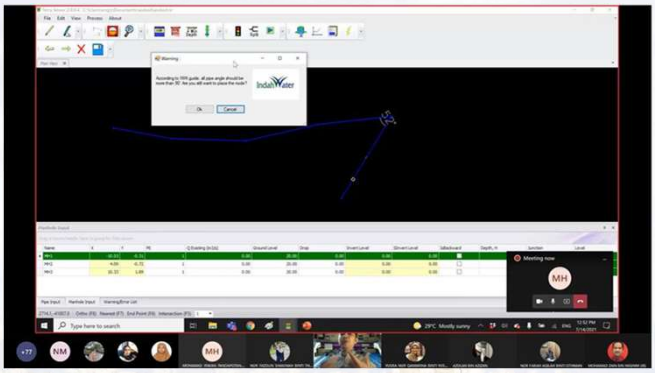
View from Terra Drain module (Drainage network design)



3D view from Terra drain module

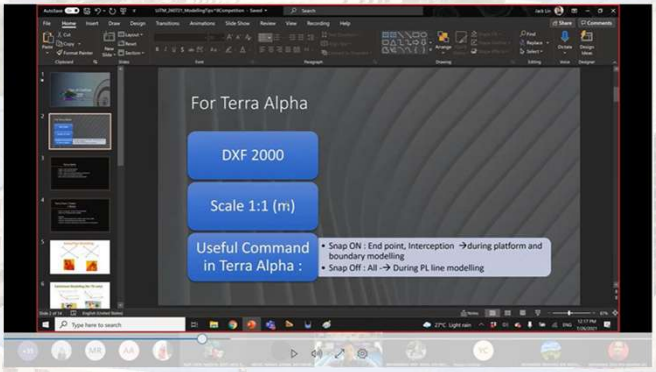


Input data on Terra Sewer module

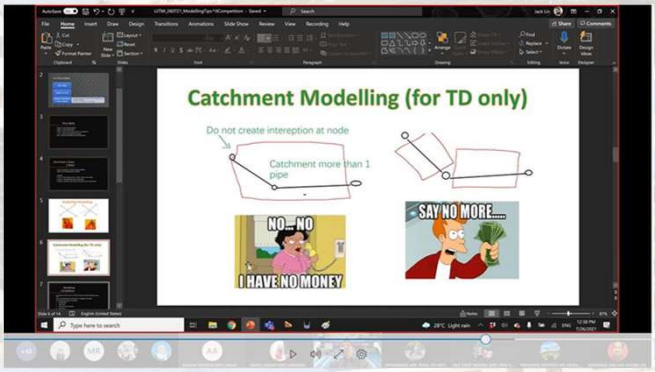


View from Terra Sewer module for sewerage network design

Talk 4: Discussion



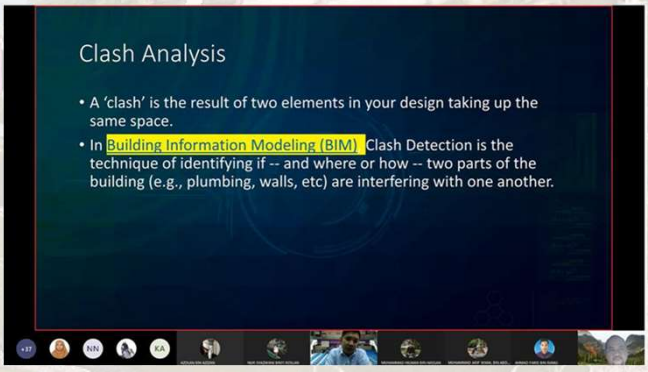
Discussion session was held after students had tried all module given for used.



Discussion on Terra Drain module

Talk 5: Terra CC

Introduction to latest development from Civilstar software



Clash Analysis Using Terra CC

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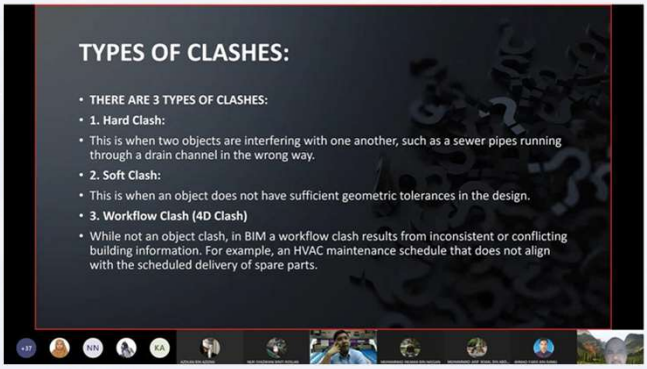
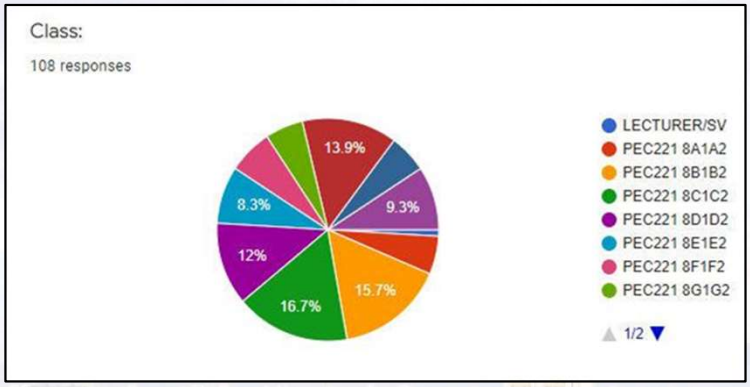


Discussion on type of clashes analyze using Terra CC module

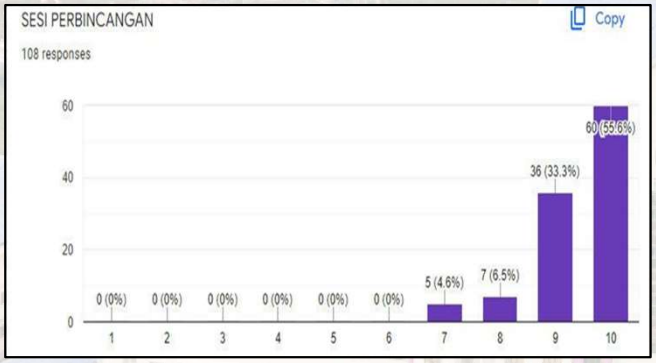
Discussion on sewer network design requirements

STUDENTS' RESPONSES

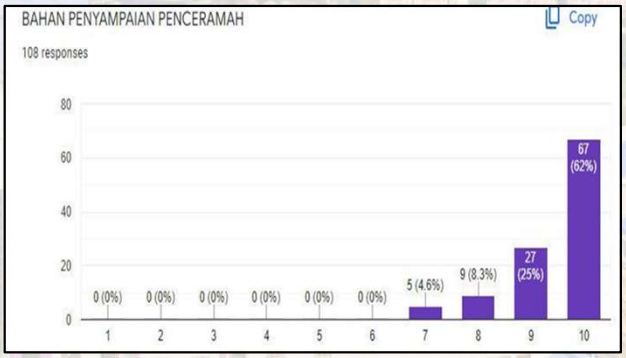
Enclosed is one of the feedback from the talk session that has been made. The rankings used were 1 = very unsatisfactory to 10 = very satisfactory.



Student Attendance



Responses from discussion session



Lecture's materials for student knowledge

CONCLUSION

With a program like this, it is hoped that final year students who take the IDP subject will be able to get very useful exposure to the use of the latest software available in the market. It is also hoped that these students have the ability to perform accurate analysis and produce a design for the actual project. In addition, the ability to present design work and convince an industry panel of its effectiveness are evaluated through a presentation and viva session at the end of the semester.

ACKNOWLEDGMENT

This project is a collaborative effort of many people. My appreciation and thanks to Balco Enterprise (Mr Jack Lin, En Yunus), KPP PPKA Dr Anas, IDP team and IDP students.