Memorandum of Understanding

for cooperation

between

EDAG Production Solutions GmbH & Co. KG

Reesbergstr. 1
36039 Fulda

- hereinafter also referred to as „Company" -

and

Fulda University of Applied Sciences

Department of Electrical Engineering and Information Technology and
Department of Applied Computer Sciences
Leipziger Straße 123
36037 Fulda

- hereinafter also referred to as "Fulda UAS" -

and

Universidad de Málaga

Avda. Cervantes, 2
29071 Málaga

- hereinafter also referred to as "UMA" -

Pursuant to the Memorandums of Understanding between Universidad de Málaga in the framework of International Campus of Excellence Andalucia TECH, Spain, and Fulda University of Applied Sciences, Germany, signed with date March 25th 2015 and between Universidad de Málaga, Spain, and EDAG Production Solutions GmbH & Co. KG, Germany, signed with date November 5th 2018, and in order to deepen relations between these institutions and to put into practice its contents, the parties hereby agree as follows:

1. Objective of the Agreement

The objective of the agreement is to establish a student exchange between the Universidad de Málaga and Fulda University of Applied Sciences in cooperation with the Company. It is agreed that only the following courses of studies are subject matter of this agreement:

- Electronic, Robotics and Mechatronics (Escuela de Ingenierías Industriales)
- Software Engineering (Escuela Técnica Superior de Ingeniería Informática)
- Computer Science Engineering (Escuela Técnica Superior de Ingeniería Informática)

"Escuela de Ingenierías Industriales (Faculty of Industrial Engineering)" and "Escuela Técnica Superior de Ingeniería Informática" are both faculties of the Universidad de Málaga and are in the following jointly referred to as "faculties".

2. Goals and forms of cooperation

The signing institutions agree to provide opportunity, as appropriate, for the following activities towards the completion of the objective of this MOU.

a. Signing of an Erasmus Agreement between Universidad de Málaga and Fulda University of Applied Sciences for the purpose of facilitating student exchange.
b. Exchange of undergraduate students between the faculties and Fulda University of Applied Sciences, for the purpose of enrolling them in courses appropriate to their year and area of study.
c. Promotion of the exchange programme by the Company and Universidad de Málaga.
d. Assignment of students for internships at the Company.

3. Implementation of the Memorandum of Understanding

The objectives of the MOU will be implemented and regulated in the following manner:

Students of the faculties will be given the possibility to finish their engineering by completing three semesters in Germany: a study semester at Fulda University (4S1), a semester with compulsory courses combined with an internship at one of the Companies (4S2) and a semester as internship at the Company (5S1). The Study plans of and the required courses for the courses of studies "Electronic, Robotics and Mechatronics", "Software Engineering", "Computer Science Engineering" are specified below.

The degree is complemented by optional subjects provided by Fulda University, e.g. German course, and practical projects at the Company. The degree is earned when the Final thesis is passed. The Final Thesis is executed with Universidad de Málaga.

The courses at Fulda University of Applied Sciences listed (Annex I of the MoU) are the agreed set of courses for the students starting in the winter semester 2018/2019. A learning agreement will be defined for each student each year with the application. In case of changes in the following years an equivalent course will be considered by UMA and Fulda UAS.

4. Duration of the Memorandum of Understanding

This MOU shall become effective upon signature by the authorized officials of Universidad de Málaga, Fulda University of Applied Sciences and the Company, date on which the Agreement signed in January 2015 will be extinguished, being replaced in all its terms by the present. Unless mutually agreed by the parties to this Agreement, it will have a duration of 4 years and may be extended expressly by agreements of the parties and for annual periods, up to a maximum of 4.

5. Clause on preference of English language

The present agreement is extended in three copies and to a single effect, duly translated, each one of those in the respective languages: English and Spanish. In the case of any doubt in the translation and literal interpretation of the texts, the English language will be preferred in its diction or linguistic construction.

Málaga, 05 DIC. 2018 2018

Fulda, 05. NOV. 2018 2018

Universidad de Málaga

P.S.
El Vicerrector de Política Institucional
Juan Antonio García Galindo
Resolución del 07/03/2016
BOJA nº 65 (07/04/2016)

José Ángel Narváez Bueno
President
University of Malaga

Fulda University of Applied Sciences

Prof. Dr. Karim Khakzar
President
Fulda University of Applied Sciences

Prof. Dr. Birgit Bomsdorf
Dean
Department of Applied Computer Sciences

Prof. Dr. Klaus Fricke-Neuderth
Dean
Department of Electrical Engineering and Information Technologies

Prof. Dr. Ulrich Bühler
Departmental Erasmus+ Coordinator
Department of Applied Computer Sciences

EDAG Production Solutions GmbH & Co. KG

Rainer Wittich
Chairman of the Board of Management

ppa. Andreas Friedrich
Head of Manufacturing Engineering

Annex I

a) Electronic, Robotics and Mechatronics:

Students of the course of studies "Electronic, Robotics and Mechatronics" will after the 6 semesters at the Universidad de Málaga continue their studies at Fulda University of Applied Sciences, Department "Electrical Engineering and Information Technology". The following table shows the study plan from first to last semester:

		1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5
UMA	1S1	Math I				Math II				Chemistry				Computer Science		Technical Drawing		Physics I			
UMA	1S2	Math III				Statistics and Operational Research				Business Management				Computer Science		Technical Drawing		Physics II			
UMA	2S1	Circuit Theory				Electronics Principles				Materials Resistence				Computer Principles				Maths Complements			
UMA	2S2	Automation				Electronics				Feedback Control Principles				Digital Electronics				Theory of Machines and Mechanisms			
UMA	3S1	Computer Control				Industrial Facilities and Electric Machines				Electronic Systems				Thermal Engineering		Hydraulic Engineering		Digital Signal Processing			
UMA	3S2	Robotics Principles				Electronic Instrumentation				Power Electronics				Network Architecture		Company Management		Industrial Integrated Projects			
UAS Fulda	4S1	Branches																			
Company/ UAS Fulda	4S2	Internships/Mobility				Internships/ Mobility				Internships/Mobility				Internships/ Mobility				Compulsory Courses			
Company	5S1	Internships/Mobility				Internships/Mobility				Internships/Mobility				Internships/ Mobility				Final Degree Project			

To obtain the final degree at Escuela de Ingenierías Industriales, students have to pass the following modules at Fulda University of Applied Sciences, Department "Electrical Engineering and Information Technology":

Branch	**Robotics and Automation**					
Sem.	**Module @ UMA**	**ECTS**	**Sem.**	**Code**	**Module @ Uni Fulda**	**ECTS**
7	Control y Programación de Robots (Robot Control and Programming)	6	6	ET240	Industrial Robots	5
7	Informática Industrial (Industrial Computer Systems)	6	5	ET 663	Bus – systems	5
7	Sistemas de Percepción (Perception Systems)	4,5	5	ET644	Sensors	5
7	Sistemas Electrónicos para Automatization (Electronic Systems for	4,5	5	ET211	VLSI-Design	

	Automation)					
7	Laboratorio de Robótica (Robotics Lab)	4,5	5	ET256	Lab Exercises Automation Systems	5
7	Automatización de Sistemas de Producción (Automation for Production Systems)	4,5	5	ET245	Automation Systems	5
7	Bloque de optatividad	9	5/6		Elective courses	9
8	Intership	9	6/7		Intership	9

b) Software Engineering

Students of the course of studies "Software Engineering" will after the 6 semesters at the Universidad de Málaga continue their studies at Fulda University of Applied Sciences, Department of Applied Computer Sciences. The following table shows the study plan from first to last semester:

UMA	1S1	Calculus for Informatics	Physics Foundations of Programming	Electronics Fundamentals of Informatics	Fundamentals of Programming	Discrete Mathematics
UMA	1S2	Algebraic Structures for Computers	Statistical Methods for Informatics	Business Organization	Object-oriented Programming	Computer Technology
UMA	2S1	Analysis and Design of Algorithms	Databases	Computer Structures	Data Structures	Automata Theory and Formal Languages
UMA	2S2	Introduction to Software Engineering	Concurrent Programming	Networked and Distributed Systems	Intelligent Systems	Operating Systems
UMA	3S1	Information Management	Requirements Engineering	Software Modelling and Design	Computational Techniques in Software Engineering	Formal Methods in Software Engineering
UMA	3S2	User Interfaces	Software Maintenance and Testings	Security in Services and Applications	Web Applications Technologies	Professional and Legal Iss ues
Fulda UAS	4S1	Projektmanagement	Robotik	Simulation	Softwareentwicklung für eingebettete Systeme	
Company/ Fulda UAS	4S2	Künstliche Intelligenz und maschinelles Lernen	Web Applikationen/ Webprogrammierung	Building Web and Mobile Apps	Internship (12 ECTS)	
Company	5S1	BACHELOR THESIS (12 ECTS)				

To obtain the final degree at Universidad de Málaga, students of the Software Engineering Bachelor program have to pass the following modules at Fulda University of Applied Sciences, Department "Applied Computer Science":

Branch	Software Engineering					
Sem.	Module @ UMA	ECTS	Sem.	Code	Module @ Uni Fulda	ECTS

7	Gestión de Proyectos Software (Software Project Management)	6	5	BE4	Projektmanagement	5
7	Ingeniería Web (Web Engineering)	6	6	BG33/BM14	Web Applikationen or Webprogrammierung	5
7	SW para sistemas empotrados y dispositivos móviles (Software for Mobile and Embedded Systems)	6	5	BE8	Softwareentwicklung für eingebettete Systeme	5
			6	MI22	Building Web and Mobile Apps	5
5	OPTATIVA 1	6	5	BE4	Robotik	5
6	OPTATIVA 2	6	6	BG35	Künstliche Intelligenz und maschinelles Lernen	5
7	OPTATIVA 3	6	5	BW37	Simulation	5
8	OPTATIVA 4	6	6/7		Internship	12
	OPTATIVA 5	6	6/7			

c) Computer Science Engineering

Regarding the students belonging to the Computer Science Engineering Bachelor program of Universidad de Málaga, they have to pass the following modules at Fulda University of Applied Sciences, Department "Applied Computer Science":

Branch	**Software Engineering**					
Sem.	**Module @ UMA**	**ECTS**	**Sem.**	**Code**	**Module @ Uni Fulda**	**ECTS**
7	OPTATIVA 1	6	5	BE4	Projektmanagement	5
7	OPTATIVA2	6	6	BG33/BM14	Web Applikationen or Webprogrammierung	5
7	OPTATIVA 3	6	5	BE8	Softwareentwicklung für eingebettete Systeme	5
			6	MI22	Building Web and Mobile Apps	5
5	OPTATIVA 4	6	5	BE4	Robotik	5
6	OPTATIVA 5	6	6	BG35	Künstliche Intelligenz und maschinelles Lernen	5
7	OPTATIVA 6	6	5	BW37	Simulation	5
8	OPTATIVA 7	6	6/7		Internship	12
	OPTATIVA 8	6	6/7			