INTERNSHIP REPORT

CTCI Advanced Systems Inc.

20th JUNE – 31st AUGUST 2018

Submitted by:

Chiesa Valentino NRP. 5203015021

Vania NRP. 5203015022

DEPARTMENT OF CHEMICAL ENGINEERING

FACULTY OF ENGINEERING

WIDYA MANDALA CATHOLIC UNIVERSITY

SURABAYA

2018

LETTER OF APPROVAL

Seminar of **INTERNSHIP** for a student with identity below :

Name : Chiesa Valentino

NRP : 5203015021

has been conducted on 4th December 2018. Therefore the student has fulfilled one of several requirements to obtain **Bachelor of Engineering** degree in **Chemical Engineering** Department, Faculty of Engineering, Widya Mandala Catholic University Surabaya.

Surabaya, 17th December 2018

Supervisor

Ir. Suryadi Ismadji, Ph.D., IPM

NIK. 521.93.0198

Head of Chemical

Engineering Department

UNIVERSITAS KATOLIK WIDYA MANDALA SURABAYA
FAKULTAS TEKNIK JURUSAN TEKNIK KIMIA

Sandy Budi Hartono, Ph.D., IPM

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LETTER OF APPROVAL

Seminar of **INTERNSHIP** for a student with identity below :

Name : Vania

NRP : 5203015022

has been conducted on 4th December 2018. Therefore the student has fulfilled one of several requirements to obtain **Bachelor of Engineering** degree in **Chemical Engineering** Department, Faculty of Engineering, Widya Mandala Catholic University Surabaya.

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Head of Chemical

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Sandy Budi Hartono, Ph.D., IPM

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In order to support the development of science and technology, We are as the student of Widya Mandala Surabaya Catholic Unversity :

Nama / NRP : Chiesa Valenitno / 5203015021

Vania / 5203015022

Agree to transfer the copyright of our internship report with title :

Internship Report CTCI Advanced System Inc.

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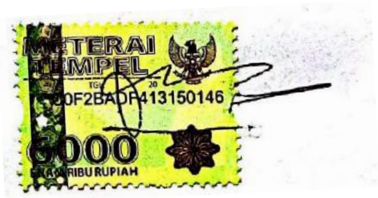
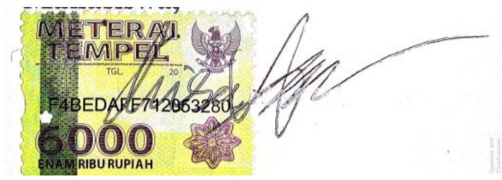
Surabaya, 17th December 2018

Authors,





Vania

NRP. 5203015021

Chiesa Valentino

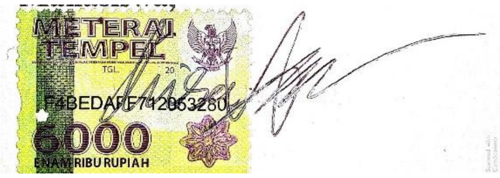
NRP. 5203015021

LETTER OF DECLARATION

I declare that this internship report was my own work and does not contain any material that belongs to the others, unless it was stated in the references. Should it is known that this research belongs to the others. I aware and accept the consequences that this research cannot be used as requirement to achieve a Bachelor of Engineering degree.

Surabaya, 17th December 2018

Student,



Chiesa Valentino

NRP. 5203015021

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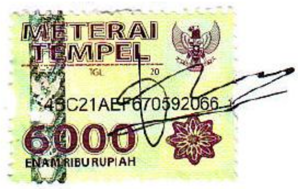

Vania

NRP. 5203015022

PREFACE

The authors would like to thank God for His blessing that the internship in CTCI Advanced System Inc. has been accomplished. This report is one of the prerequisites in achieving a Bachelor of Engineering degree in Chemical Engineering Department of Widya Mandala Catholic University Surabaya. The authors realize that the completion of this report is achieved through the help of many people. Therefore, the authors would like to thank to:

1. Prof. Liang-Sun Lee who help to open the relationship work between CTCI Advanced System Inc. and Widya Mandala Catholic University Surabaya and take care of us during internship in Taiwan
2. Chen-Chin Chen as the Chairman and Tsung-Kung Shu as the Vice President of CTCI Advanced System Inc.
3. Kuo-Chun Chang as the Manager of Intelligent Manufacturing Department and Stephen Hu as the Manager of IIoT Application Department.
4. Ophelia Chang, Roger Huang, Seth Hsu, Bryant Yeh, Will Jang, Hannah Chen as great mentors.
5. Ir. Suryadi Ismadji, Ph.D., IPM as a supervisor from the Chemical Engineering Department Widya Mandala Catholic University Surabaya and pioneer to make this internship happened.
6. Felycia E. Soetaredjo, Ph.D., IPM as a pioneer to make this internship happened.
7. Tanya Yang, Sherry Chiu, Caren Chou, and Alice Chiu as people in charge of the internship program regarding daily internship and life at CTCI Advanced System Inc, Taiwan.
8. Advisor Chu and Sun as instructors at CPC Corp. Kaohsiung Refinery plat visit.

9. Our parents and family who have given a lot of help and support, both materially and morally.
10. Our lecturers, friends and also those who are too many to be listed by name that had contributed their kind assistance.

The authors realize that this report is far from perfect; therefore any critics and comments which will better improve the report is gladly accepted. Lastly, the authors hope that the report will be useful to all readers who need information regarding the internship.

Surabaya, 2018

The Authors

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ABSTRACT

CTCI Advanced System Inc. (CTCI ASI) is a subsidiary company of CTCI, a top-leading and largest engineering group in Taiwan. CTCI ASI provides modern industry 4.0 system and applies it into any aspects of engineering such as mechanical system, electrical system, process system. Their product of services are intelligent energy management system, industrial internet of things, smart E&M for railway transportation. Not only the services provider, but CTCI also provide software related to the manufacture industry, especially chemical industry. They are selling their own software-related into their services, and CTCI ASI is a exclusive seller of Aspen Software and Integraph Hexagon in Taiwan.

For 40 years, CTCI ASI already got many achievement and award, also done many notable projects given by the government and big company. Latest award achieved by CTCI such as TOP 5% Stock Exchange in Taiwan by Corporate Governance Evaluation, Top 50 of a gold medal for the service industry from TCSA, Excellent Company of Industry-Academic Cooperation, and Distinguished Construction and Business Institution Award from Chinese Institute of Engineers. While the project was done by CTCI such as baggage handling system at Taiwan Taoyuan International Airport, MRT SongShan-XinYi line power remote system, Taichung MRT signalling system installation, instrumentation and control system engineering for Saudi Methacrylates Company.

For 2.5 months author learnt about safety management and how to implement it with industrial internet of things, drawing process and instrument diagram with Integraph SmartPlant P&ID, and process engineering with Aspen Plus software. For safety management, author learn how to do Hazard Operational (HazOp) and Layer of Protection Analysis (LOPA). Author also learn how to operate CTCI's software related to safety management, Mr.PSM. For P&ID session, author learn how to interprate symbol and the function of some instrument. Then, the author learn how to draw P&ID using Integraph, convert conventional P&ID into e-P&ID with improved feature. For process engineering session we learn how to optimize process using aspen, and basic of aspen plus. In each session, authors were given test using real cases or data. The author also had been invited to 5th Naptha Cracker Plant, in Kaohsiung, Taiwan to observe and learn about the naptha cracker process and its equipment.