

Surat Tugas/ Letter of Appointment

Nomor/
Number ST/THS2/MME-0903/AAO/III/2020 - FdI

Tanggal/
Date 9 Maret 2020/ 9 March 2020

Penugasan Sebagai Pembimbing Utama/Pendamping Skripsi Mahasiswa S2 Semester Even 2019/2020 Appointment of Thesis Advisor/Co-Advisor for Master's Degree Student(s) in Even Semester 2019/2020

Dekan Fakultas Teknik dan Teknologi Informasi, Universitas Swiss German/
The Dean of Engineering and Information Technology Faculty of Swiss German University,

Menimbang/Considering:

1. Perkuliahan S2 semester 3 yg telah berakhir/*The lectures for semester 3 have finished.*
2. Persyaratan untuk mencapai gelar kesarjanaan/*Requirements for Master's Degree graduation.*

Memperhatikan/Referring to:

Hasil penunjukan Dekan Fakultas Teknik dan Teknologi Informasi/*The appointment by the Dean of Engineering and Information Technology Faculty.*

Memutuskan/Has Reached the Decision:

1. Dengan ini menugaskan kepada dosen yang tercantum pada lampiran, sebagai Pembimbing Utama/Pendamping skripsi program Strata Dua (S2) mahasiswa yang tercantum pada lampiran dengan masa penugasan 9 Maret 2020 sampai dengan 29 Juni 2020/*Herewith gives the task to the lecturers as listed on the attachment to become Thesis Advisor/Co-Advisor for the Master's student(s) listed on the attachment with period of task starting from 9 March 2020 until 29 June 2020.*
2. Dosen yang bersangkutan harus melaksanakan tugas dan tanggung jawab sebaik-baiknya, sesuai dengan petunjuk pembimbingan skripsi dari SGU/*The appointed lecturer shall accomplish the task in responsible ways in line with the thesis guidelines and other regulations given by SGU.*

Terima kasih atas perhatian dan kerjasama Saudara/*Thank you for your attention and cooperation.*

Dekan/Dean,



Dr. Maulahikmah Galinium, S.Kom, M.Sc.
Dekan Fakultas Teknik dan Teknologi Informasi/
Dean of Engineering and Information Technology Faculty

Lampiran/Attachment:

Daftar Nama Pembimbing Utama, Pendamping dan Mahasiswa pada Semester Genap 2019/2020
List of the Thesis Advisor, Co-Advisor and the Student in the Even Semester 2019/2020.

1. Lampiran 1/*Attachment 1: Program Studi Magister Teknik Mekatronika/Study Program of Master of Mechanical Engineering*

Attachment 1 to the Appointment Letter of Thesis Advisor/Co-Advisor Number: ST/THS2/MME-0903/AAO/III/2020 – FdI
Lampiran 1 Surat Tugas Pembimbing Utama/Pendamping Skripsi Nomor: ST/THS2/MME-0903/AAO/III/2020 – FdI

List of The Thesis Advisor/Co-Advisor Master's Degree Program, Study Program of Master of Mechanical Engineering, Faculty of Engineering and Information Technology, in Even Semester 2019/2020

Daftar Nama Pembimbing Utama/Pendamping Skripsi Pada Program Pasca Sarjana, Program Studi Magister Teknik Mekatronika, Fakultas Teknik dan Teknologi Informasi, pada Semester Genap 2019/2020

List of Advisor

Nr.	The Advisor Name/ Nama Pembimbing	Status Dosen/ Lecturer's Status	Student's Name/ Nama Mahasiswa	Student's ID/ NIM	Thesis Title/ Judul Skripsi
1.	Dena Hendriana, BSc., S.M., Sc.D	Full Time Lecturer/ Dosen Tetap	Setyo Haryadi	21952003	ANALYSIS OF THERMOSTAT PERFORMANCE IN THE KOMATSU DIESEL ENGINE COOLING SYSTEM THROUGH MEASUREMENT OF COOLANT VOLUME FLOW RATE USING AN ULTRASONIC FLOW METER
			Sutiawan	21952006	DESIGN AND ANALYSIS OF WARNING SYSTEM FOR AIRCRAFT WINGTIP PROXIMITY TO HANGAR COLUMN USING ULTRASONIC SENSOR
2.	Dr. Hanny J. Berchman	Home Base Lecturer/ Dosen Tetap	Jeremiah Hakim	21652003	DESIGN AND DEVELOPMENT LOW COST DATA ACQUISITION SYSTEM FOR SOLAR PV POWER PLANT MONITORING
			Yohanes Acep Nanang Kardana	21952005	OPTIMIZING FUEL CONSUMPTION DURING OPERATION AT KOMATSU EXCAVATOR PC 200-8M0 USING ADAPTIVE ENGINE SPEED CONTROL
3.	Dr. Cuk Supriyadi Ali Nandar, ST., M. Eng	Part Time Lecturer/ Dosen Tidak Tetap	Daniel Christianto	21952002	DEVELOPMENT OF CENTRIFUGATION STRAINING CONTROL SYSTEM FOR GREEK YOGURT PRODUCTION BASED ON WEIGHT OF WHEY DRAIN
			Sri Sadono	21952004	MODELING, SIMULATION, AND ANALYSIS OF AUTO WARMING UP AND OVERHEAT PREVENTION SYSTEM IN KOMATSU HYDRAULIC EXCAVATOR PC200-8
4.	Dr. Ir. Widi Setiawan	Part Time Lecturer/ Dosen Tidak Tetap	Tri Randi Utama	21852007	REAL TIME FACE TRACKING ROBOTIC ARM TO TAKE PICTURE FOR SECURITY SYSTEM

List of Co-Advisor

Nr.	The Advisor Name/ Nama Pembimbing	Status Dosen/ Lecturer's Status	Student's Name/ Nama Mahasiswa	Student's ID/ NIM	Thesis Title/ Judul Skripsi
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2.	Dr. Hanny J. Berchman	Home Base Lecturer/ Dosen Tetap	Sutiawan	21952006	DESIGN AND ANALYSIS OF WARNING SYSTEM FOR AIRCRAFT WINGTIP PROXIMITY TO HANGAR COLUMN USING ULTRASONIC SENSOR
3.	Dr. Cuk Supriyadi Ali Nandar, ST., M. Eng	Part Time Lecturer/ Dosen Tidak Tetap	Setyo Haryadi	21952003	ANALYSIS OF THERMOSTAT PERFORMANCE IN THE KOMATSU DIESEL ENGINE COOLING SYSTEM THROUGH MEASUREMENT OF COOLANT VOLUME FLOW RATE USING AN ULTRASONIC FLOW METER
			Yohanes Acep Nanang Kardana	21952005	OPTIMIZING FUEL CONSUMPTION DURING OPERATION AT KOMATSU EXCAVATOR PC 200-8M0 USING ADAPTIVE ENGINE SPEED CONTROL
4.	Edi Sofyan, B.Eng., M.Eng., Ph.D.	Part Time Lecturer/ Dosen Tidak Tetap	Tri Randi Utama	21852007	REAL TIME FACE TRACKING ROBOTIC ARM TO TAKE PICTURE FOR SECURITY SYSTEM

List of Co-Advisor

Nr.	The Advisor Name/ Nama Pembimbing	Status Dosen/ Lecturer's Status	Student's Name/ Nama Mahasiswa	Student's ID/ NIM	Thesis Title/ Judul Skripsi
5.	Dr. Ir. Gembong Baskoro, M.Sc.	Full Time Lecturer/ Dosen Tetap	Jeremiah Hakim	21652003	DESIGN AND DEVELOPMENT LOW COST DATA ACQUISITION SYSTEM FOR SOLAR PV POWER PLANT MONITORING
6.	Dr. Ir. Widi Setiawan	Part Time Lecturer/ Dosen Tidak Tetap	Daniel Christianto	21952002	DEVELOPMENT OF CENTRIFUGATION STRAINING CONTROL SYSTEM FOR GREEK YOGURT PRODUCTION BASED ON WEIGHT OF WHEY DRAIN

The Thesis Advisor of Study Program of Master of Mechanical Engineering in Even Semester 2019/2020 in total are 4 persons/
Jumlah Pembimbing Utama Skripsi Studi Program Magister Teknik Mekatronika pada Semester Genap 2019/2020 adalah 4 orang

The Thesis Co-Advisor of Study Program of Master of Mechanical Engineering in Even Semester 2019/2020 in total are 6 persons/
Jumlah Pembimbing Pendamping Skripsi Studi Program Magister Teknik Mekatronika pada Semester Genap 2019/2020 adalah 6 orang

Dean,
Dekan,



Dr. Maulahikmah Galinium, S.Kom, M.Sc.

STATEMENT BY THE AUTHOR

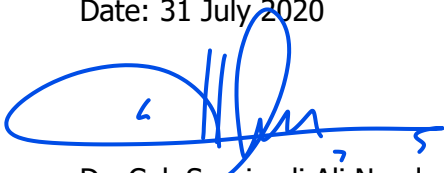
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Study Program : Master of Mechanical Engineering
Date of Defense : 17 July 2020
Thesis Title : MODELING, SIMULATION, AND ANALYSIS OF AUTO WARMING UP AND OVERHEAT PREVENTION SYSTEM IN KOMATSU HYDRAULIC EXCAVATOR PC200-8

I hereby declare that this submission is my own work and to the best of my knowledge, it contains no material previously published or written by another person, nor material which to a substantial extent has been accepted for the award of any other degree or diploma at any educational institution, except where due acknowledgement is made in the thesis.



Sri Sadono
(Name of Student)

Approved by:
Date: 31 July 2020



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(Thesis Co-Advisor)

Acknowledged by:
Date: 31 July 2020



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(Dean of Faculty of Engineering & Information Technology)

MODELING, SIMULATION, AND ANALYSIS OF AUTO WARMING UP AND
OVERHEAT PREVENTION SYSTEM IN KOMATSU HYDRAULIC EXCAVATOR PC200-8

By

SRI SADONO
2-1952-004

MASTER'S DEGREE
in

MECHANICAL ENGINEERING – MECHATRONICS CONCENTRATION
FACULTY OF ENGINEERING AND INFORMATION TECHNOLOGY



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June 2020

ABSTRACT

MODELING, SIMULATION, AND ANALYSIS OF AUTO WARMING UP AND OVERHEAT
PREVENTION SYSTEM IN KOMATSU HYDRAULIC EXCAVATOR PC200-8

By

Sri Sadono

Dr. Cuk Supriyadi Ali Nandar, ST., M. Eng., Advisor
Dena Hendriana, B.Sc., M.Sc., Ph.D., Co-Advisor

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Hydraulic Excavator is one of the very popular in Heavy Equipment machine models, used in mining sectors, construction, agriculture, plantation. Hydraulic Excavator in one unit is supported by electrical system, hydraulic system and mechatronic system. All actuator movement on Hydraulic Excavator in control using Mechatronic system. To produce high performance of Hydraulic Excavator, it needs maintenance support by skilled mechanic personnel. To produce a skilled mechanic who has knowledge and skills must be supported with training. Training is conducted with the introduction of the system by theoretical and practice methods. Practice is done in laboratories, in workshops, as well as in the field. Learning in the laboratory and in the workshop needed a simulator for the first introduction before the practice to the heavy equipment Hydraulic Excavator.

The Simulator is made according to the mechatronic system in the Hydraulic Excavator. With the Simulator mechanic performs the learning, will know how to work system control in Hydraulic Excavator. Simulator development with Mechatronics system is still wide expansion, for all systems in the Hydraulic Excavator units and other heavy equipment units.

Keywords: Hydraulic Excavator, Simulator, Mechatronics, Engine, Auto warming up, overheat prevention system.

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DEDICATION

I dedicated this research for My Family & UT School – PT United Tractors Tbk.

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I Would like to thank to Mr. Dr. Cuk Supriyadi Ali Nandar, ST., M. Eng. and Mr. Dena Hendriana B.Sc., M.Sc., Ph.D. and all Lecturers who have guided me while studying in Swiss German University. And also, to Mr. Edhie Sarwono and Mr. Teguh Setiono and the management of PT United Tractors Tbk who gave me the opportunity to take a master's degree.

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