

# FINAL ASSIGNMENT

## DESIGN OF RAILWAY CONSTRUCTION FOR INDONESIA

Submitted to fulfill the requirements in completing undergraduate education  
on Departmen of Civil Engineering Faculty of Engineering of Sultan Agung  
Islamic University



**ADITYANINGRUM PUSPITASARI DEWI**

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**August 2019**



**UNIVERSITAS ISLAM SULTAN AGUNG SEMARANG**  
**PROGRAM STUDI TEKNIK SIPIL**

Sekretariat : Lantai 1 Gedung Fakultas Teknik Kampus UNISSULA Semarang  
Jalan Raya Kaligawe KM. 4 PO. BOX 1054 Telepon. 089608181018 Semarang 50112

**APPROVAL PAGE**  
**FINAL ASSIGNMENT**

**Design of Railway Construction for Indonesia**

By :



**Adityaningrum Puspitasari Dewi**  
**30201504019**



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Have been agreed at, August ..., 2019

Supervisor,

**Ir. H. Gatot Rusbintardjo, M.R.Eng,MSc,Ph.D**

Co-Supervisor,

**Ir. H. Rachmat Mudiyo, M.T., Ph.D**

Approved By

Chairman of the Department of Civil Engineering  
Faculty of Engineering Sultan Agung Islamic University

  

**Ari Sentani ST.,MS.c**



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**BERITA ACARA BIMBINGAN TUGAS AKHIR**  
No. / A.2 / SA-T / VIII / 2019

Pada Senin, 5 Agustus 2019 berdasarkan surat keputusan rektor Universitas Islam Sultan Agung ( UNISSULA ) Semarang, perihal penunjukan dosen pembimbing I dan dosen pembimbing II :

1. Nama : Ir. H. Gatot Rusbintardjo, M.R.Eng, MSc.,Ph.D  
Jabatan Akademik : Lektor  
Jabatan : Dosen Pembimbing I
2. Nama : Ir. H. Rachmat Mudiyo, MT.,Ph.D  
Jabatan Akademik : Lektor  
Jabatan : Dosen Pembimbing II

Dengan ini menyatakan bahwa mahasiswa yang tersebut di bawah ini :  
Nama : Adityaningrum Puspitasari Dewi Nama : Rizka Fatmawati  
Nim : 30201504019 Nim : 30201504240  
Judul : Design of Railway Construction for Indonesia  
telah menyelesaikan bimbingan Tugas Akhir / Skripsi.

Dengan tahapan sebagai berikut :

No	Tahapan	Tanggal
1	Penunjukan Dosen Pembimbing	2 April 2019
2	Pengumpulan Data	15 April 2019
3	Penyusunan Laporan	24 April 2019 s/d 29 Juli 2019
4	Selesai Laporan	30 Juli 2019

Demikian Berita Acara Bimbingan Tugas Akhir / Skripsi ini dibuat untuk diketahui dan dipergunakan seperlunya oleh pihak-pihak yang berkepentingan.

Dosen Pembimbing I,

Ir. H. Gatot Rusbintardjo, M.R.Eng,MSc,Ph.D

Dosen Pembimbing II,

Ir. H. Rachmat Mudiyo, MT.,Ph.D

Mengetahui,  
Ketua Program Studi Teknik Sipil  
Fakultas Teknik Sipil Universitas Islam Sultan Agung Semarang

Ari Sentani, ST.,MS

## PERNYATAAN KEASLIAN

Yang bertanda tangan dibawah ini :

NAMA : 1. Adityaningrum Puspitasari Dewi (30201504019)

2. Rizka Fatmawati (30201504240)

JUDUL : "Design of Railway Construction for Indonesia"

Menyatakan dengan sesungguhnya bahwa Tugas Akhir ini merupakan hasil pemikiran dan pemaparan asli kami sendiri. Kami tidak mencantumkan tanpa pengakuan bahan-bahan yang telah dipublikasikan sebelumnya atau ditulis oleh orang lain, atau sebagai bahan yang pernah diajukan untuk gelar atau ijazah pada Universitas Islam Sultan Agung Semarang atau perguruan tinggi lainnya.

Apabila dikemudian hari terdapat penyimpangan dan ketidakbenaran dalam pernyataan ini, maka kami bersedia menerima sanksi akademik sesuai dengan peraturan yang berlaku di Universitas Islam Sultan Agung Semarang.

Demikian pernyataan ini kami buat

Semarang, Agustus 2019

Oleh

Penyusun I  
**NIETERAI TEMPEL**  
E8F50AFF81229482  
**6000**  
LEBAR 70MM x TINGGI 40MM  
  
**Adityaningrum Puspitasari Dewi**  
**30201504019**

Penyusun II  
**NIETERAI TEMPEL**  
D8D8EAF81229482  
**6000**  
LEBAR 70MM x TINGGI 40MM  
  
**Rizka Fatmawati**  
**30201504240**

## MOTTO

A hopeless person sees difficulties in every chance, but a hopeful person sees chances in every difficulty.

*(Ali bin Abu Thalib)*

Do not let your difficulties fill you with discomfort, after all it is only in the darkest nights that stars shine more brightly.

*(Ali bin Abu Thalib)*

Don't engage your heart in grief over the past, or you won't be ready for what is coming.

*(Ali bin Abu Thalib)*

There are two kinds of people, those who seek but cannot find and those who found but still want more.

*(Ali bin Abu Thalib)*

Hate no one, no matter how much they've wronged you. Live humbly, no matter how wealthy you become. Think positively, no matter how hard life is. Give much, even if you've been given little. Keep in touch with the ones who have forgotten you, and forgive who has wronged you and do not stop praying for the best for those you love.

*(Ali bin Abu Thalib)*

## ACKNOWLEDGEMENT

*Alhamdulillahirobbil'alamiin, Innalhamdalillahi nahmaduhu wa nasta'yanuhu.* Upon *Ridho* dan *Rahmat Allah Subhanawa Ta'Ala* this final assignment report can be completed.

In preparing this report, I was in contact with many people, academicians, and practitioners. They have contributed towards my understanding and thoughts. In particular, I wish to express my sincere appreciation to my main design and final assignment supervisor, Mr. Ir. Gatot Rusbintardjo, M.R.Eng.,Sc., Ph.D., for his encourages, guidance, criticism, and friendship. I am also very thankful to my co-supervisor Mr. Ir. Rahmat Mudiyo, MT., Ph.D. for his guidance, advice and motivation. And I am also thankful to my examiner Mr. Ir. H. Djoko Susilo Adhy, MT for his encourages, guidance critism, and motivation. Without their continued support and interest, this final assignment report would not have been the same as presented here.

My special thanks are addressed to Dean of the Engineering Faculty of Sultan Agung Islamic Univercity Mr. Ir. Rahmat Mudiyo, M.T., Ph.D. and Head of Department of Civil Engineering, Faculty of Engineering in Sultan Agung Islamic Univercity Mr. Ari Sentani, S.T., M.T., for permission, to take final assignment as the requirement for reaching Bachelor Degree in Civil Engineering in Faculty of Engineering in Sultan Agung Islamic Univercity.

Very special thanks are given to my beloved parents Mr. Agus Sulistyono and Mrs. Nani Setyani, my sister Agni Yu and Stefani Novelaisra for all their love. Thanks for my best partner Rizka Fatmawati who is always give me a support and guide me during apprentice until now. Thanks for Muhammad Khoirul who is always willing to help in the process of preparing final assignment until now and give me a support. My best friends Annisa Dewi, Annisa Cahya, Azka Nikmatil, Abdurrohman Hidayat, Agus Saprani, Didi Arifin, Aji Joko for their motivation and support. Thanks for my college friends for their good cooperation studying in Engineering Faculty of Sultan Agung Islamic Univercity 2015, their patience, prayers and motivation during this study.

Semarang, August 2019

Adityaningrum Puspitasari Dewi

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Semarang, August 2019

Rizka Fatmawati

## **DEDICATION**

“I dedicated this final assignment to the knowledge of Civil Engineering in general and Railway Engineering in special as my worship to Allah Subhana wa Ta’ala”