



School of Mechanical Engineering  
Studiendekanat Maschinenbau

The Hamburg University of Technology awards with this certificate to  
Die Technische Universität Hamburg-Harburg verleiht durch diese Urkunde

## Mr. / Herrn KADIR KARATAS

born on April 10, 1991 in Eskisehir, Turkey  
geboren am 10. April 1991 in Eskisehir, Türkei

the academic degree of  
den akademischen Grad

## MASTER OF SCIENCE (M.SC.)

after having successfully completed the Master of Science examination according to  
the current version of the Examination Regulations for the Master's Degree Courses at  
the Hamburg University of Technology in the

Master's Degree Course of

nach der erfolgreich absolvierten Prüfung zum Master of Science nach der  
geltenden Prüfungsordnung für die Master-Studiengänge an der Technischen  
Universität Hamburg-Harburg in der geltenden Fassung in dem

Master-Studiengang

## INTERNATIONAL PRODUCTION MANAGEMENT

Hamburg, April 18, 2018



Official Seal  
Offizielles Siegel

Hamburg, den 18. April 2018

A handwritten signature in blue ink, which appears to read "Ralf Falter".

Chairman of the Examination Board  
Der Vorsitzende des Prüfungsausschusses

Studiendekanat Maschinenbau

**Z E U G N I S**  
**Herr KADIR KARATAS**

geboren am 10. April 1991 in Eskisehir, Türkei  
hat die

**Prüfung zum Master of Science**  
nach der geltenden Prüfungsordnung für den  
**Master-Studiengang**  
**International Production Management**

mit der Gesamtnote **GUT (1,8)** bestanden.

School of Mechanical Engineering

**C E R T I F I C A T E**  
**Mr. KADIR KARATAS**

born on April 10, 1991, in Eskisehir, Turkey  
has successfully completed the  
**Master of Science Examination**  
according to the current version of the Examination Regulations for the  
**Master's Degree Course of**  
**International Production Management**

attaining the overall grade of **GOOD (1.8)**.

**Kernqualifikation Pflichtbereich**  
**Core Qualification Compulsory Courses**

	ECTS Punkte ECTS Credits	Note Grade
<b>Computer Aided Design and Computation</b> Computer Aided Design and Computation	<b>6</b> 6	<b>3,3</b> 3.3 <b>befriedigend</b> satisfactory
<b>Deutsch B1.2</b> German B1.2	<b>4</b> 4	<b>bestanden</b> passed
<b>Deutsch B2.2</b> German B2.2	<b>2</b> 2	<b>bestanden</b> passed
<b>International Business</b> International Business	<b>6</b> 6	<b>befriedigend</b> satisfactory
<b>Projektarbeit: Agenten-basierte Simulation und Big-Data Analytics</b> Research Project: Agent-based Simulation and Big-Data Analytics	<b>12</b> 12	<b>2,3</b> 2.3 <b>gut</b> good
<b>Rapid Production</b> Rapid Production	<b>6</b> 6	<b>3,0</b> 3.0 <b>befriedigend</b> satisfactory

	ECTS Punkte ECTS Credits	Note Grade
<b>Kernqualifikation Wahlpflichtbereich</b> Core Qualification Optional Courses		
<b>3D Printing Labor</b> 3D Printing Laboratory	<b>6</b> 6	<b>bestanden</b> passed
<b>Lasersysteme und Metallische Konstruktionswerkstoffe</b> Laser Systems and Metallic Materials	<b>6</b> 6	<b>2,0</b> 2.0 <b>gut</b> good
<b>Vertiefung Management</b> Specialisation Management		
<b>Ausgewählte Themen der Betriebswirtschaftslehre (IPM)</b> Selected Topics of Business Administration (IPM)	<b>6</b> 6	<b>bestanden</b> passed
<b>Produktplanung</b> Product Planning	<b>6</b> 6	<b>1,0</b> 1.0 <b>sehr gut</b> very good
<b>Technologiemanagement</b> Technology Management	<b>6</b> 6	<b>2,0</b> 2.0 <b>gut</b> good
<b>Volkswirtschaftslehre und Außenwirtschaftslehre</b> Economics	<b>6</b> 6	<b>2,3</b> 2.3 <b>gut</b> good
<b>Vertiefung Produktionstechnik</b> Specialisation Production Technology		
<b>Angewandte Statistik für Ingenieure</b> Applied Statistics for Engineers	<b>6</b> 6	<b>2,0</b> 2.0 <b>gut</b> good
<b>Ermüdung und Schadenstoleranz</b> Fatigue and Damage Tolerance	<b>3</b> 3	<b>1,0</b> 1.0 <b>sehr gut</b> very good
<b>Robotik</b> Robotics	<b>6</b> 6	<b>2,0</b> 2.0 <b>gut</b> good
<b>Zuverlässigkeit in der Maschinendynamik</b> Reliability in Engineering Dynamics	<b>4</b> 4	<b>1,0</b> 1.0 <b>sehr gut</b> very good

	ECTS Punkte ECTS Credits	Note Grade
<b>Masterarbeit: Simulationsbasierte Analyse von Gruppenentscheidungsdynamiken</b> Master Thesis: Simulation-based Analysis of Group Decision-Making	30	1,0    sehr gut
	30	1.0    very good

Letzte Prüfungsleistung erbracht am 18. April 2018  
Course Requirements completed on April 18, 2018

<b>Gesamtnote</b> <b>Overall Grade</b> <b>Relative Gesamtnote/ ECTS Grade</b>	1,8    GUT 1.8    GOOD B/B
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Hamburg, den 18. April 2018  
Hamburg, April 18, 2018

Offizielles Siegel

Official Seal



Der Vorsitzende des  
Prüfungsausschusses

Chairman of the  
Examination Board

#### Bewertung der Prüfungsleistungen

bis 1,5 = sehr gut;    über 1,5 bis 2,5 = gut;    über 2,5 bis 3,5 = befriedigend;    über 3,5 bis 4,0 = ausreichend  
Die Gesamtnote lautet:

1,3 oder besser mit Auszeichnung bestanden; 1,0 bis einschließlich 1,5: sehr gut; 1,6 bis einschließlich 2,5: gut;  
2,6 bis einschließlich 3,5: befriedigend; 3,6 bis einschließlich 4,0: ausreichend

#### Grades of Examinations

up to 1.5 = very good;    above 1.5 to 2.5 = good;    above 2.5 to 3.5 = satisfactory;    above 3.5 to 4.0 = sufficient  
An Overall Grade of:

1,3 or better with distinction; 1,0 including 1,5: very good; 1,6 including 2,5: good;  
2,6 including 3,5: satisfactory; 3,6 including 4,0: sufficient

#### Relative Gesamtnote

A die besten 10%    B die nächsten 25%    C die nächsten 30%    D die nächsten 25%    E die nächsten 10%  
X keine ECTS-Note ausweisbar

#### ECTS Grade

A the best 10%    B the next 25%    C the next 30%    D the next 25%    E the next 10%    X no relative ECTS grade awarded

TÜRKİYE CUMHURİYETİ İSTANBUL TEKNİK ÜNİVERSİTESİ  
REPUBLIC OF TURKEY ISTANBUL TECHNICAL UNIVERSITY

*Kadir Karataş*

İŞLETME FAKÜLTESİ  
ENDÜSTRİ MÜHENDİSLİĞİ Lisans Programının  
tüm gerekliliklerini başarı ile tamamlayarak

Endüstri Mühendisliği  
**LİSANS DERECESİNİ**  
ve

*Endüstri Mühendisi*

unvanını bütün onur, yetki ve sorumluluklarıyla  
birlikte almaya hak kazanmıştır.



Prof.Dr.Fethi ÇALIŞIR  
Dekan / Dean



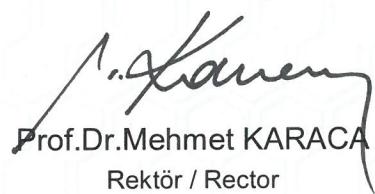
Diploma No: 2015-01-1706  
Mezuniyet Tarihi/Date of Graduation: 29.06.2015

having satisfactorily fulfilled all the requirements of the  
Undergraduate Program in INDUSTRIAL ENGINEERING  
in the FACULTY OF MANAGEMENT

has been awarded the degree of  
**BACHELOR OF SCIENCE**  
in

*Industrial Engineering*

with all the rights, privileges and honors  
thereto appertaining.

  
Prof.Dr.Mehmet KARACA  
Rektör / Rector

TÜRKİYE CUMHURİYETİ İSTANBUL TEKNİK ÜNİVERSİTESİ  
REPUBLIC OF TURKEY ISTANBUL TECHNICAL UNIVERSITY

*Kadir Karataş*

MAKİNA FAKÜLTESİ  
MAKİNA MÜHENDİSLİĞİ Lisans Programının  
tüm gerekliliklerini başarı ile tamamlayarak

Makina Mühendisliği  
**LİSANS DERECESİNİ**  
ve

*Makina Mühendisi*

unvanını bütün onur, yetki ve sorumluluklarıyla  
birlikte almaya hak kazanmıştır.

Prof.Dr.Mehmet Alattin ARPACI  
Dekan / Dean



Diploma No: 2015-01-0231  
Mezuniyet Tarihi/Date of Graduation: 28.01.2015

having satisfactorily fulfilled all the requirements of the  
Undergraduate Program in MECHANICAL ENGINEERING  
in the FACULTY OF MECHANICAL ENGINEERING

has been awarded the degree of  
**BACHELOR OF SCIENCE**  
in

*Mechanical Engineering*

with all the rights, privileges and honors  
thereto appertaining.

  
Prof.Dr.Mehmet KARACA  
Rektör / Rector



**Faculty of Mechanical  
Engineering**

**DIPLOMA NO AND DATE**

2015-01-0231  
28 January 2015

Following the model developed by:

\*UNESCO - CEPES  
\*COUNCIL OF EUROPE  
\*EUROPAN COMMISSION

The Diploma Supplement follows the model developed by European Commission, Council of Europe and UNESCO/CEPES.

The purpose of the supplement is to provide sufficient independent date to improve the International "transparency" and fair academic and professional recognition of qualifications (diplomas, degrees, certificates, etc.). It designed to provide a description of the nature, level, context, content and status of the studies that were pursued and successfully completed by the individual named on the original qualification to which this supplement is appended. It should be free from any value-judgments, equivalence statements or suggestions about recognition.

Information in all eight sections should be provided. Where information is not provided, an explanation should give the reason why.



# Istanbul Technical University Diploma Supplement

## 1. INFORMATION IDENTIFYING THE HOLDER OF THE QUALIFICATION

- 1.1. Family name(s) : Karataş
- 1.2. Given name(s) : Kadir
- 1.3. Date of birth : 10/04/1991
- 1.4. Student identification number or code : 030090241

## 2. INFORMATION IDENTIFYING THE QUALIFICATION

- 2.1. Name of the qualification : Makina Mühendisliği  
Title conferred : Makina Mühendisi
- 2.2. Main field(s) of study for the qualification:  
Mechanical Engineering
- 2.3. Name and status of awarding institution  
İstanbul Teknik Üniversitesi, Devlet Üniversitesi  
Istanbul Technical University, State University
- 2.4. Name and status of institution administering studies  
Same as 2.3
- 2.5. Language(s) of instruction / examination  
30% English , 70% Turkish

## 3. INFORMATION ON THE LEVEL OF THE QUALIFICATION

- 3.1. Level of qualification:  
First Cycle(Bachelor's Degree)
- 3.2. Official length of programme:  
4 years(240 ECTS), 2 semesters per year, 14 weeks of lecture + 1 week of exam break + 2 weeks of exam period per semester
- 3.3. Access requirement(s):  
High school diploma,Placement through a centralized national university placement examination,Certificate of English Proficiency

## 4. INFORMATION ON THE CONTENTS AND RESULTS GAINED

- 4.1. Mode of study:  
Full - time
- 4.2. Programme requirements:

### Requirements

The degree is awarded to students who have successfully completed all courses in the curriculum, including a 55 days industrial training ,a graduation project(defended) and have obtained a grade point average of 2.00 out of 4.00

### Educational Objectives

In conformity with the mission of Mechanical Engineering Department, the objectives of Mechanical Engineering Program are to graduate professionals who can: Perform design and integration of mechanical and thermal processes, components and systems./ Play leadership roles by improving collaboration between engineers, scientists and professionals./ Involve positively in the competitiveness of design, manufacturing and research enterprises,/ Aim to reach knowledge and professional growth for their successful careers in industry, research or academia,/ Contribute to the society as professionally, ethically and globally aware members.

**4.3. Programme details and the individual grades/marks/credits obtained:**

<b>Term</b>	<b>Course</b>	<b>Credits</b>	<b>Grade</b>
2010-2011 / Fall	BIL 101E Intro. to Computer and Inf.Systems	1.50	BB
2010-2011 / Fall	FIZ 101E Physics I	3.00	AA
2010-2011 / Fall	FIZ 101EL Physics I Laboratory	1.00	AA
2010-2011 / Fall	ING 101 English I	3.00	BB
2010-2011 / Fall	KIM 101 General Chemistry I	3.00	AA
2010-2011 / Fall	KIM 101EL General Chemistry I Laboratory	1.00	BB
2010-2011 / Fall	MAK 111 Introduction to Mechanical Engineering	1.00	CB
2010-2011 / Fall	MAT 103E Mathematics I	4.00	AA
2010-2011 / Fall	RES 105 Technical Drawing	3.50	CB
2010-2011 / Spring	FIZ 102E Physics II	3.00	AA
2010-2011 / Spring	FIZ 102EL Physics II Laboratory	1.00	AA
2010-2011 / Spring	ING 102 English II	3.00	BA
2010-2011 / Spring	MAK 112E Computer Aided Technical Drawing	2.50	CB
2010-2011 / Spring	MAK 200 Machine Shop Practice	0.00	BB
2010-2011 / Spring	MAT 104 Mathematics II	4.00	AA
2010-2011 / Spring	MAT 261 Linear Algebra	3.00	AA
2010-2011 / Spring	STA 201 Statics	3.00	AA
2011-2012 / Fall	BIL 104E Int to Scientific&Eng. Computing (C)	3.00	BA
2011-2012 / Fall	DNK 203 Dynamics	4.00	AA
2011-2012 / Fall	HUK 201 Labor Law	3.00	AA
2011-2012 / Fall	MAL 201 Materials Science	3.00	BA
2011-2012 / Fall	MAT 201 Differential Equations	4.00	AA
2011-2012 / Fall	MUK 205 Strength of Materials	4.50	AA
2011-2012 / Spring	EKO 201 Economics	3.00	BB
2011-2012 / Spring	ELK 221 Fundamentals of Electrical Eng.	3.00	AA
2011-2012 / Spring	ETK 101 Engineering Ethics	1.00	CB
2011-2012 / Spring	ING 201 English III	3.00	BB
2011-2012 / Spring	MAK 212 Thermodynamics	4.00	AA
2011-2012 / Spring	MAK 214E Engineering Materials	2.50	BA
2011-2012 / Spring	MAT 271E Probability and Statistics	3.00	AA
2011-2012 / Summer School	MAK 311 Heat Transfer	3.00	BA
2011-2012 / Summer School	MAK 341 Machine Design I	4.00	BA
2011-2012 / Summer School	TUR 101 Turkish I	2.00	AA
2012-2013 / Fall	AKM 205 Fluid Mechanics	4.00	AA
2012-2013 / Fall	ATA 101 History of Turkish Revolution I	2.00	AA
2012-2013 / Fall	ATA 102 History of Turkish Revolution II	2.00	BB
2012-2013 / Fall	ITB 020 Formations of Modernity	3.00	BB
2012-2013 / Fall	MAK 331E System Dynamics and Control	3.00	BB
2012-2013 / Fall	MAK 342 Machine Design II	3.00	BB
2012-2013 / Spring	MAK 322 Theory of Machines	4.00	AA
2012-2013 / Spring	MAK 351 Manufacturing Processes	4.00	BA
2012-2013 / Spring	MAK 362 Applied Heat Transfer	3.00	CC
2012-2013 / Spring	TUR 102 Turkish II	2.00	AA
2013-2014 / Fall	MAK 432E Gas Dynamics	3.00	AA
2013-2014 / Fall	MAK 435 Hydraulic and Pneumatic Circuits	3.00	AA
2013-2014 / Fall	MAK 481 Project Design Principles	1.00	BB
2013-2014 / Fall	MAT 202 Numerical Methods	3.00	AA
2013-2014 / Fall	SNT 227E Sound and Society	3.00	BB
2013-2014 / Spring	MAK 312 Measurement Systems	3.00	AA
2013-2014 / Spring	MAK 423E Power Plants	3.00	BA
2013-2014 / Spring	MAK 454E Control Systems Design	3.00	BA
2014-2015 / Fall	MAK 4039 HVAC Fundamentals	2.50	AA
2014-2015 / Fall	MAK 4067 Renewable Energy Systems	2.50	BA
2014-2015 / Fall	MAK 411E Experimental Methods in Mech.Eng.	2.00	AA
2014-2015 / Fall	MAK 492 Senior Design Project	3.00	AA

**Total Credits:152.5 GPA: 3.61 out of 4.00**

#### **4.4. Grading scheme and grades**

<b>Grade</b>	<b>Letter Grade</b>	<b>Points</b>	
Excellent	AA	4.00	» GPA stands for Cumulative Grade Point Average
Good-Excellent	BA	3.50	» Courses marked T,E or M are not considered in determining GPA
Good	BB	3.00	
Good-Satisfactory	CB	2.50	» BL : Passed the Course without credit
Satisfactory	CC	2.00	» BZ : Failed the Course without credit
Satisfactory-Low Pass	DC	1.50	» Students may repeat a course to improve their GPA
Low Pass	DD	1.00	
Fail	FF	0.00	
Failure without Midterm	VF	0.00	» Repeated courses are not listed in this document
Passed	BL	0.00	
Failed	BZ	0.00	
Withdrawal	T	0.00	
Incomplete	E	0.00	
Exempt	M	0.00	

#### **4.5. Overall classification of the qualification**

Başarılı/Satisfactory

### **5. INFORMATION ON THE FUNCTION OF THE QUALIFICATION**

#### **5.1. Access to further study:**

May apply to graduate programmes

#### **5.2. Professional status**

This Degree enables the graduates to exercise the Mechanical Engineering profession.

### **6. ADDITIONAL INFORMATION**

#### **6.1. Additional information**

İstanbul Teknik Üniversitesi, Öğrenci İşleri Daire Başkanlığı 34469 Maslak İstanbul TURKEY

#### **6.2. Further information sources:**

University web site: <http://www.itu.edu.tr>

Student Information System web site: <http://www.sis.itu.edu.tr>

The Council of Higher Education web site: [www.yok.gov.tr](http://www.yok.gov.tr)

The Turkish ENIC-NARIC web site: [www.enic-naric.net/members.asp?country=Turkey](http://www.enic-naric.net/members.asp?country=Turkey)

## 7. CERTIFICATION OF THE SUPPLEMENT

Registrar

Yıldız BÜYÜKÇOLAK  
24th of March, 2015

## 8. INFORMATION ON THE NATIONAL HIGHER EDUCATION SYSTEM

### Structure and Degree System

The basic structure of the Turkish National Education System consists of stages of noncompulsory pre-school education; compulsory primary (elementary and middle school) and secondary (high school) education; and higher education. Primary education begins at the age of 5.5 (66 months), lasts eight years and comprises elementary and middle school education, four years each. Secondary education is also four years and divided into two categories as "General High School Education" and "Vocational and Technical High School Education". The entry into these categories is through composite scores obtained from a centralized exam for secondary schools.

Higher education system in Turkey is managed by the Council of Higher Education (CoHE, Yükseköğretim Kurulu-YÖK) which is an autonomous public body responsible for the planning, coordination, governance and supervision of higher education within the provisions set forth in the Constitution of the Turkish Republic and the Higher Education Law. Both state and non-profit foundation universities are founded by law and subjected to the Higher Education Law and to the regulations enacted in accordance with it.

Higher education in Turkey comprises all post secondary higher education programmes, consisting of short, first, second, and third cycle degrees in terms of the terminology of the Bologna Process. The structure of Turkish higher education degrees is based on a two-tier system, except for dentistry, pharmacy, medicine and veterinary medicine programmes which have a one-tier system. The duration of these one-tier programmes is five years (300 ECTS) except for medicine which lasts six years (360 ECTS). The qualifications in these one-tier programmes are equivalent to the first cycle (bachelor's) plus second cycle (master's) degree. Undergraduate level of study consists of short cycle (associate's)-(Önlisans derecesi) and first cycle (bachelor's)-(lisans derecesi) degrees which are awarded after successful completion of full-time two-year (120 ECTS) and four-year (240 ECTS) study programmes, respectively.

Graduate level of study consists of second cycle (master's)-(yüksek lisans derecesi) and third cycle (doctorate)-(doktora derecesi) degree programmes. Second cycle is divided into two sub-types named as master without thesis and master with thesis. Master programmes without thesis require 60 to 90 ECTS credits and consist of courses and a semester project. 60 ECTS non-thesis master programmes are exceptional, and exist in a few disciplines. The master programmes with a thesis require 90 to 120 ECTS credits, which consists of courses, a seminar, and a thesis. Third cycle (doctorate) degree programmes are completed having earned a minimum of 180 ECTS credits, which consists of completion of courses, passing a proficiency examination and a doctoral thesis. Specialization in medicine, accepted as equivalent to third cycle programmes are carried out within the faculties of medicine, university hospitals and the training hospitals operated by the Ministry of Health.

Universities consist of graduate schools (Institutes) offering second cycle (master's) and third cycle (doctorate) degree programmes, faculties offering first cycle (bachelor's degree) programmes, four-year higher schools offering first cycle (bachelor's) degree programmes with a vocational emphasis and two-year vocational schools offering short cycle (associate's) degree programmes of a strictly vocational nature.

Since 2003, first cycle degree holders may apply directly to third cycle (doctorate) programmes if their performance at the first cycle degree level is exceptionally high and their national central Graduate Education Entrance Examination (ALES) score is also high and their application is approved. For these students, theoretical part of the programmes requires additional courses of 60 ECTS credits.

Admission of national students to short and first cycle degree programmes is centralized and based on a nationwide one/two-stage examination(s) conducted by an autonomous public body (Assessment, Selection and Placement Centre-ÖSYM). Candidates gain access to institutions of higher education based on their composite scores consisting of the scores on the selection examination and their high school grade point averages. Admission to graduate programmes is directly conducted by the higher education institutions (HEIs) within the frameworks of the publicly available national and institutional regulations. Admission of foreign students to programmes at all levels of higher education can be done by direct applications of candidates to HEIs based on publicly available national and institutional regulations.

**The Turkish National Qualifications Framework for Higher Education (TYYC):** The National Qualifications Framework for Higher Education in Turkey (TYYC) developed with reference to the QF for European Higher Education Area and the EQF for lifelong learning was adopted by the CoHE in 2010. The framework has been developed as a part of a single national qualifications framework, which would eventually consists of 8 level national framework covering all levels of educations on completion of the ongoing work at the national level, in which the higher education levels lie on levels between 5 to 8. The levels of the TYYC with reference to the European overarching qualifications frameworks as well as that to ECTS credits and student workload are shown below.

TYYC LEVELS, QUALIFICATIONS TYPES AND ECTS CREDITS						GENERAL STRUCTURE OF THE TURKISH EDUCATION SYSTEM						
Higher Education Levels/Cycles			AWARDS/DEGREES	LENGTH (Year)	TOTAL ECTS CREDITS (Year*60 ECTS)	TOTAL STUDENT WORKLOAD(h) (1 ECTS=25-30h)						
QF-EHEA	EQF-LLL	TYYC LEVELS										
3	8	8	Doctorate	3 (min.)	180 (min.)	4.500-5.400						
			Specialization in Medicine									
			Doctorate in Art									
2	7	7	Master's Degree	1-2	60-120	1.500-3.600						
1	6	6	Bachelor's Degree	4	240	6.000-7.200						
Short Cycle	5	5	Associate's Degree	2	120	3.000-3.600						

The diagram illustrates the structure of the Turkish education system across different levels and cycles. It shows the progression from Pre-School Education (ages 3-6) through Primary & Compulsory Education (ages 7-14) to Secondary Education (ages 14-24). Higher education is divided into three main categories: General High School Education, Vocational & Technical High School Education, and Higher Education. Higher education levels are mapped to the TYYC levels: Associate's Degree (level 5), Bachelor's Degree (level 6), Master's Degree (level 7), and Doctorate Degree (level 8). The diagram also highlights One-tier Long-cycle Degrees (such as Dentistry, Veterinary, Pharmacy, and Medicine) which fall under the Master's Degree category. A legend indicates that solid boxes represent compulsory levels and dashed boxes represent optional levels.