

SURAT KETERANGAN
MELAKUKAN KEGIATAN PENGABDIAN KEPADA MASYARAKAT
INSTITUT TEKNOLOGI NASIONAL
No. 259/C.02.01/LPPM/IV/2021

Yang bertanda tangan di bawah ini,

Nama : Iwan Juwana, S.T., M.EM., Ph.D.
Jabatan : Kepala
Unit Kerja : LPPM-Itenas
JL. P.K.H. Mustafa No.23 Bandung

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3	Desti Santi Pratiwi, S.T., M.T.	20190804	Tenaga Ahli
4	Badriana Nuranita, S.T., M.T.	20200201	Tenaga Ahli
5	Rinaldi Alamsyah, S.T.	-	Tenaga Ahli

Telah melakukan kegiatan Pengabdian kepada Masyarakat sebagai berikut:

Nama Kegiatan : NGC Plaxis Training Series #1 Academic Plaxis 2D Training
Tempat : Webinar/Zoom Meeting
Waktu : 24 - 26 Maret 2021
Sumber Dana : Plaxis

Demikian surat keterangan ini dibuat untuk dapat dipergunakan sebagaimana mestinya.

Bandung, 07 April 2021

Lembaga Penelitian dan Pengabdian
kepada Masyarakat (LPPM) Itenas
Kepala,

Iwan Juwana, S.T., M.EM., Ph.D.
NPP. 20010601

LAPORAN KEGIATAN PENGABDIAN KEPADA MASYARAKAT



NGC PLAXIS TRAINING SERIES #1 ACADEMIC PLAXIS 2D TRAINING

Ketua Tim :

Dr. techn. Indra Noer Hamdhan, ST., MT.

Anggota Tim :

**Ikhya, ST., MT., M.M.
Desti Santi Pratiwi, ST., MT.
Badriana Nuranita, ST., MT.
Rinaldi Alamsyah, ST.**

**Program Studi Teknik Sipil
Fakultas Teknik Sipil dan Perencanaan
Institut Teknologi Nasional
Bandung**

2021

HALAMAN PENGESAHAN

Judul : NGC Plaxis Training Series #1: Plaxis 2D Training

Ketua Tim Pengusul

Nama : Dr. techn. Indra Noer Hamdhan

NIP : 11785

Jabatan/Golongan : Lektor / IIID

Jurusan/Fakultas : Teknik Sipil / Fakultas Teknik Sipil dan Perencanaan

Bidang Keahlian : Rekayasa Geoteknik

Alamat Kantor : Jl. PHH Mustofa No. 23 Bandung

Lokasi Kegiatan

Wilayah Mitra : Provinsi Jawa Barat

Desa/Kecamatan : -

Kota/Kabupaten : Kota Bandung

Provinsi : Jawa Barat

Jarak PT ke Mitra : -

Luaran : -

Waktu Pelaksanaan : 24 Maret – 26 Maret 2021

Total Biaya : Rp10.000.000,00

Bandung, 27 Maret 2021

Ketua Tim Pengusul



(Dr. techn. Indra Noer Hamdhan)

Mengetahui,
Dekan Fakultas



ITS

(Dr. Soni Darmawan)

Disahkan Oleh
Ketua LP2M,

Iwan Juwana, S.T., M.EM., Ph.D.
NIP: 20010601

LAPORAN KEGIATAN

Tujuan

Tujuan dari kegiatan NGC Plaxis Training Series #1 : Academic Plaxis 2D Training ini adalah untuk memberikan wawasan, pengetahuan, praktik, serta wadah diskusi kepada para peserta baik yang berasal dari akademisi maupun praktisi yang bergerak di bidang geoteknik serta membutuhkan *upgrading* keahlian dan pengetahuan dalam *modeling dams and embankment* melalui perangkat lunak PLAXIS 2D.

Deskripsi Kegiatan

Kegiatan ini dilaksanakan selama 3 hari, yakni pada 24 Maret – 26 Maret 2021 selama 5 (lima) jam setiap hari-nya, dari pukul 16.00 – 21.00 WIB. Lokasi pelaksanaan kegiatan ini dilaksanakan melalui pertemuan *online* (tatap maya) via aplikasi Zoom. Jumlah peserta yang mengikuti pelatihan ini yaitu sebanyak 50 peserta yang tercatat pada formulir pendaftaran maupun daftar hadir setiap harinya yang disampaikan melalui Google form. Adapun peserta yang mengikuti pelatihan ini berasal dari berbagai institusi akademis, seperti Institut Teknologi Nasional Bandung, Politeknik Negeri Bandung, Institut Teknologi Sumatera, Universitas Lampung, Politeknik PU Semarang, dan Universitas Negeri Gorontalo (daftar peserta terlampir).

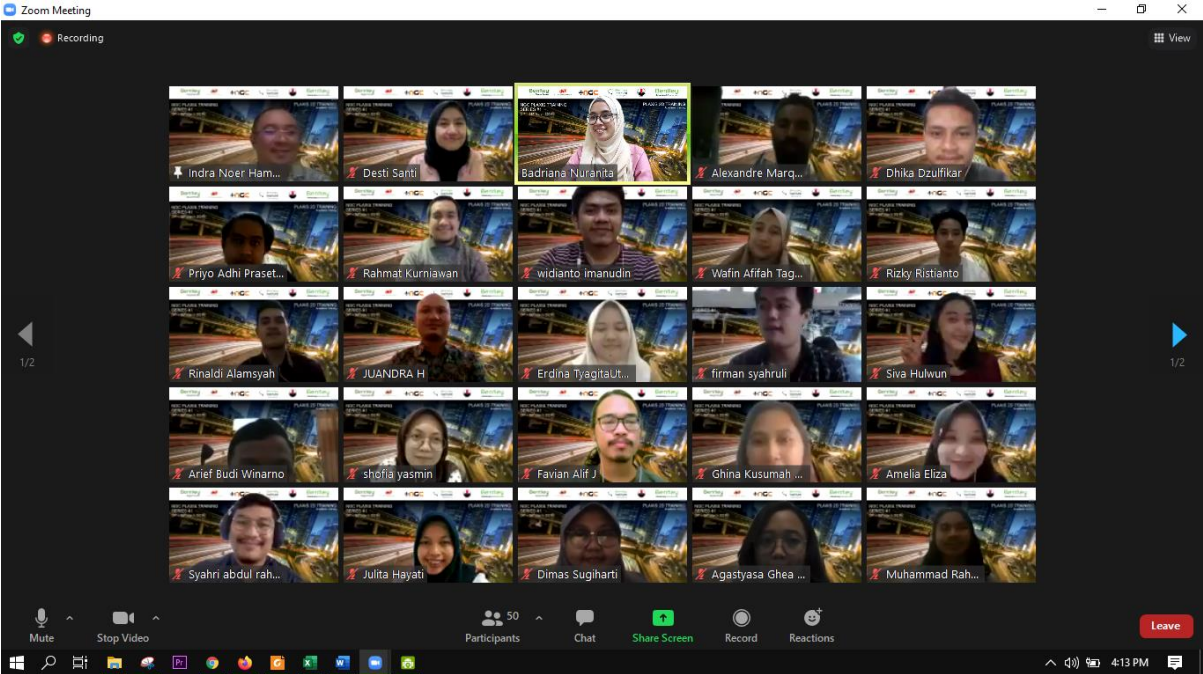
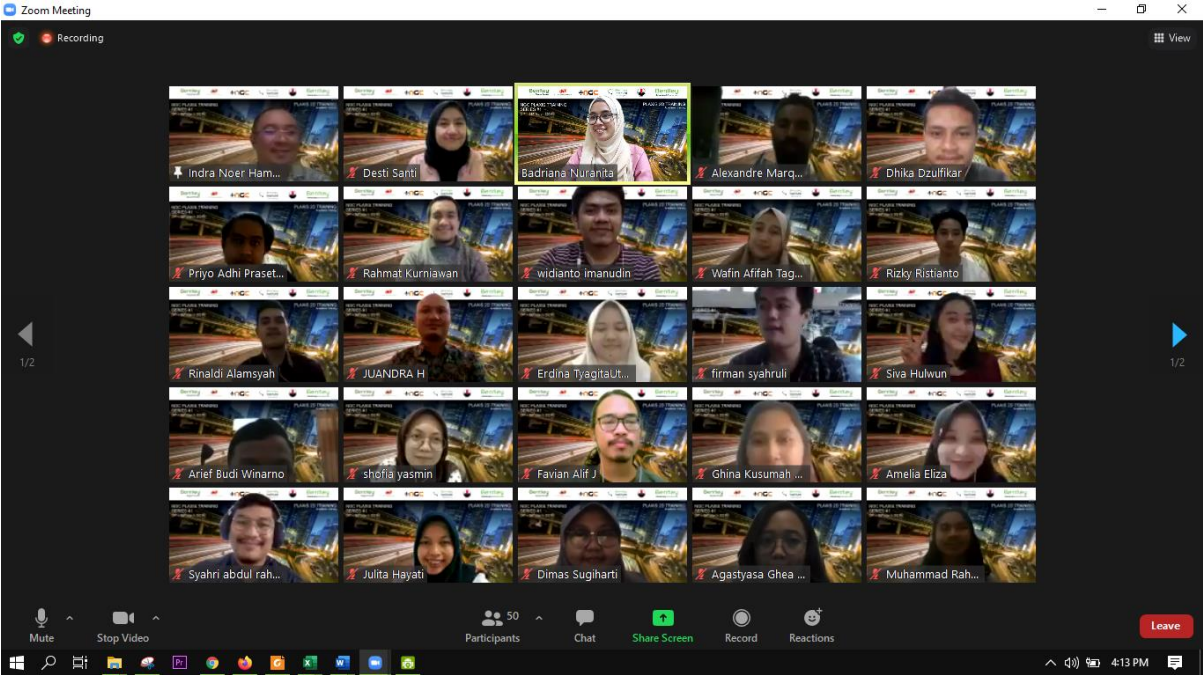
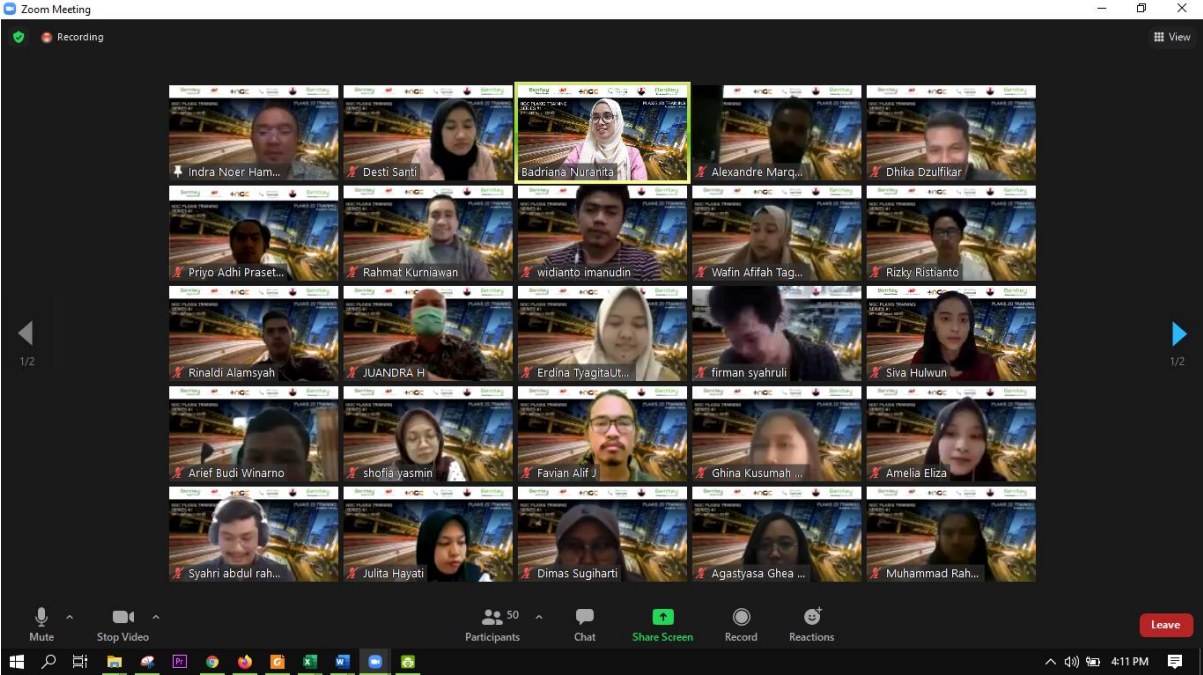
Materi-materi yang disampaikan pada kegiatan pelatihan ini adalah sebagai berikut (jadwal pelaksanaan terlampir):

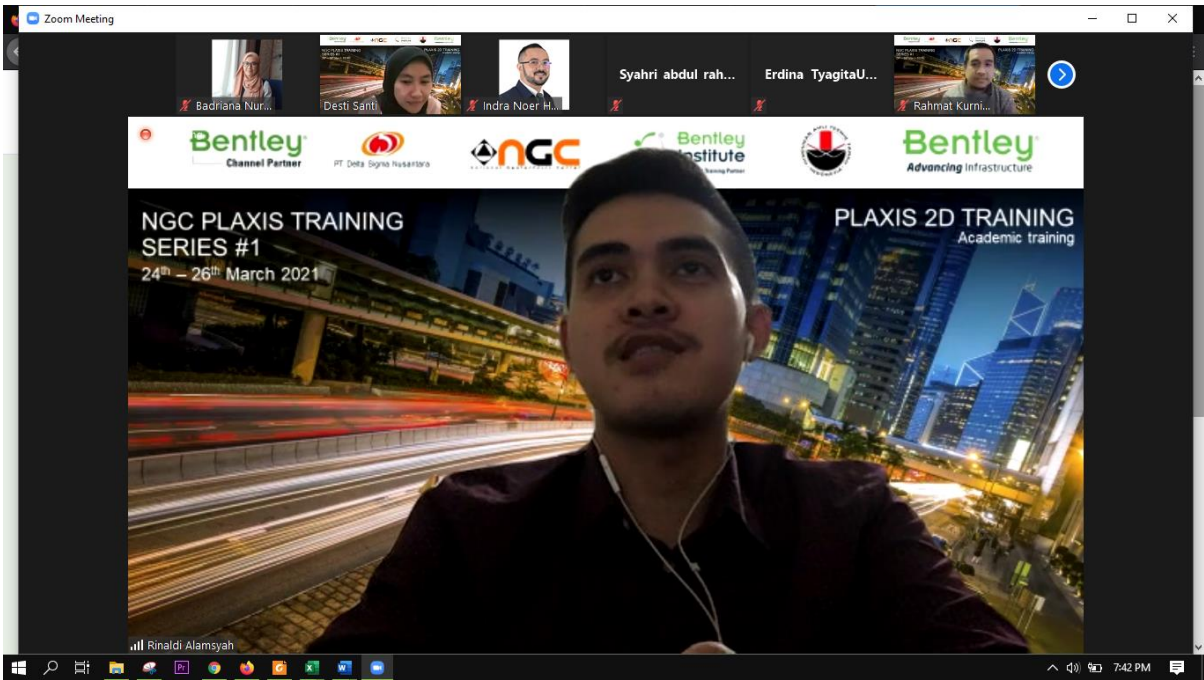
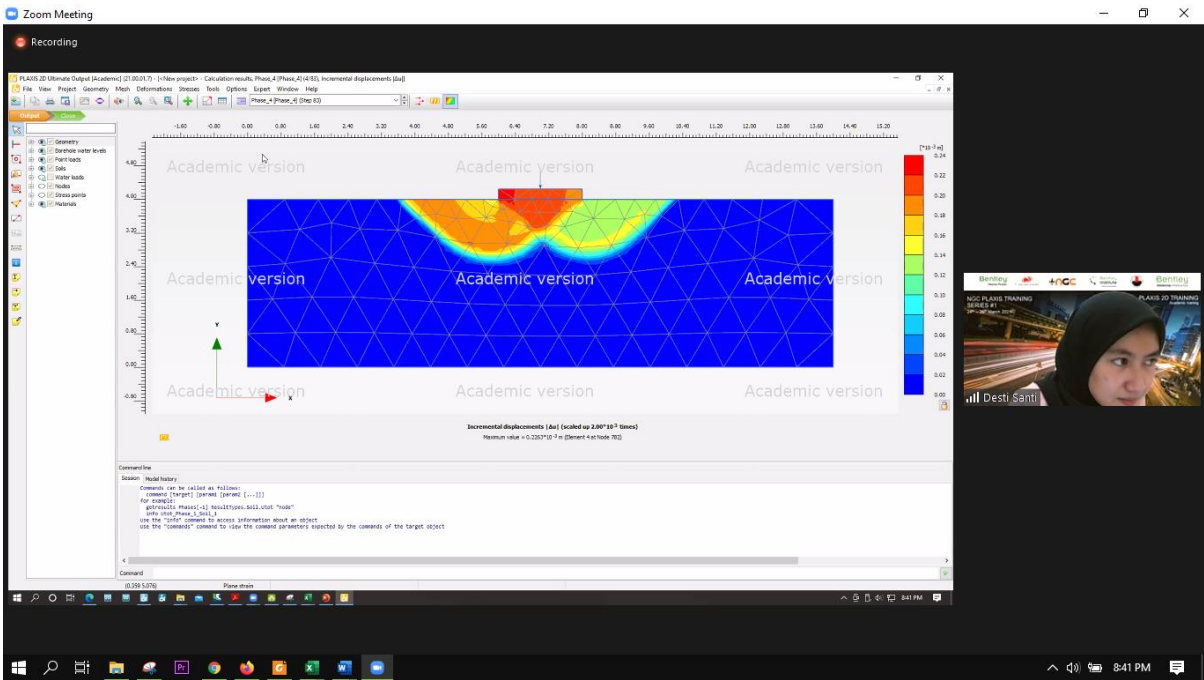
1. Hari ke-1 Plaxis 2D Training:
 - Introduction to Finite Element Modeling
 - Introduction Plasticity Mohr-Coulomb
 - Hardening Soil Model
 - Structural elements in Plaxis
 - Footing on elasto-plastic soil
2. Hari ke-2 Plaxis 2D Training:
 - Initial stresses
 - Modeling groundwater
 - Modeling of undrained behaviour and consolidation
 - Groundwater flow analysis in dams
 - Boston embankment using HS Model
3. Hari ke-3 Plaxis 2D Training:
 - Stability of slopes, dams and embankments
 - Safety factor in Plaxis
 - Stability of dam
 - Modeling of slope instability and influence of unsaturated soil behaviour
 - Slope instability and rainfall effects
 - Slope stability for a road construction project

Para peserta yang mengikuti pelatihan ini mendapatkan Modul Pelatihan dan sertifikat resmi dari *Bentley Institute*.

BUKTI KEGIATAN

Hari Pertama Kegiatan





Zoom Meeting

You are viewing Rinaldi Alamsyah's screen View Options

Recording

PLAXIS 2D Ultimate (Academic) (20180417)

File Edit Project Geometry Mesh Deformations Results Tools Options Export Window Help

Model Explorer

Phase explorer

Selection explorer (Phase_3)

Model Explorer (Phase_3)

Command line

PLAXIS 2D Ultimate (Academic) (20180417)

File Edit Project Geometry Mesh Deformations Results Tools Options Export Window Help

Model Explorer

Phase explorer

Selection explorer (Phase_3)

Model Explorer (Phase_3)

Command line

Figure 14: Activating and changing the point load through the Selection explorer in phase 2 (left) and phase 3 (right)

Phase 4: Vertical failure load

In this phase we will calculate the vertical failure load as if no horizontal load has been applied. This means that phase 4 must be a continuation of applying the vertical load in phase 2.

• In the Phase explorer select phase 2 so that it will show in bold letter type

• Now select the Add phase button () so that a new phase will be added that follows on

8:27 PM

Rinaldi Alamsyah

Hari Kedua Kegiatan

Zoom Meeting

Recording

Monica Marshel...

Raffly Muhamm...

Mulia Destia...

Desti Santi...

Muhammad Yus...

Groundwater Analysis and Conditions

A. Geotechnical problems are related to groundwater

B. Two extreme conditions of porewater response are normally considered, they are:

1. Drained

2. Undrained (Method A, B & C)

C. Real soil behaviour is related to time , i.e. transient, with the porewater pressure being dependent on imposed:

1. Permeability

2. Rate of loading

3. Hydraulic (Flow) boundary conditions

D. The interstitial voids of the soil skeleton can be fully or partially filled with pore fluid and therefore effective stresses are influenced by this action

E. This lecture will look into the following issues:

1. The setup of pore pressures in PLAXIS

2. Input parameters

3. Some examples of groundwater regimes

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Participants (51)

Find a participant

BN Badriana Nuranita (Me)

Rinaldi Alamsyah (Host)

IN Indra Noer Hamdhan

2Y 222017100 Yoga Aditya P

Agastyasa Ghea Amarta

Agastyasa Ghea Amarta

AT Aldi Tri Amdani

AM Aldo Mahaputra

AM Alexandre Marques

AS alya Sofha F

AE Amelia Eliza

Arief Budi Winarno

AR ARIF RAHMAN HAKIM SITEPU

AN Aulia Nur Rohmah

Invite

Unmute Me

Raise Hand

Windows Taskbar

4:09 PM

Zoom Meeting

You are viewing Indra Noer Hamdhan's screen

View Options

Recording

Groundwater Analysis and Conditions

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Unmute

Start Video

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Chat

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Reactions

Leave

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4:07 PM

Zoom Meeting

Recording

Undrained Soil Behaviour and Consolidation

▪ Drained analysis appropriate when

- permeability is high
- rate of loading is low
- short term behaviour is not of interest for problem considered

▪ Undrained analysis appropriate when

- permeability is low and rate of loading is high
- short term behaviour has to be assessed

▪ Implications of undrained soil behaviour

- excess pore pressures are generated

$$\Delta u \neq 0, \Delta \sigma \neq \Delta \sigma'$$

no volume change

in fact small volumetric strains develop because a finite (but high) bulk modulus of water is introduced in the finite element formulation

predicted undrained shear strength depends on soil model used

assumption of dilatancy angle has serious effects on results

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Ikhyia - Teknik Sipil

Unmute

Start Video

Participants 51

Chat

Share Screen

Record

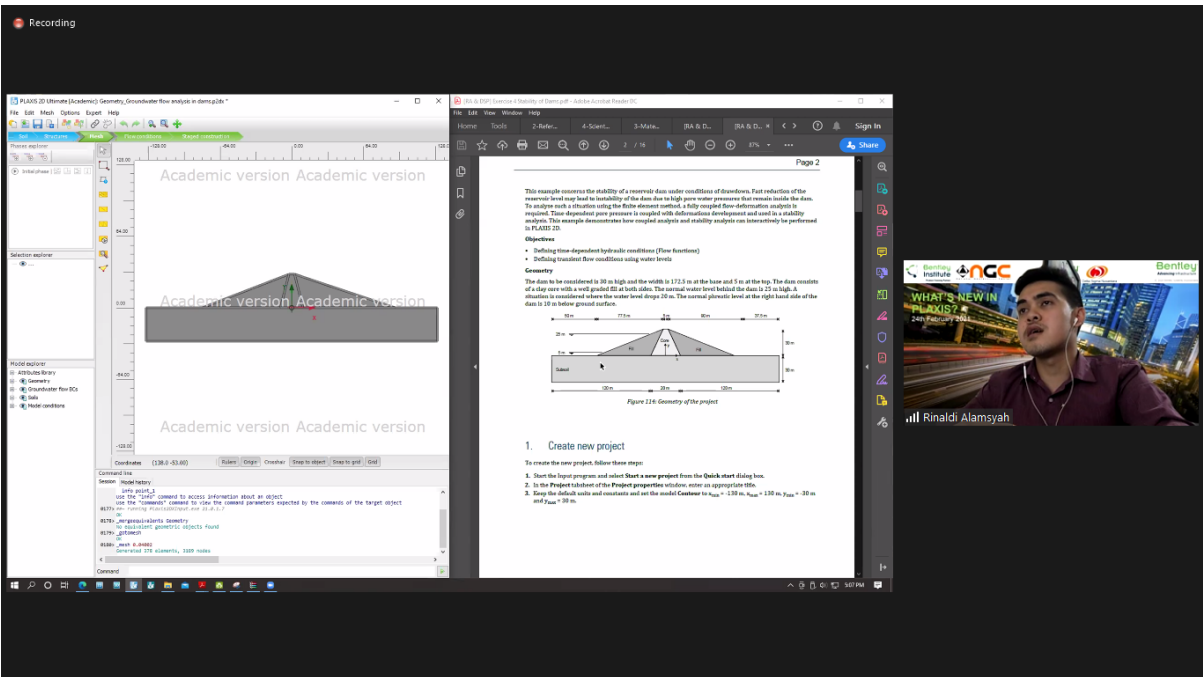
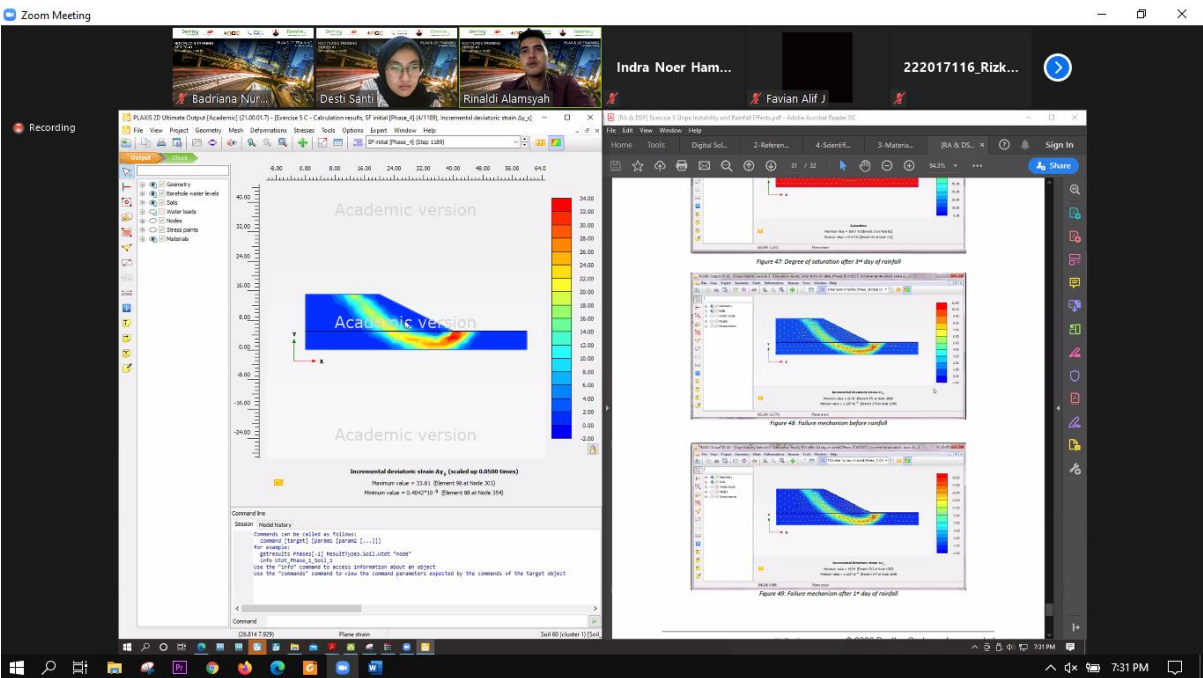
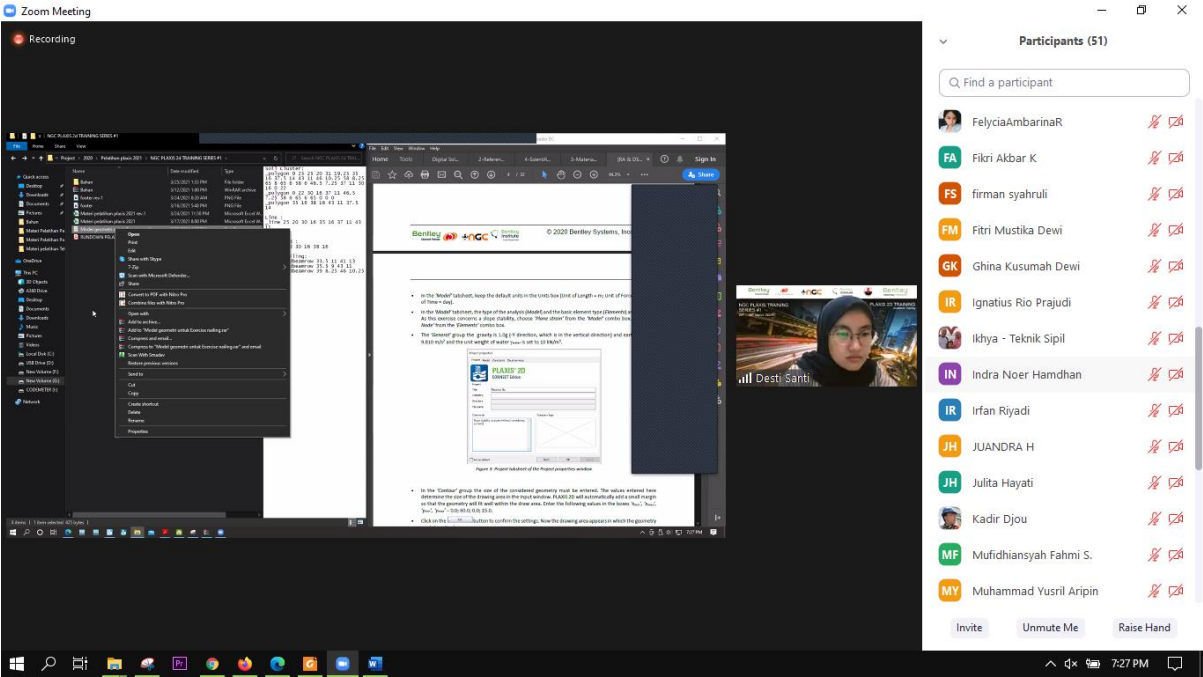
Reactions

Leave

Windows Taskbar

5:20 PM

Hari Ketiga Kegiatan



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Jadwal Pelaksanaan

DAY 1

No	Name	Session Time (hh:mm)	Total Time (hh:mm)	Name	Type
1	INH	16:00 - 16:45	0:45	Introduction to Finite Element Modelling	Lecture
2	INH	16:45 - 17:30	0:45	Introduction Plasticity Mohr-Coulomb	Lecture
3	INH	17:30 - 18:15	0:45	Hardening Soil Model	Lecture
4		18:15 - 18:45	0:30	Isoma maghrib	
5	INH	18:45 - 19:30	0:45	Structural Elements In Plaxis	Lecture
6	RA & DSP	19:30 - 20:30	1:00	Footing on elasto-plastic soil	Exercise

DAY 2

No	Name	Session Time (hh:mm)	Total Time (hh:mm)	Name	Type
7	IK	16:00 - 16:15	0:15	Initial stresses	Lecture
8	IK	16:15 - 17:00	0:45	Modelling groundwater	Lecture
9	IK	17:00 - 18:00	1:00	Modelling of Undrained Behaviour and Consolidation	Lecture
10		18:00 - 18:30	0:30	Isoma maghrib	
11	RA & DSP	18:30 - 19:30	1:00	Groundwater Flow Analysis in Dams	Exercise
12	RA & DSP	19:30 - 20:30	1:00	Boston embankment using HS model	Exercise

DAY 3

No	Name	Session Time (hh:mm)	Total Time (hh:mm)	Name	Type
13	DSP	16:00 - 16:15	0:15	Stability of slopes, dams and embankments	Lecture
14	DSP	16:15 - 16:45	0:30	Safety Factor in PLAXIS	Lecture
15	DSP	16:45 - 17:15	0:30	Stability of Dam	Exercise
16	DSP	17:15 - 18:00	0:45	Modelling of Slope Instability and Influence of Unsaturated Soil Behaviour	Lecture
17		18:00 - 18:30	0:30	Isoma maghrib	
18	RA & DSP	18:30 - 19:30	1:00	Slope Instability and Rainfall Effects	Exercise
19	RA & DSP	19:30 - 20:30	1:00	Slope Stability for a Road Construction Project	Exercise

Sertifikat Peserta:



Certificate of Accomplishment

THIS CERTIFICATE IS PRESENTED TO

Felycia Ambarina

upon successful completion of

Plaxis 2D Training | EN

Product: PLAXIS 2D

Version: CONNECT Edition

Course Date: March 24, 2021 - March 26, 2021

Learning Units: 12

Training Partner: NATIONAL GEOTECHNICS CENTER ITENAS

A handwritten signature in black ink, appearing to read "Vinayak Trivedi".

Vinayak Trivedi

Global Head, Bentley Institute
Bentley Systems Inc.

Certificate ID: 421220713

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MATERI PELATIHAN