

SURAT KETERANGAN
MELAKUKAN KEGIATAN PENGABDIAN KEPADA MASYARAKAT
INSTITUT TEKNOLOGI NASIONAL
No. 521/C.02.01/LPPM/VIII/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	Dr. Ir. Imam Aschuri, M.T.	940102	Tenaga Ahli
4	Dr. Yuki Achmad Yakin, S.T., M.T	20140601	Tenaga Ahli
5	Desti Santi Pratiwi, S.T., M.T.	20190804	Tenaga Ahli
6	Badriana Nuranita, S.T., M.T.	20200201	Tenaga Ahli
7	Euneke Widyaningsih, S.T., M.T.	20190803	Tenaga Ahli
8	Rinaldi Alamsyah, S.T.	-	Tenaga Ahli

Telah melakukan kegiatan Pengabdian kepada Masyarakat sebagai berikut:

Nama Kegiatan : NGC Plaxis Training Series #4 Academic Plaxis 3D Training
Tempat : Webinar/Zoom Meeting
Waktu : 28-30 Juli 2021
Sumber Dana : Mandiri

Demikian surat keterangan ini dibuat untuk dapat dipergunakan sebagaimana mestinya.

Bandung, 30 Agustus 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 #4 PLAXIS 3D TRAINING

Ketua Tim :

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

Anggota Tim :

**Ikhya, ST., MT., M.M.
Imam Aschuri, Ph. D.
Dr. Yuki Achmad Yakin, ST., MT.
Desti Santi Pratiwi, ST., MT.
Badriana Nuranita, ST., MT.
Euneke Widyaningsih, ST., MT.
Rinaldy Alamsyah, ST.**

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

2021

HALAMAN PENGESAHAN

Judul : NGC Plaxis Training Series #4: Plaxis 3D 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 : 28 - 30 Juli 2021

Total Biaya : Rp10.000.000,00

Bandung, Juli 2021

Mengetahui,
Dekan Fakultas

Ketua Tim Pengusul



(Dr. Soni Darmawan)

(Dr. techn. Indra Noer Hamdhan)

Disahkan Oleh
Ketua LP2M,

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

LAPORAN KEGIATAN

Tujuan

Tujuan dari kegiatan NGC Plaxis Training Series #4 : Plaxis 3D 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 terkait perangkat lunak PLAXIS 3D

Deskripsi Kegiatan

Kegiatan ini dilaksanakan selama 3 hari, yakni pada 28 - 30 Juli 2021 selama 4 (empat) jam setiap hari-nya, dari pukul 16.00 – 20.00 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, seperti Institut Teknologi Nasional Bandung, Universitas Gadjah Mada, Institut Teknologi Bandung, Institut Teknologi Sumatera, Universitas Atma Jaya Yogyakarta, Universitas Kristen Maranatha, Universitas Syiah Kuala, Universitas Kristen Petra, dan berbagai konsultan geoteknik swasta, BUMN, maupun institusi pemerintahan.

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

- Introduction to Finite Element Modelling
- Plasticity Mohr-Coulomb and hardening soil model
- Introduction to PLAXIS 3D
- Linear Elastic Analyses of a Drained Raft Foundation
- Elastoplastic Analyses of a Drained Raft Foundation
- Initial stresses
- Modeling Groundwater
- Modelling of Deep Foundation
- Linear Elastic Analyses of a Drained Piled Raft Foundation
- Elastoplastic Analyses of a Drained Piled Raft Foundation
- Modeling of undrained behaviour and consolidation
- Modeling of ground improvement
- Safety Factor in PLAXIS
- Rapid Drawdown Analysis
- Construction of a road embankment

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

BUKTI KEGIATAN

Poster Pelatihan



NGC PLAXIS TRAINING SERIES #4

PLAXIS 3D TRAINING

Introduction to Plaxis 3D



Dr.techn. Indra Noer Hamdhan
Lecturer of Civil Engineering
Department, Itenas



Dr. Yuki Achmad Yakin
Lecturer of Civil Engineering
Department, Itenas



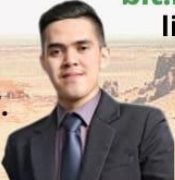
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Desti Santi Pratiwi, S.T., M.T.
Lecturer of Civil Engineering
Department, Itenas



Rinaldi Alamsyah, S.T.
Assistant Lecturer of Civil Engineering
Department, Itenas



RABU - JUMAT
28 - 30.07.2021
16.00 - 20.00 WIB
Bentley e-certificate

Registrasian fee:
200k for academic
300k for professional

Registrasian Link:
bit.ly/PlaxisTrainingSeries4
limited seat (only 40 seats)

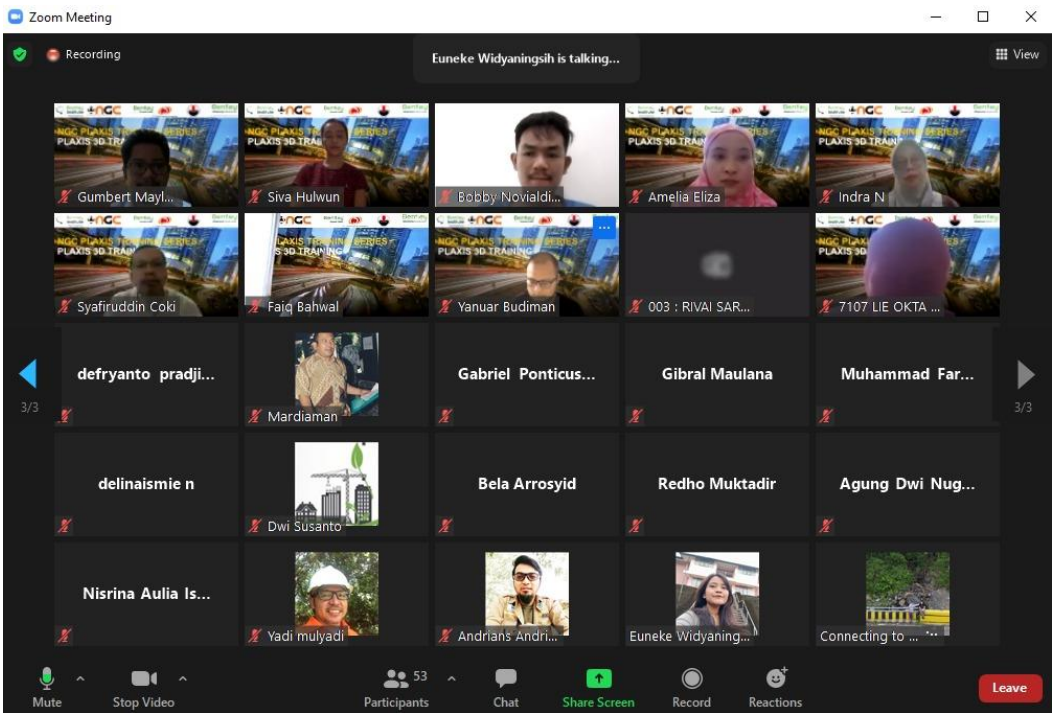
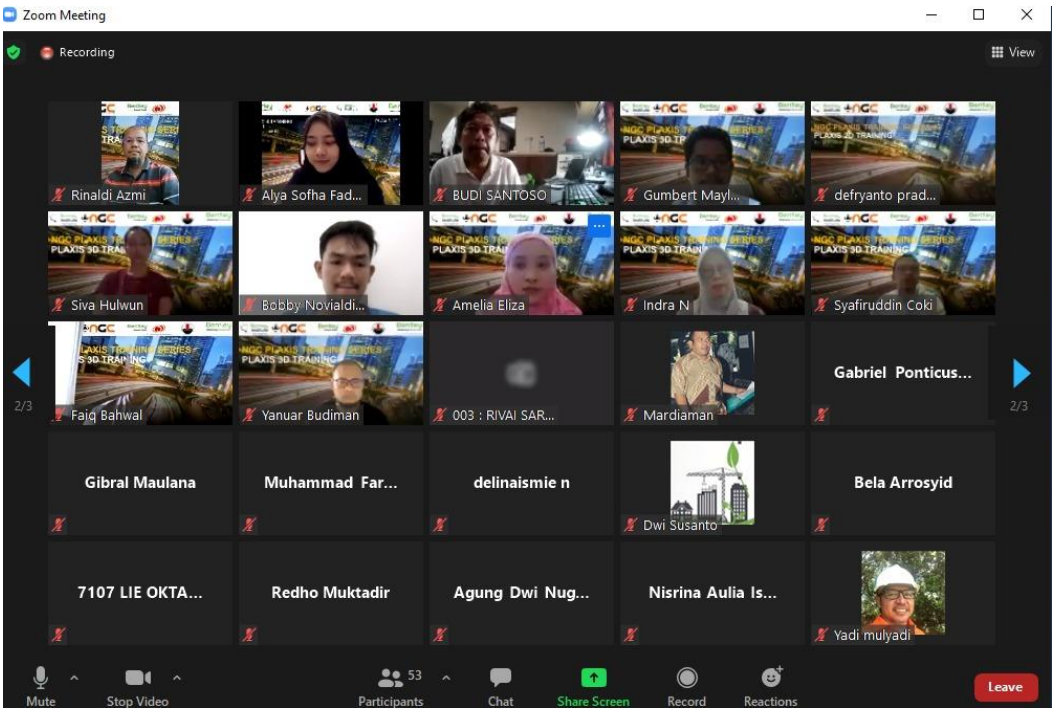
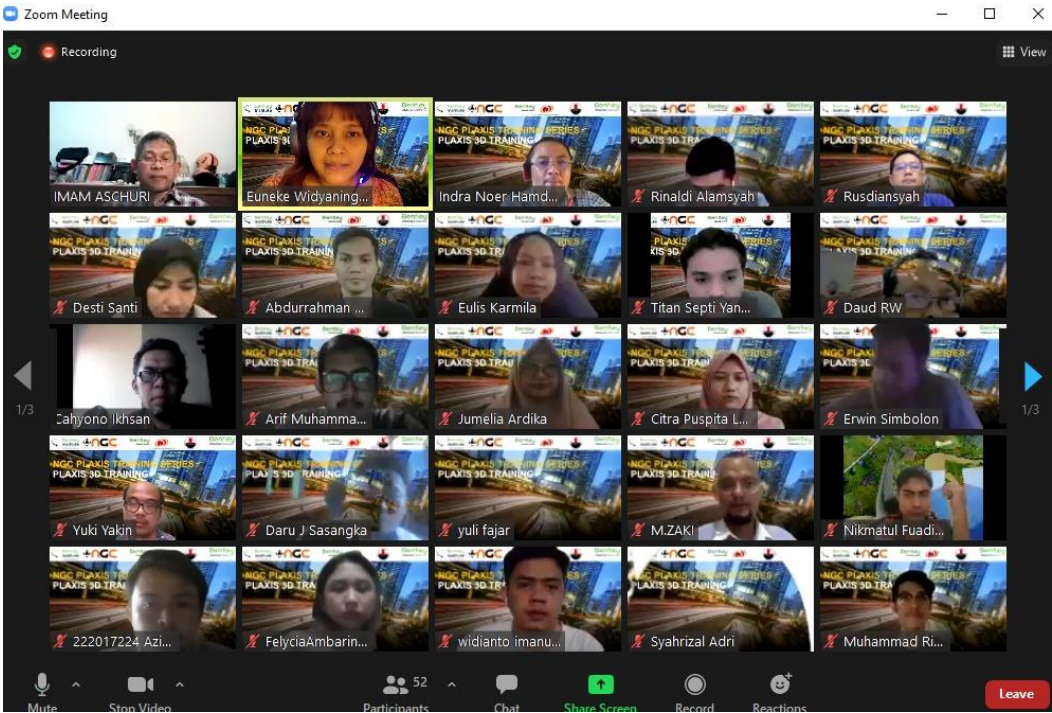
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supported by:



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Dokumentasi Hari Pertama Kegiatan



Zoom Meeting

Recording

Plaxis 3D Input

Selection Explorer

Model Explorer

Command Line

General Toolbar

Mode Switches

Drawing Area

Bentley

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PLAXIS 3D TRAINING

Indra Noer Hamdhan

23°C

Cerah

6:28 PM

Zoom Meeting

Recording

Introduction To Geotechnical Finite Element Modelling

Imam Aschuri, Ph.D.

Bentley

Channel Partner

PT Delta Sigma Nusantara

NGC

NATIONAL GEOTECHNICAL CENTER

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IMAM ASCHURI

Euneke Widy...

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Indra Noer H...

MIZAKI

Zoom Meeting

Recording

Concept of Plasticity Mohr Coulomb Model

LINEAR ELASTIC - PERFECTLY PLASTIC

One-dimensional

σ

ϵ

Y_0

$Y_0 = \text{yield stress}$

ϵ^e

ϵ^p

IMPORTANT: yield stress = failure stress for perfect plasticity

$\epsilon = \epsilon^e + \epsilon^p$

General three-dimensional stress state $\{\epsilon\} = \{\epsilon\}^e + \{\epsilon\}^p$

IMAM ASCHURI

Euneke Widyani...

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PLAXIS 3D TRAINING

Indra Noer Ham...

Yuki Yakir

23°C

Cerah

6:28 PM

Dokumentasi Hari Kedua Kegiatan

Zoom Meeting
You are viewing Indra Noer Hamdhan's screen
View Options

Recording
View

Special Case

For complex initial situations like inner city building projects it may be needed to use several calculation phases to model the current situation before starting the calculation for the actual project.

reset displacements to 0

Unmute
Start Video
Participants 44
Chat
Share Screen
Record
Reactions

Windows Taskbar
28°C Hujan rin... 4:17 PM

[illegible]

Dokumentasi Hari Ketiga Kegiatan

Zoom Meeting

You are viewing Ikhya - Teknik Sipil's screen

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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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PLAXIS 3D TRAINING

Ikhya - Teknik Sipil

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Eunike Widyani...

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PLAXIS 3D TRAINING

Rinaldi Alamsyah

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Indra Noer Ham...

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Participants 39

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Safety Factor In PLAXIS

Desti Santi Pratiwi, S.T., M.T.

Bentley Channel Partner

PT Delta Sigma Nusantara

NGC NATIONAL GEOTECHNICAL CENTER

Bentley Institute

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Desti Santi

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Recording

View

PLAXIS 3D TRAINING SERIES

PLAXIS 3D TRAINING

Rinaldi Alamsyah

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Rinaldi Alamsyah

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Rinaldi Alamsyah

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PLAXIS 3D TRAINING

Rinaldi Alamsyah

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Participants 50

Chat

Share Screen

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Reactions

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LAMPIRAN BUKTI SERTIFIKAT PELATIHAN



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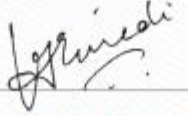
Euneke Widyaningsih

upon successful completion of
Plaxis 3D Training | EN

Product: *PLAXIS 3D* Version: *CONNECT Edition*

Course Date: *July 28, 2021 - July 30, 2021* Learning Units: *12*

Training Partner: *NATIONAL GEOTECHNICS CENTER ITENAS*



Vinayak Trivedi
Global Head, Bentley Institute
Bentley Systems Inc.

Certificate ID: *182928772*



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LAMPIRAN JADWAL KEGIATAN

RUNDOWN NGC PLAXIS TRAINING SERIES #4

PLAXIS 3D TRAINING

28th – 30th JULY 2021

DAY 1

No	Name	Session Time (hh:mm)	Total Time (hh:mm)	Name	Type
1	IM	16:00 - 16:45	00:45	Introduction to Finite Element Modelling	Lecture
2	YK	16:45 - 17:30	00:45	Plasticity Mohr-Coulomb & Hardening soil model	Lecture
3	INH	17:30 - 18:15	00:45	Introduction to PLAXIS 3D	Lecture
4		18:15 - 18:45	00:30	Isoma maghrib	
5	RA & DSP	18:45 - 19:45	01:00	Linear Elastic Analyses of a Drained Raft Foundation	Exercise
6	RA & DSP	19:45 - 20:45	01:00	Elastoplastic Analyses of a Drained Raft Foundation	Exercise

DAY 2

No	Name	Session Time (hh:mm)	Total Time (hh:mm)	Name	Type
7	INH	16:00 - 16:15	00:15	Initial Stresses	Lecture
8	INH	16:15 - 17:00	00:45	Modelling groundwater	Lecture
9	INH	17:00 - 17:45	00:45	Modelling of Deep Foundation	Lecture
10		17:45 - 18:15	00:30	Isoma maghrib	
11	RA & DSP	18:15 - 19:15	01:00	Linear Elastic Analyses of a Drained Piled Raft Foundation	Exercise
12	RA & DSP	19:15 - 20:15	01:00	Elastoplastic Analyses of a Drained Piled Raft Foundation	Exercise

DAY 3

No	Name	Session Time (hh:mm)	Total Time (hh:mm)	Name	Type
13	IK	16:00 - 16:45	00:45	Modelling of Undrained Behaviour and Consolidation	Lecture
14	IK	16:45 - 17:30	00:45	Modelling of ground improvement	Lecture
15	DSP	17:30 - 18:00	00:30	Safety Factor in PLAXIS	Lecture
16		18:00 - 18:30	00:30	Isoma maghrib	
17	RA & DSP	18:30 - 19:30	01:00	Rapid Drawdown Analysis	Exercise
18	RA & DSP	19:30 - 20:30	01:00	Construction of a road embankment	Exercise