

**FINAL ASSIGNMENT**

**DESIGN OF UPPERSTRUCTURE STEEL ARCH TRUSS  
RAILWAY BRIDGE**

**Proposed to Fulfill Academic Requirement For  
Civil Engineering Degree in Faculty  
of Engineering of UNISSULA**



**Drafted By:**

**DHIDHA SETYA PRATAMA**

**NIM :30201403732**

**ZULFI RIZKI ROSADI**

**NIM : 30201403957**

**DEPARTMENT OF CIVIL ENGINEERING  
FACULTY OF ENGINEERING  
SULTAN AGUNG ISLAMIC UNIVERSITY  
SEMARANG**

**2018**

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SULTAN AGUNG ISLAMIC UNIVERSITY  
SEMARANG**

**2018**

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Yang bertanda tangan di bawah ini.

Nama DHIDHA SETYA PRATAMA

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Semarang, 27 Maret 2018



DHIDHA SETYA PRATAMA



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ZULFI RIZKI ROSADI





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**APPROVAL PAGE**

**FINAL ASSIGNMENT**

**“DESIGN OF UPPER STRUCTURE STEEL ARCH TRUSS  
RAILWAY BRIDGE”**

By



**DHIDHA SETYA PRATAMA**

**30201403732**



**ZULFI RIZKI ROSADI**

**30201403957**

Have been agreed at, February , 2018

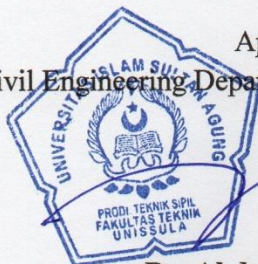
Supervisor

**Ir. Gatot Rusbiantardjo, M.R.Eng MSc., Ph.D**

Co-Supervisor

**Ir. H. Prabowo Setiyawan, MT., Ph.D.**

Approved By,  
Head of Civil Engineering Department, Engineering Faculty, UNISSULA



**Dr. Abdul Rochim, ST. MT**



## PERNYATAAN PERSETUJUAN PUBLIKASI KARYA ILMIAH

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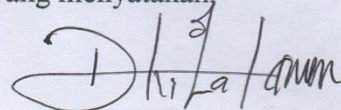
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\*Coret yang tidak perlu



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Semarang, 27 Maret 2018

Yang menyatakan,



ZULFI RIZKI ROSADI

\*Coret yang tidak perlu





**YAYASAN BADAN WAKAF SULTAN AGUNG  
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Jl. Raya Kaligawe KM.4 PO.BOX 1054 Telp. (024) 6583584 Ext.507 Semarang 50122

**OFFICIAL REPORT OF FINAL ASSIGNMENT DIRECTION**

**Number: 20 / A.2 / SA-T / X / 2017**

Today, at January 2018 based on Decree of Head of Department of Civil Engineering of Sultan Agung Islamic University (UNISSULA) Semarang regarding appointment of Supervisor and Co-Supervisor:

1. Name : Mr. Ir. H. Gatot Rusbintardjo, M.R.Eng MSc., Ph.D  
Occupation of Academic : Lector  
Occupation : Supervisor
2. Name : Mr. Ir. H. Prabowo Setiyawan, MT., Ph.D  
Occupation of Academic : Head Lector  
Occupation : Co-Supervisor

Declare these Students below have completed the Final Assignment:

Name : Dhidha Setya Pratama                      Name : Zulfi Rizki Rosadi  
NIM : 30.2014.03.732                                  NIM : 30.2014.03.957

The title : Design of Upper Structure Steel Arch Truss Railway Bridge.

By the following stages:

No	Stages	Date	Explanation
1	Appointment of supervisor	9 <sup>th</sup> October 2017	ACC
2	Data collection	11 <sup>th</sup> October 2017	
3	Turning of report	16 <sup>th</sup> October 2017	
4	Finished report	10 <sup>th</sup> January 2018	
5	Seminar of Final Assignment	24 <sup>th</sup> January 2018	

Thus of Official Report of Final Assignment Direction is made to be known and used as necessary by the parties concerned.

Supervisor

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

Co-Supervisor

Ir. H. Prabowo Setiyawan, MT., Ph.D

Head of The Departement of Civil Engineering

Dr. Abdul Rochim, ST., MT



الْعُسْرَ مَعَ فَإِنَّ يُسْرًا (5) يُسْرًا الْعُسْرَ مَعَ إِنَّ (6) فَأَنْصَبْ فَرَعْتَ فَإِذَا (7) فَأَرْعَبْ رَبِّكَوَالِي (8)

“Because in fact after the difficulty there is convenience (5) in fact after the difficulty there is convenience (6) then when you have finished something of an affair, work hard on other matters (7) and only to your god should you hope (8)”.

(QS. Al Insyirah : 5-8)

رَشَدًا أَمْرًا لَنَا مِنْ وَهْيِي رَحْمَةً لَدُنْكَ مِنْ آتِنَا رَبَّنَا (10)

“ Wahai tuhan berikanlah rahmat kepada kami dari sisi-Mu dan sempurnakanlah bagi kami petunjuk yang lurus dalam urusan kami (ini) ”

(QS. Al Khahfi : 10)

“Yes my rabb, lay it for me on my chest and make it easy for me my affairs and release the rigidity from my tongue so they understand my words”.

(QS. Thoha : 25-28)

“On this day every soul be rewarded with what it earned, no one harmed today. Allah is swift at reckoning”.

(QS. Al Ghafir : 17)

## **DEDICATION**

*“I dedicated this final assignment to the knowledge of steel bridge engineering as my  
worship to Allah Subhana Wa Ta’ala”*



## ACKNOWLEDGEMENT

*Alhamdulillahirabbil'alamiin. Innalhamdalillahi nahmaduhu wa nasta'iyuhu.* Upon *Ridho* and *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. H. Prabowo Setiyawan, M.T., PhD. for his guidance, advice 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 Dekan of the Engineering Faculty of Sultan Agung Islamic Univercity Mr. Ir. H. Prabowo Setiyawan, M.T., Ph.D. and Head of Department of Civil Engineering, Faculty of Engineering in Sultan Agung Islamic Univercity Mr. Dr. Abdulrochim, S.T., M.T., for the permission, to make 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 Mrs. Eni Farida and Mr. Kuswito, my sister Shalsya Nabilla Kusmawardhany, my brother Rizqy Ilham Tirthana and Vincentius Agtian Noventa for all of their love. Thanks for my best partner Zulfi Rizki Rosadi who is always give me a support and guide me during apprentice until now. Thanks to Dedi Setiyawan, Sugiyantoro, Reza Wahyu Nugraha, Vicriawan P, Awaludin Dhonna, Sidiq, Garit Dani Hapsari, Chrinsky Maretta for their motivation and support. Thanks for my college friends for their good

cooperation studying in Engineering Faculty of Sultan Agung Islamic University  
2014, their patience, prayers and motivation during this study.

Semarang, January 2018

Dhidha Setya Pratama



## ACKNOWLEDGEMENT

*Alhamdulillahirabbil'alamiin, Innalhamdalillahi nahmaduhu wa nasta'iyuhu.* Upon *Ridho* and *Rahmat Allah Subhana Wa Ta'ala* this research and 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 encouragements, guidance, criticism, and friendship. I am also very thankful to my co-supervisor Mr. Ir. H. Prabowo Setiyawan, M.T., Ph.D. for his guidance, advice and motivation. Without their continued support and interest, this final assignment report would not have been the same as presented here.

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Very special thanks are given to my beloved parents Mrs. Malikhatun Nasriyah and Mr. Edy Hartono, my beloved sister Nisfuma handini, my little brothers Syahdani Akmali Adam, for all of their love. Thanks for my best partner Dhidha Setya Pratama who is always give me a support and guide me during apprentice until now. Thanks to Dedi Setiyawan, Sugiyantoro, Reza Wahyu Nugraha, Vicriawan P, Awaludin Dhonna, Sidiq, Garit Dani Hapsari, Chrinsky Maretta for their motivation and support. Big thanks for my little sister Isnah Kumiyati and Widiya Ayu Agustin for their support. And thanks for my college friends for their

good cooperation studying in Engineering Faculty of Sultan Agung Islamic University 2014, their patience, prayers and understanding during this study.

Semarang, January 2018

Zulfi Rizki Rosadi