Course Descriptions of the courses that will be offered in Fall 2020

Turkish-German University

Faculty of Engineering
Mechanical Engineering (German)

AIT001	Ataturk's Principles and History of Turkish Revolution I				
Semester	**Course Unit Code**	**Course Unit Title**	**L+P**	**Credit**	**Number of ECTS Credits**
3	AIT001	Ataturk's Principles and History of Turkish Revolution I	2	2	2

Mode of Delivery:
Face to Face
Language of Instruction:
Turkish
Level of Course Unit:
Bachelor's Degree
Work Placement(s):
No
Department / Program:
Mechanical Engineering (German)
Type of Course Unit:
Required
Objectives of the Course:
To inform students about essential political, economic, social and cultural facts of the historical period from the late eighteenth century through the signing of Lausanne Treaty in 1923; in other words, to inform them about the background of these facts in the course of the transition from the Ottoman Empire to the establishment of republican Turkey. To provide students with some examples of a multi-layered point in order to make them able to approach historical events in a multi-dimensional way. To introduce to students certain basic theoretical concepts, discussions and methods of thought of different social sciences, with a particular emphasis on history.
Teaching Methods and Techniques:
Basic political, economic, social and cultural facts of the historical period beginning by the classical age of the Ottoman Empire and ending by the signing of Lausanne Treaty in 1923 - the fundamental academic interpretations on them.
Prerequisites and co-requisities:

Course Coordinator:

Name of Lecturers:
Dr. Esra Eren
Assistants:

Recommended or Required Reading

Resources	Derleme Ders Notu / Syllabus Eric Hobsbawm, "Kuşbakışı 20. Yüzyıl", Kısa 20 Yüzyıl: Aşırılıklar Çağı içinde , s. 13-31 Cemil Koçak, "Siyasal Tarih: 1923-1950", Çağdaş Türk Derleme Ders Notu / Syllabus Georg Iggers, "Giriş", Yirminci Yüzyılda Tarihyazımı içinde, s. 1-21 Donald Quateert, "Osmanlı Tarihini incelemek Neden Gereklidir ?", Osmar

Course Category

Mathmatics and Basic Sciences	:	**Education**	:
Engineering	:	**Science**	:
Engineering Design	:	**Health**	:
Social Sciences	:	**Field**	:

Weekly Detailed Course Contents

Week	Topics	Study Materials	Materials
1	Introduction: The Possibilities and the limitations of history: basic concepts		
2	Social and Administrative Structure of the Ottoman State, before the attempts of modernization: From 16th to the 18th Ce		
3	Transformation in the Social and Administrative Structure of the Ottoman State, before the attempts of modernization: 18t		
4	The meaning of the modernization and the formation of the modern state		
5	The Tanzimat Era (1839-1876): The Reconstruction of the centralized state		
6	The Era of Abdülhamid II (1876-1908): Defensive Modernization		
7	The Era of Second Constitutional Monarchy : A Constitutional Revolution		
8	MIDTERM		
9	The Era of Second Constitutional Monarchy: Pluralism in the Public Sphere		
10	The First World War: "Total War" and the rise of the nationalism		
11	The General Social and Political Situation in the world and in the Ottoman State after the First World War		
12	The War of Independence I: The Political Developments		
13	The War of Independence I: The Military Developments		
14	The Formation and the Contents of the Lausanne Treaty		

Course Learning Outcomes

No	Learning Outcomes
C01	The students will learn meaning and benefits of historical researches.
C02	The students will learn the pre-modern Ottoman history in general.
C03	The students will be able to evaluate Ottoman history within the European modernization process.
C04	The students will be able to evaluate 19.th century Ottoman history within the context of reform efforts.
C05	The students will understand and evaluate today in relation to the history of Ottoman Empire and modern Turkey.

Program Learning Outcomes

No	Learning Outcome
P08	Awareness of the necessity of lifelong learning; ability to access information, to follow developments in science and technology and to renew himself continuously.
P07	Ability to communicate effectively in verbal and written Turkish; knowledge of at least one foreign language; writing active reports and writing reports, preparing design and production reports, mal
P09	To act in accordance with ethical principles, professional and ethical responsibility; Information on the standards used in engineering applications.
P11	Knowledge of the effects of engineering practices on health, environment and safety in the universal and social dimensions and the problems of the era in engineering; awareness of the legal conse
P10	Information on business practices such as project management, risk management and change management; awareness of entrepreneurship and innovation; information about sustainable developn
P06	Ability to work effectively in disciplinary and multi-disciplinary teams; individual study skills.
P02	Ability to identify, formulate, and solve complex engineering problems; ability to select and apply appropriate analysis and modeling methods for this purpose.
P01	Adequate knowledge in mathematics, science and related engineering discipline; the ability to use theoretical and practical knowledge in these areas in complex engineering problems.
P03	Ability to design a complex system, process, device or product to meet specific requirements under realistic constraints and conditions; ability to apply modern design methods for this purpose.
P05	An ability to design, conduct experiments, collect data, analyze and interpret results for the study of complex engineering problems or disciplinary research topics.
P04	Ability to develop, select and use modern techniques and tools for the analysis and solution of complex problems encountered in engineering applications; ability to use information technologies effe

Assessment Methods and Criteria

In-Term Studies	Quantity	Percentage
Mid-terms	1	%40
Quizzes	0	%0
Assignment	0	%0
Attendance	0	%0
Practice	0	%0
Project	0	%0
Final examination	1	%60
Total		**%100**

ECTS Allocated Based on Student Workload

Activities	Quantity	Duration	Total Work Load
Course Duration	14	2	28
Hours for off-the-c.r.stud	14	2	28
Assignments	0	0	0
Presentation	0	0	0
Mid-terms	1	2	2
Practice	0	0	0
Laboratory	0	0	0
Project	0	0	0
Final examination	1	2	2
Total Work Load			**60**
ECTS Credit of the Course			**2**

Contribution of Learning Outcomes to Programme Outcomes

bbb

	P01	P02	P03	P04	P05	P06	P07	P08	P09	P10
All	5	5	5	5	5	5	5	5	5	5

Turkish-German University

Faculty of Engineering
Mechanical Engineering (German)

DEU121	Technical English I				
Semester	**Course Unit Code**	**Course Unit Title**	**L+P**	**Credit**	**Number of ECTS Credits**
1	DEU121	Technical English I	2	2	2

Mode of Delivery:
Face to Face
Language of Instruction:
Deutch
Level of Course Unit:
Bachelor's Degree
Work Placement(s):
No
Department / Program:
Mechanical Engineering (German)
Type of Course Unit:
Required
Objectives of the Course:
The Students should have german B1 level knowledge in reading, writing, speaking and grammar.
Teaching Methods and Techniques:
Provide students with the ability to write at the basic level (to introduce themselves and others physically / introduce themselves and others as characters / write short stories / CV / e-mail / composition) • Ensure that students improve their B1 level speaking skills (verbal presentation of self and others / directions / directions
Prerequisites and co-requisities:

Course Coordinator:

Name of Lecturers:
Okutman İlknur KARADAĞLI DİRİK
Assistants:

Recommended or Required Reading

Resources	Hutchinson, T. & Sherman, K. (2012). Network 3. Oxford University Press: New York
	0
	2

Course Category

Mathmatics and Basic Sciences	:	**Education**	:	100
Engineering	:	**Science**	:	
Engineering Design	:	**Health**	:	
Social Sciences	:	**Field**	:	

Weekly Detailed Course Contents

Week	Topics	Study Materials	Materials
1	Introduction to the course and the course materials		
2	Welcome to school! Introducing yourself/ Asking questions/ General introduction to English		
3	Let's introduce ourselves/ Welcoming others/Personal information/Present simple and present continuous		
4	Reading and writing: Ms Medina's Spanish Class/ The fashionable milliner		
5	Things happen/ Describing unexpected events/Expressions with 'get'/ Present perfect with 'for' and 'since'		
6	Reding and writing: The 90/10 Secret/ You can do it!		
7	Describing a location/ Describing housing/ Articles		
8	Reading and writing: Sofa Surfing/ The Alhambra		
9	Midterm exams		
10	Seeing old friends/ Talking about an old friend/ Phrasal verbs/ Separable and non-separable phrasal verbs/ reading and sp		
11	Finding a lost friend/Unit 5: Congratulations!/Discussing events in the past		
12	Acheivements/Present perfect and past simple/ Reading and Speaking: Want to win? Get Lin!		
13	Adventure seekers/Unit 6: Healthy Living: Planning to do something healthy/ Health and fitness/ Future/Reading and writin		
14	A healthy lifestyle/ Unit 7: What a pian!/Talking about being late/Transportation problems/Past perfect/Reading and writing		
15	A New York City Taxi Driver/ Unit 8: Eat up! Making suggestions/Describing food/ Tag questions/Reading and Writing: 46 F		

Course Learning Outcomes

No	Learning Outcomes
C01	Students will have B1 level of English knowledge.
C02	Students will develop their reading comprehension skills at B1 level.
C03	Students will improve their ability to understand what they listen at B1.
C04	Students will be informed at B1 level and will be able to use it effectively.
C05	Students will learn vocabulary at B1 level and use them during reading, listening and speaking.
C06	Students will improve their writing abilities at the baseline level (to promote themselves and others physically / introduce themselves and others as characters / write short stories / CV / e-mail).
C07	Students will improve their speaking skills at B1 (verbally introducing themselves / others / asking directions / making directions / telling them what they have done in a past time / describing their

Program Learning Outcomes

No	Learning Outcome
P08	Awareness of the necessity of lifelong learning; ability to access information, to follow developments in science and technology and to renew himself continuously.
P07	Ability to communicate effectively in verbal and written Turkish; knowledge of at least one foreign language; writing active reports and writing reports, preparing design and production reports, mal
P09	To act in accordance with ethical principles, professional and ethical responsibility; Information on the standards used in engineering applications.
P11	Knowledge of the effects of engineering practices on health, environment and safety in the universal and social dimensions and the problems of the era in engineering; awareness of the legal conse
P10	Information on business practices such as project management, risk management and change management; awareness of entrepreneurship and innovation; information about sustainable developn
P06	Ability to work effectively in disciplinary and multi-disciplinary teams; individual study skills.
P02	Ability to identify, formulate, and solve complex engineering problems; ability to select and apply appropriate analysis and modeling methods for this purpose.
P01	Adequate knowledge in mathematics, science and related engineering discipline; the ability to use theoretical and practical knowledge in these areas in complex engineering problems.
P03	Ability to design a complex system, process, device or product to meet specific requirements under realistic constraints and conditions; ability to apply modern design methods for this purpose.
P05	An ability to design, conduct experiments, collect data, analyze and interpret results for the study of complex engineering problems or disciplinary research topics.
P04	Ability to develop, select and use modern techniques and tools for the analysis and solution of complex problems encountered in engineering applications; ability to use information technologies eff

Assessment Methods and Criteria

In-Term Studies	Quantity	Percentage
Mid-terms	1	%40
Quizzes	0	%0
Assignment	0	%0
Attendance	0	%0
Practice	0	%0
Project	0	%0
Final examination	1	%60
Total		**%100**

ECTS Allocated Based on Student Workload

Activities	Quantity	Duration	Total Work Load
Course Duration	15	3	45
Hours for off-the-c.r.stud	0	0	0
Assignments	0	0	0
Presentation	0	0	0
Mid-terms	0	0	0
Practice	0	0	0
Laboratory	0	0	0
Project	0	0	0
Final examination	0	0	0
Total Work Load			**45**
ECTS Credit of the Course			**2**

Contribution of Learning Outcomes to Programme Outcomes

bbb

	P01	P04	P07	P08	P10
All	3	5	5	4	5

Turkish-German University

Faculty of Engineering
Mechanical Engineering (German)

ENG101	English I				
Semester	**Course Unit Code**	**Course Unit Title**	**L+P**	**Credit**	**Number of ECTS Credits**
1	ENG101	English I	3	3	2

Mode of Delivery:
Face to Face
Language of Instruction:
English
Level of Course Unit:
Bachelor's Degree
Work Placement(s):
No
Department / Program:
Mechanical Engineering (German)
Type of Course Unit:
Required
Objectives of the Course:
The Students should have english B1 level knowledge in reading, writing, speaking and grammar.
Teaching Methods and Techniques:
Provide students with the ability to write at the basic level (to introduce themselves and others physically / introduce themselves and others as characters / write short stories / CV / e-mail / composition) • Ensure that students improve their B1 level speaking skills (verbal presentation of self and others / directions / directions
Prerequisites and co-requisities:

Course Coordinator:

Name of Lecturers:
Okutman İlknur KARADAĞLI DİRİK
Assistants:

Recommended or Required Reading

Resources Hutchinson, T. & Sherman, K. (2012). Network 3. Oxford University Press: New York

0
2

Course Category

Mathmatics and Basic Sciences	:	**Education**	:	100
Engineering	:	**Science**	:	
Engineering Design	:	**Health**	:	
Social Sciences	:	**Field**	:	

Weekly Detailed Course Contents

Week	Topics	Study Materials	Materials
1	Introduction to the course and the course materials		
2	Welcome to school! Introducing yourself/ Asking questions/ General introduction to English		
3	Let's introduce ourselves/ Welcoming others/Personal information/Present simple and present continuous		
4	Reading and writing: Ms Medina's Spanish Class/ The fashionable milliner		
5	Things happen/ Describing unexpected events/Expressions with 'get'/ Present perfect with 'for' and 'since'		
6	Reding and writing: The 90/10 Secret/ You can do it!		
7	Describing a location/ Describing housing/ Articles		
8	Reading and writing: Sofa Surfing/ The Alhambra		
9	Midterm exams		
10	Seeing old friends/ Talking about an old friend/ Phrasal verbs/ Separable and non-separable phrasal verbs/ reading and sp		
11	Finding a lost friend/Unit 5: Congratulations!/Discussing events in the past		
12	Acheivements/Present perfect and past simple/ Reading and Speaking: Want to win? Get Lin!		
13	Adventure seekers/Unit 6: Healthy Living: Planning to do something healthy/ Health and fitness/ Future/Reading and writin		
14	A healthy lifestyle/ Unit 7: What a pian!/Talking about being late/Transportation problems/Past perfect/Reading and writing		
15	A New York City Taxi Driver/ Unit 8: Eat up! Making suggestions/Describing food/ Tag questions/Reading and Writing: 46 F		

Course Learning Outcomes

No	Learning Outcomes
C01	Students will have B1 level of English knowledge.
C02	Students will develop their reading comprehension skills at B1 level.
C03	Students will improve their ability to understand what they listen at B1.
C04	Students will be informed at B1 level and will be able to use it effectively.
C05	Students will learn vocabulary at B1 level and use them during reading, listening and speaking.
C06	Students will improve their writing abilities at the baseline level (to promote themselves and others physically / introduce themselves and others as characters / write short stories / CV / e-mail).
C07	Students will improve their speaking skills at B1 (verbally introducing themselves / others / asking directions / making directions / telling them what they have done in a past time / describing their

Program Learning Outcomes

No	Learning Outcome
P08	Awareness of the necessity of lifelong learning; ability to access information, to follow developments in science and technology and to renew himself continuously.
P07	Ability to communicate effectively in verbal and written Turkish; knowledge of at least one foreign language; writing active reports and writing reports, preparing design and production reports, mal
P09	To act in accordance with ethical principles, professional and ethical responsibility; Information on the standards used in engineering applications.
P11	Knowledge of the effects of engineering practices on health, environment and safety in the universal and social dimensions and the problems of the era in engineering; awareness of the legal conse
P10	Information on business practices such as project management, risk management and change management; awareness of entrepreneurship and innovation; information about sustainable developn
P06	Ability to work effectively in disciplinary and multi-disciplinary teams; individual study skills.
P02	Ability to identify, formulate, and solve complex engineering problems; ability to select and apply appropriate analysis and modeling methods for this purpose.
P01	Adequate knowledge in mathematics, science and related engineering discipline; the ability to use theoretical and practical knowledge in these areas in complex engineering problems.
P03	Ability to design a complex system, process, device or product to meet specific requirements under realistic constraints and conditions; ability to apply modern design methods for this purpose.
P05	An ability to design, conduct experiments, collect data, analyze and interpret results for the study of complex engineering problems or disciplinary research topics.
P04	Ability to develop, select and use modern techniques and tools for the analysis and solution of complex problems encountered in engineering applications; ability to use information technologies eff

Assessment Methods and Criteria

In-Term Studies	Quantity	Percentage
Mid-terms	1	%40
Quizzes	0	%0
Assignment	0	%0
Attendance	0	%0
Practice	0	%0
Project	0	%0
Final examination	1	%60
Total		**%100**

ECTS Allocated Based on Student Workload

Activities	Quantity	Duration	Total Work Load
Course Duration	15	3	45
Hours for off-the-c.r.stud	0	0	0
Assignments	0	0	0
Presentation	0	0	0
Mid-terms	0	0	0
Practice	0	0	0
Laboratory	0	0	0
Project	0	0	0
Final examination	0	0	0
Total Work Load			**45**
ECTS Credit of the Course			**2**

Contribution of Learning Outcomes to Programme Outcomes

bbb

	P01	P04	P07	P08	P10	P11
All	3	5	5	4	5	5

Turkish-German University

Faculty of Engineering
Mechanical Engineering (German)

ENG201	English III				
Semester	**Course Unit Code**	**Course Unit Title**	**L+P**	**Credit**	**Number of ECTS Credits**
3	ENG201	English III	3	3	2

Mode of Delivery:
Face to Face
Language of Instruction:
English
Level of Course Unit:
Bachelor's Degree
Work Placement(s):
No
Department / Program:
Mechanical Engineering (German)
Type of Course Unit:
Required
Objectives of the Course:
The Students should have english B2 level knowledge in reading, writing, speaking and grammar.
Teaching Methods and Techniques:
Provide students with the ability to write at the basic level (to introduce themselves and others physically / introduce themselves and others as characters / write short stories / CV / e-mail / composition) • Ensure that students improve their B1 level speaking skills (verbal presentation of self and others / directions / directions
Prerequisites and co-requisities:

Course Coordinator:

Name of Lecturers:
Okutman İlknur KARADAĞLI DİRİK
Assistants:

Recommended or Required Reading

Resources	Hutchinson, T. & Sherman, K. (2012). Network 3. Oxford University Press: New York
	0
	2

Course Category

Mathmatics and Basic Sciences	:	**Education**	:	100
Engineering	:	**Science**	:	
Engineering Design	:	**Health**	:	
Social Sciences	:	**Field**	:	

Weekly Detailed Course Contents

Week	Topics	Study Materials	Materials
1	Introduction to the course and the course materials		
2	Welcome to school! Introducing yourself/ Asking questions/ General introduction to English		
3	Let's introduce ourselves/ Welcoming others/Personal information/Present simple and present continuous		
4	Reading and writing: Ms Medina's Spanish Class/ The fashionable milliner		
5	Things happen/ Describing unexpected events/Expressions with 'get'/ Present perfect with 'for' and 'since'		
6	Reding and writing: The 90/10 Secret/ You can do it!		
7	Describing a location/ Describing housing/ Articles		
8	Reading and writing: Sofa Surfing/ The Alhambra		
9	Midterm exams		
10	Seeing old friends/ Talking about an old friend/ Phrasal verbs/ Separable and non-separable phrasal verbs/ reading and sp		
11	Finding a lost friend/Unit 5: Congratulations!/Discussing events in the past		
12	Acheivements/Present perfect and past simple/ Reading and Speaking: Want to win? Get Lin!		
13	Adventure seekers/Unit 6: Healthy Living: Planning to do something healthy/ Health and fitness/ Future/Reading and writin		
14	A healthy lifestyle/ Unit 7: What a pian!/Talking about being late/Transportation problems/Past perfect/Reading and writing		
15	A New York City Taxi Driver/ Unit 8: Eat up! Making suggestions/Describing food/ Tag questions/Reading and Writing: 46 F		

Course Learning Outcomes

No	Learning Outcomes
C01	Students will have B1 level of English knowledge.
C02	Students will develop their reading comprehension skills at B1 level.
C03	Students will improve their ability to understand what they listen at B1.
C04	Students will be informed at B1 level and will be able to use it effectively.
C05	Students will learn vocabulary at B1 level and use them during reading, listening and speaking.
C06	Students will improve their writing abilities at the baseline level (to promote themselves and others physically / introduce themselves and others as characters / write short stories / CV / e-mail).
C07	Students will improve their speaking skills at B1 (verbally introducing themselves / others / asking directions / making directions / telling them what they have done in a past time / describing their

Program Learning Outcomes

No	Learning Outcome
P08	Awareness of the necessity of lifelong learning; ability to access information, to follow developments in science and technology and to renew himself continuously.
P07	Ability to communicate effectively in verbal and written Turkish; knowledge of at least one foreign language; writing active reports and writing reports, preparing design and production reports, mal
P09	To act in accordance with ethical principles, professional and ethical responsibility; Information on the standards used in engineering applications.
P11	Knowledge of the effects of engineering practices on health, environment and safety in the universal and social dimensions and the problems of the era in engineering; awareness of the legal conse
P10	Information on business practices such as project management, risk management and change management; awareness of entrepreneurship and innovation; information about sustainable developn
P06	Ability to work effectively in disciplinary and multi-disciplinary teams; individual study skills.
P02	Ability to identify, formulate, and solve complex engineering problems; ability to select and apply appropriate analysis and modeling methods for this purpose.
P01	Adequate knowledge in mathematics, science and related engineering discipline; the ability to use theoretical and practical knowledge in these areas in complex engineering problems.
P03	Ability to design a complex system, process, device or product to meet specific requirements under realistic constraints and conditions; ability to apply modern design methods for this purpose.
P05	An ability to design, conduct experiments, collect data, analyze and interpret results for the study of complex engineering problems or disciplinary research topics.
P04	Ability to develop, select and use modern techniques and tools for the analysis and solution of complex problems encountered in engineering applications; ability to use information technologies eff

Assessment Methods and Criteria

In-Term Studies	Quantity	Percentage
Mid-terms	1	%40
Quizzes	0	%0
Assignment	0	%0
Attendance	0	%0
Practice	0	%0
Project	0	%0
Final examination	1	%60
Total		**%100**

ECTS Allocated Based on Student Workload

Activities	Quantity	Duration	Total Work Load
Course Duration	15	3	45
Hours for off-the-c.r.stud	0	0	0
Assignments	0	0	0
Presentation	0	0	0
Mid-terms	0	0	0
Practice	0	0	0
Laboratory	0	0	0
Project	0	0	0
Final examination	0	0	0
Total Work Load			**45**
ECTS Credit of the Course			**2**

Contribution of Learning Outcomes to Programme Outcomes

bbb

	P01	P04	P07	P08	P10
All	3	5	5	4	5

Turkish-German University

Faculty of Engineering
Mechanical Engineering (German)

INF101	Introduction to Computer Science and Programming				
Semester	**Course Unit Code**	**Course Unit Title**	**L+P**	**Credit**	**Number of ECTS Credits**
1	INF101	Introduction to Computer Science and Programming	4	4	6

Mode of Delivery:
Face to Face
Language of Instruction:
Deutch
Level of Course Unit:
Bachelor's Degree
Work Placement(s):
No
Department / Program:
Mechanical Engineering (German)
Type of Course Unit:
Required
Objectives of the Course:
Students will learn basic concepts and methods of computer science Explain. Imperative programming and basic data structures They are knowledgeable and practical. Problem solutions algorithmically and to C and C ++ programs Can convert.
Teaching Methods and Techniques:
Introduction to Computer Science: ? Data representation, Number display ? Encryption ? Logic circuits ? Processors ? Operating Systems Introduction to Programming: ? Algorithm, Program ? The modular structure of C programs ? Data types, Variables, Operators, Cycles ? Data Structure, Arrayler ? Functions ? Pointer Students will learn about these concepts and information, solving them on their own, and writing and delivering the program. At the end of the period, the computer by programming the microprocessor idea about how programs are written in the world outside they learn
Prerequisites and co-requisities:

Course Coordinator:

Name of Lecturers:
Asist Prof.Dr. Burcu Yıldız
Assistants:

Recommended or Required Reading

Resources

Hartmut Ernst, Jochen Schmidt, Gerd Beneken. Grundkurs Informatik. Springer Viewek, 2016 Helmut Erlenkötter. C: Programmieren von Anfang an. Rowohlt Taschenbucl
Hartmut Ernst, Jochen Schmidt, Gerd Beneken. Grundkurs
Informatik. Springer Viewek, 2016
Helmut Erlenkötter. C: Programmieren von Anfang an. Rowohlt
Taschenbuch Verlag, 1999.

Course Category

Mathmatics and Basic Sciences	:	10	**Education**	:	
Engineering	:	50	**Science**	:	
Engineering Design	:		**Health**	:	
Social Sciences	:		**Field**	:	40

Weekly Detailed Course Contents

Week	Topics	Study Materials	Materials
1	Introduction to Computer Science, Data Representation, Boole Algebra		
2	C Programming		
3	Encryption & Cryptography		
4	C Programing		
5	C Programling		
6	Computer Architecture and Machine Language		
7	C Programing		
8	Exam Week		
9	C Programing		
10	Computer Networks		
11	C Programing		
12	Operating Systems		
13	IT and Data Security		
14	Final Exam		

Course Learning Outcomes

No	Learning Outcomes
C01	Ability to use and program their own knowledge technologies
C02	Security of computer architecture, logical circuits and information technology
C03	Basic information about microcontroller programming

Program Learning Outcomes

No	Learning Outcome
P08	Awareness of the necessity of lifelong learning; ability to access information, to follow developments in science and technology and to renew himself continuously.
P07	Ability to communicate effectively in verbal and written Turkish; knowledge of at least one foreign language; writing active reports and writing reports, preparing design and production reports, mal
P09	To act in accordance with ethical principles, professional and ethical responsibility; Information on the standards used in engineering applications.
P11	Knowledge of the effects of engineering practices on health, environment and safety in the universal and social dimensions and the problems of the era in engineering; awareness of the legal conse
P10	Information on business practices such as project management, risk management and change management; awareness of entrepreneurship and innovation; information about sustainable developn
P06	Ability to work effectively in disciplinary and multi-disciplinary teams; individual study skills.
P02	Ability to identify, formulate, and solve complex engineering problems; ability to select and apply appropriate analysis and modeling methods for this purpose.
P01	Adequate knowledge in mathematics, science and related engineering discipline; the ability to use theoretical and practical knowledge in these areas in complex engineering problems.
P03	Ability to design a complex system, process, device or product to meet specific requirements under realistic constraints and conditions; ability to apply modern design methods for this purpose.
P05	An ability to design, conduct experiments, collect data, analyze and interpret results for the study of complex engineering problems or disciplinary research topics.
P04	Ability to develop, select and use modern techniques and tools for the analysis and solution of complex problems encountered in engineering applications; ability to use information technologies effe

Assessment Methods and Criteria

In-Term Studies	Quantity	Percentage
Mid-terms	0	%0
Quizzes	0	%0
Assignment	6	%60
Attendance	0	%0
Practice	0	%0
Project	0	%0
Final examination	1	%40
Total		**%100**

ECTS Allocated Based on Student Workload

Activities	Quantity	Duration	Total Work Load
Course Duration	28	1	28
Hours for off-the-c.r.stud	66	1	66
Assignments	6	5	30
Presentation	0	0	0
Mid-terms	0	0	0
Practice	14	1	14
Laboratory	28	1	28
Project	0	0	0
Final examination	1	2	2
Total Work Load			**168**
ECTS Credit of the Course			**6**

Contribution of Learning Outcomes to Programme Outcomes

bbb

	P01	P02	P03	P04	P05	P06	P07	P08	P09	P10
All	5	5	5	5	5	5	5	5	5	5

Turkish-German University

Faculty of Engineering
Mechanical Engineering (German)

MAB101	Introduction to Mechanical Engineering				
Semester	**Course Unit Code**	**Course Unit Title**	**L+P**	**Credit**	**Number of ECTS Credits**
1	MAB101	Introduction to Mechanical Engineering	2	2	2

Mode of Delivery:
Face to Face
Language of Instruction:
Deutch
Level of Course Unit:
Bachelor's Degree
Work Placement(s):
No
Department / Program:
Mechanical Engineering (German)
Type of Course Unit:
Required
Objectives of the Course:
With the rapid development of engineering profession technology, it is turning. This is the case for cyber-physical systems has become more obvious with its spread. Strong in the classical industry Information technology networks that evolve in a way creating new value added potentials in their areas. Under the Industry 4.0 Initiative, modern mechanical engineering just how a machine can work reliably not relevant, adaptable, resource efficient, ergonomic and to create business and value for customers and partners Creating smart factories that integrate processes design and implementation of complex production systems it is necessary to carry out studies related to The purpose of this introductory course is to analyze industrial cases and modern engineering for students with the help of business games perspective of professional practice related to various fields of study to gain
Teaching Methods and Techniques:
Students from the academy and business world industry with examples.
Prerequisites and co-requisities:

Course Coordinator:

Name of Lecturers:
Dr. Pınar Bilge
Assistants:

Recommended or Required Reading

Resources

Moeller, K.: Wertschöpfung in Netzen. Vahlen Verlag, 2006. Seliger, G.; Weinert, N.; Zettl, M.: Module Configurator for the Development of Products for Ease of Remanufa
Moeller, K.: Wertschöpfung in Netzen. Vahlen Verlag, 2006.
Seliger, G.; Weinert, N.; Zettl, M.: Module Configurator for the
Development of Products for Ease of Remanufacturing. In:
Proceedings of 14th CIRP International Conference on Life Cycle
Engineering. Tokyo, Japan, June 11-13, 2007. S. 47–52.
Spur, G.: Handbuch der Fertigungstechnik – Fabrikbetrieb. Carl Hanser

Course Category

Mathmatics and Basic Sciences	:	30	**Education**	:	
Engineering	:	50	**Science**	:	
Engineering Design	:	10	**Health**	:	
Social Sciences	:		**Field**	:	10

Weekly Detailed Course Contents

Week	Topics	Study Materials	Materials
1	Requirements for university research		
2	Requirements for university		
3	Sustainable industrial value-added production		
4	Sustainable industrial value-added production		
5	Requirements for aerospace industry		
6	Requirements for aerospace industry		
7	Case studies from the fields of production logistics, automation and product-service systems		
8	Case studies from the fields of production logistics, automation and product-service systems		
9	Requirements for the automotive industry		
10	Requirements for the automotive industry		
11	Disputes between technology and management in manufacturing technologies		
13	Continuous improvement projects		
14	Continuous improvement projects		

Course Learning Outcomes

No	Learning Outcomes
C01	To have presentation and reporting skills
C02	Fundamentals of Engineering Sciences
C03	Understand current trends in engineering

Program Learning Outcomes

No	Learning Outcome
P08	Awareness of the necessity of lifelong learning; ability to access information, to follow developments in science and technology and to renew himself continuously.
P07	Ability to communicate effectively in verbal and written Turkish; knowledge of at least one foreign language; writing active reports and writing reports, preparing design and production reports, mal
P09	To act in accordance with ethical principles, professional and ethical responsibility; Information on the standards used in engineering applications.
P11	Knowledge of the effects of engineering practices on health, environment and safety in the universal and social dimensions and the problems of the era in engineering; awareness of the legal conse
P10	Information on business practices such as project management, risk management and change management; awareness of entrepreneurship and innovation; information about sustainable developn
P06	Ability to work effectively in disciplinary and multi-disciplinary teams; individual study skills.
P02	Ability to identify, formulate, and solve complex engineering problems; ability to select and apply appropriate analysis and modeling methods for this purpose.
P01	Adequate knowledge in mathematics, science and related engineering discipline; the ability to use theoretical and practical knowledge in these areas in complex engineering problems.
P03	Ability to design a complex system, process, device or product to meet specific requirements under realistic constraints and conditions; ability to apply modern design methods for this purpose.
P05	An ability to design, conduct experiments, collect data, analyze and interpret results for the study of complex engineering problems or disciplinary research topics.
P04	Ability to develop, select and use modern techniques and tools for the analysis and solution of complex problems encountered in engineering applications; ability to use information technologies effe

Assessment Methods and Criteria

In-Term Studies	Quantity	Percentage
Mid-terms	1	%0
Quizzes	0	%40
Assignment	0	%0
Attendance	0	%0
Practice	0	%0
Project	0	%0
Final examination	1	%60
Total		**%100**

ECTS Allocated Based on Student Workload

Activities	Quantity	Duration	Total Work Load
Course Duration	14	1	14
Hours for off-the-c.r.stud	0	0	0
Assignments	0	0	0
Presentation	0	0	0
Mid-terms	1	3	3
Practice	0	0	0
Laboratory	0	0	0
Project	0	0	0
Final examination	4	4	16
Total Work Load			**33**
ECTS Credit of the Course			**1**

Contribution of Learning Outcomes to Programme Outcomes

bbb

	P01	P02	P03	P04	P05	P06	P07	P08	P09	P10
All	5	5	5	5	5	5	5	5	5	5

Turkish-German University

Faculty of Engineering
Mechanical Engineering (German)

MAB203	Design Methods II: Mechanical Part Design				
Semester	**Course Unit Code**	**Course Unit Title**	**L+P**	**Credit**	**Number of ECTS Credits**
3	MAB203	Design Methods II: Mechanical Part Design	3	5	6

Mode of Delivery:
Face to Face
Language of Instruction:
Deutch
Level of Course Unit:
Bachelor's Degree
Work Placement(s):
No
Department / Program:
Mechanical Engineering (German)
Type of Course Unit:
Required
Objectives of the Course:
• Parts Creation and Sizing • Three Dimensional Computer Aided Design Introduction • Introduction to Design Hierarchy and Design Methodology in Production Process • Methodical Approach and Process in Creating Simple Parts • Tolerance and Compliance The skills to be acquired by the students: • Basic Skill about the Implementation of the Engineering Approach Format and the Working Techniques in Creating Simple Designs • Ability to create Design Drawings Independently Based on Given Boundary Conditions Competencies: • Competence about the solution and analysis of a simple technical problem Subject Adequacy: 40% Method Adequacy: 30% System Adequacy: 20% Social Qualification: 10%
Teaching Methods and Techniques:
Lecture: • Technical Drawing Principles as Design and Manufacturing Information Source • Parts Creation and Sizing • Introduction to Design Hierarchy and Design Methodology in Production Process (Construction Process and Production Modularization) • Introduction to Standard / Norm Information • Tolerance Applications: • Manually Creating Technical Drawings of Given Bodies Considering Boundary and Connection Conditions • Modeling with 3D Computer Aided Design Environment Laboratory: • Detailed Design with All Required Drawings • Modeling with 3D Computer Aided Design Environment
Prerequisites and co-requisities:

Course Coordinator:

Name of Lecturers:
Asist Prof.Dr. Mete BUDAKLI
Assistants:
Ismail KÜLCÜResearch Assist. Ahmet Ugur BATUKResearch Assist. Süleyman SISMANResearch Assist. Sefer Arda SERBES

Recommended or Required Reading

Resources D.C. Planchard ve M.P. Planchard, Engineering Design with SolidWorks 2014 and Video

• Schlecht, Berthold: Maschinenelemente 1. Pearson Studium,
• München, 2007
• DIN-Normen; & Quot; Tabellenbuch Metall & quot ;, Europa-Verlag 2014
• Course notes are available in electronic environment. Drawing tools, Autodesk Inventor

Course Category

Mathmatics and Basic Sciences	:	0	**Education**	:	0
Engineering	:	10	**Science**	:	0
Engineering Design	:	80	**Health**	:	0
Social Sciences	:	0	**Field**	:	0

Weekly Detailed Course Contents

Week	Topics	Study Materials	Materials
1	Introduction to Design Methods		
2	Product Design Process		
3	Principles of Methodical Design		
4	Introduction to Design Process with Autodesk Inventor IIntroduction to Design Process with Autodesk Inventor II		
5	Introduction to Design Process with Autodesk Inventor III		
6	Introduction to Design Process with Autodesk Inventor IV		
7	Technical drawing		
8	Creating Assembly Design with Autodesk Inventor ICreating Assembly Design with Autodesk Inventor II		
9	Standards / Norms		
10	Creating Assembly Design with Autodesk Inventor IIICreating Assembly Design with Autodesk Inventor IV		
11	Computer Aided Design Introduction and Design IComputer Aided Design Introduction and Design II		
12	Computer Aided Design Introduction and Design IIIComputer Aided Design Introduction and Design IV		

Course Learning Outcomes

No	Learning Outcomes
C01	To acquire sufficient knowledge about mathematics, science and mechanical engineering and to apply the theoretical and practical knowledge in these fields to model and solve engineering problem
C02	Ability to identify, define, formulate and solve complex engineering problems, and to select and apply appropriate analysis and modeling methods in mechanical engineering for this purpose.
C03	Experiment design, experimentation, data collection, analysis and interpretation of results for engineering problems.
C04	Understanding of two-dimensional views of 3D objects (conjugate projection, auxiliary and cross-section) in terms of vertical projection
C05	Dimensioning of 2D technical drawings and recognition of tolerances
C06	Understanding technical drawing standards and practices applied in the industry

Program Learning Outcomes

No	Learning Outcome
P08	Awareness of the necessity of lifelong learning; ability to access information, to follow developments in science and technology and to renew himself continuously.
P07	Ability to communicate effectively in verbal and written Turkish; knowledge of at least one foreign language; writing active reports and writing reports, preparing design and production reports, mal
P09	To act in accordance with ethical principles, professional and ethical responsibility; Information on the standards used in engineering applications.
P11	Knowledge of the effects of engineering practices on health, environment and safety in the universal and social dimensions and the problems of the era in engineering; awareness of the legal conse
P10	Information on business practices such as project management, risk management and change management; awareness of entrepreneurship and innovation; information about sustainable developn
P06	Ability to work effectively in disciplinary and multi-disciplinary teams; individual study skills.
P02	Ability to identify, formulate, and solve complex engineering problems; ability to select and apply appropriate analysis and modeling methods for this purpose.
P01	Adequate knowledge in mathematics, science and related engineering discipline; the ability to use theoretical and practical knowledge in these areas in complex engineering problems.
P03	Ability to design a complex system, process, device or product to meet specific requirements under realistic constraints and conditions; ability to apply modern design methods for this purpose.
P05	An ability to design, conduct experiments, collect data, analyze and interpret results for the study of complex engineering problems or disciplinary research topics.
P04	Ability to develop, select and use modern techniques and tools for the analysis and solution of complex problems encountered in engineering applications; ability to use information technologies effe

Assessment Methods and Criteria

In-Term Studies	Quantity	Percentage
Mid-terms	1	%40
Quizzes	0	%0
Assignment	0	%0
Attendance	0	%0
Practice	0	%0
Project	0	%0
Final examination	1	%60
Total		**%100**

ECTS Allocated Based on Student Workload

Activities	Quantity	Duration	Total Work Load
Course Duration	14	45	630
Hours for off-the-c.r.stud	84	45	3780
Assignments	0	0	0
Presentation	0	0	0
Mid-terms	1	80	80
Practice	28	45	1260
Laboratory	14	45	630
Project	0	0	0
Final examination	1	120	120
Total Work Load			**6500**
ECTS Credit of the Course			**217**

Contribution of Learning Outcomes to Programme Outcomes

bbb

	P01	P02	P03	P04	P05	P06	P07	P08	P09	P10
All	5	5	5	5	5	5	5	5	5	5

Turkish-German University

Faculty of Engineering
Mechanical Engineering (German)

MAT103	Analysis I				
Semester	**Course Unit Code**	**Course Unit Title**	**L+P**	**Credit**	**Number of ECTS Credits**
1	MAT103	Analysis I	5	5	6

Mode of Delivery:
Face to Face
Language of Instruction:
Deutch
Level of Course Unit:
Bachelor's Degree
Work Placement(s):
No
Department / Program:
Mechanical Engineering (German)
Type of Course Unit:
Required
Objectives of the Course:
Analysis I
Teaching Methods and Techniques:
Real Numbers, Number Representations, Difference, Range Equations, Inequalities, Solution Set Coordinate Systems, True, Slope Functions, Function Graph Limit, Continuity in Functions Difference, Increase / Decrease Rate, Tangent Derivative, Derivative Account, Function Derivative Applications of Derivative Account Integral Account, Definite and Indefinite Integral The Basic Theory of Analysis Applications of Integral Account Infinite Series, Taylor-Series, Fourier-Series
Prerequisites and co-requisities:

Course Coordinator:

Name of Lecturers:
Asist Prof.Dr. Canan Yıldız
Assistants:
Research Assist. Ozan SubaşıResearch Assist. Süleyman Şişman

Recommended or Required Reading

Resources Calculus: A Complete Course, Robert A. Adams,C Essex 7th Edition,Addison Wesley Longman Toronto 2010,Thomas' Calculus, 12th Edition, G.B Thomas, M.D.Weir, J.Has
Thomas' Calculus, 12th Edition, G.B Thomas, M.D.Weir, J.Hass and F.R.Giordano, Addison-Wesley, 2012
-
-
-

Course Category

Mathmatics and Basic Sciences	:	100	**Education**	:	
Engineering	:		**Science**	:	
Engineering Design	:		**Health**	:	
Social Sciences	:		**Field**	:	

Weekly Detailed Course Contents

Week	Topics	Study Materials	Materials
1	Functions:Functions and their graphs, Trigonometric functions	-	Thomas' Calculus, 12th Edition, G.B Thc
2	Limits and ContiunityRates of Change and Tangents to Curves, Limit of a Function and Limit Laws, The Sandwich (The Squ	-	Thomas' Calculus, 12th Edition, G.B Thc
3	Differentiation:Tangents ,Normal Lines , The Derivative at a Point, The Derivate as a Function, Differential	-	Thomas' Calculus, 12th Edition, G.B Thc
4	Derivatives of Trigonometric Fnctions, The chain rule, Implicit Differentiation, Linearization and Differentials	-	Thomas' Calculus, 12th Edition, G.B Thc
5	Applications of derivatives:Extrem Values of Functions, Critical Points, Rolle's Theorem, The Mean Value Theorem, Monotor	-	Thomas' Calculus, 12th Edition, G.B Thc
6	Concavity and Curve Sketching, The Second Derivative Test for Concavity, Point of İnflection The Second Derivative Test fc	-	Thomas' Calculus, 12th Edition, G.B Thc
7	Integration:Area and Estimating with Finite Sums, Average Value of Nonnegative Continuous Functions, Sigma Notation an	-	Thomas' Calculus, 12th Edition, G.B Thc
8	(Quizexam) Mean Value Theorem fo Definite İntegrals, The Fundamental Theorem of Calculus: Fundamental Theorem Part	-	Thomas' Calculus, 12th Edition, G.B Thc

Course Learning Outcomes

No	Learning Outcomes
C01	Understands the basic concepts of analysis: - The definition of the derivative as the "rate of change" and the limit of the ratio of the differences calculation, - Definition of the integral as infinite "To
C02	You can analyze the properties and behaviors of the functions and the function graph (asymptotes, critical points, with the help of derivative tests for slope and curvature).
C03	The derivative account can be used to solve problems in the field of application (eg. Optimization, linked rates).
C04	Integral calculation of curve length, volume and area calculation and application area can be used to solve other problems.
C05	Certain and indefinite Integrals can be solved using various integration methods.
C06	He can examine convergence behavior of improper integrals, convergent has non-integrals.
C07	One can detect convergence / divergence of infinite series
C08	One can calculate Taylor expansion around a point for a function.

Program Learning Outcomes

No	Learning Outcome
P08	Awareness of the necessity of lifelong learning; ability to access information, to follow developments in science and technology and to renew himself continuously.
P07	Ability to communicate effectively in verbal and written Turkish; knowledge of at least one foreign language; writing active reports and writing reports, preparing design and production reports, mal
P09	To act in accordance with ethical principles, professional and ethical responsibility; Information on the standards used in engineering applications.
P11	Knowledge of the effects of engineering practices on health, environment and safety in the universal and social dimensions and the problems of the era in engineering; awareness of the legal conse
P10	Information on business practices such as project management, risk management and change management; awareness of entrepreneurship and innovation; information about sustainable developn
P06	Ability to work effectively in disciplinary and multi-disciplinary teams; individual study skills.
P02	Ability to identify, formulate, and solve complex engineering problems; ability to select and apply appropriate analysis and modeling methods for this purpose.
P01	Adequate knowledge in mathematics, science and related engineering discipline; the ability to use theoretical and practical knowledge in these areas in complex engineering problems.
P03	Ability to design a complex system, process, device or product to meet specific requirements under realistic constraints and conditions; ability to apply modern design methods for this purpose.
P05	An ability to design, conduct experiments, collect data, analyze and interpret results for the study of complex engineering problems or disciplinary research topics.
P04	Ability to develop, select and use modern techniques and tools for the analysis and solution of complex problems encountered in engineering applications; ability to use information technologies effe

Assessment Methods and Criteria

In-Term Studies	Quantity	Percentage
Mid-terms	1	%30
Quizzes	0	%0
Assignment	0	%0
Attendance	0	%0
Practice	14	%30
Project	0	%0
Final examination	1	%40
Total		**%100**

ECTS Allocated Based on Student Workload

Activities	Quantity	Duration	Total Work Load
Course Duration	14	3	42
Hours for off-the-c.r.stud	14	2	28
Assignments	0	0	0
Presentation	0	0	0
Mid-terms	1	3	3
Practice	14	2	28
Laboratory	0	0	0
Project	0	0	0
Final examination	1	3	3
Total Work Load			**104**
ECTS Credit of the Course			**3**

Contribution of Learning Outcomes to Programme Outcomes

bbb

	P01	P02	P03	P04	P05	P06	P07	P08	P09	P10
All	5	5	5	5	5	5	5	5	5	5

Turkish-German University

Faculty of Engineering
Mechanical Engineering (German)

MAT201	Differantial Equaitons				
Semester	**Course Unit Code**	**Course Unit Title**	**L+P**	**Credit**	**Number of ECTS Credits**
3	MAT201	Differantial Equaitons	4	5	6

Mode of Delivery:
Face to Face
Language of Instruction:
Deutch
Level of Course Unit:
Bachelor's Degree
Work Placement(s):
No
Department / Program:
Mechanical Engineering (German)
Type of Course Unit:
Required
Objectives of the Course:
The students should • understand the essential mathematical concepts of differential equations • have the methodical foundations for the mathematical foundation of natural and engineering sciences, • have a sound knowledge of scientific and mathematical content, principles and methods, • Master basic concepts and techniques and apply them to various (physical) problems. Knowledge & Understanding: 70% Analysis & Methodology: 30%
Teaching Methods and Techniques:
• Differential equations 1st order • Linear differential equations of 2nd order, in particular with constant coefficients • Separation solutions • Integrating factor • indefinite coefficients and variation of the constants, • sinusoidal and exponential disturbance functions, • Nonlinear autonomous systems, critical points and phase diagrams • existence and uniqueness, stability • modeling • Numerical and graphical solution methods • systems of linear differential equations; Eigenvalues, eigenvectors, fundamental matrices • Laplace transformation, solution of the linear differential equations with Laplace transformation • Delta function, convolution.
Prerequisites and co-requisities:

Course Coordinator:

Name of Lecturers:
Asist Prof.Dr. Mehmet Gökhan Gökçen
Assistants:
Research Assist. Sefer Arda SerbesResearch Assist. Uğur Yıldırım

Recommended or Required Reading

Resources • P. Furlan, Das Gelbe Rechenbuch 3 • Skriptum „Integraltransformationen und partielle Differentialgleichungen für Ingenieure", Prof. Dr. Dirk Ferus • https://drive.google.com/drive/folders/0B0yLQsBqSm-9R3h5SmFhb3pHMEk
https://drive.google.com/drive/folders/0B0yLQsBqSm-9R3h5SmFhb3pHMEk
https://drive.google.com/drive/folders/0B0yLQsBqSm-9R3h5SmFhb3pHMEk

Course Category

Mathmatics and Basic Sciences	:	100	**Education**	:	
Engineering	:		**Science**	:	
Engineering Design	:		**Health**	:	
Social Sciences	:		**Field**	:	

Weekly Detailed Course Contents

Week	Topics	Study Materials	Materials
1	Intro		
2	1. order DE		
3	2. Order, const. coeff. LDE		
4	Separation of variables		
5	Integrating factor		
6	undetermined coeff and variation of constantsUnbestimmte Koeffizienten und Variation der Konstanten		
7	Sine and exponantial forcing functions		
8	Nonlinear Autonomous Systems, Critical Points and Phase Diagrams		
9	Existence and uniqueness, stability		
10	Modeling		
11	Numerical and graphical solutions		
12	System of LDEs		
13	Eigenvalues, eigenvectors, fundamental matrices		
14	Laplace transformation, solution of the linear differential equations with Laplace transformation		

Course Learning Outcomes

No	Learning Outcomes
C01	Model a simple, physical system in the form of a first-degree DE.
C02	To test the plausibility of a solution of a DE (analyzing extreme cases, graphic analysis, reality check, control of units ...).
C03	Visualize solutions of a DE using directional fields and approximate them using the Eulerian method.
C04	Find and classify critical points of an autonomous DE, and describe with them the qualitative behavior of the solutions.
C05	Know basic types of DEs and use them to model exponential growth / decay, spring-mass systems, LRC circles, etc.
C06	Solve DEs with different interfering functions (zero, constant, exponential, sinusoidal, step function, impulse, superpositions of these).
C07	Understand and use the following properties of linear systems: Solution, Stability, Transient, Steady State, Phase Response, Amplitude Response, Amplitude Phase Shape, Weight and Transfer Func
C08	Use the following techniques to solve DEs: characteristic equation, exponential response formula, laplace transformation, convolution integral, Fourier series, complex arithmetic, parameter variatio
C09	Know the basic concepts of linearity, superposition, existence, and uniqueness of solutions and use them to solve DEs.

Program Learning Outcomes

No	Learning Outcome
P08	Awareness of the necessity of lifelong learning; ability to access information, to follow developments in science and technology and to renew himself continuously.
P07	Ability to communicate effectively in verbal and written Turkish; knowledge of at least one foreign language; writing active reports and writing reports, preparing design and production reports, mal
P09	To act in accordance with ethical principles, professional and ethical responsibility; Information on the standards used in engineering applications.
P11	Knowledge of the effects of engineering practices on health, environment and safety in the universal and social dimensions and the problems of the era in engineering; awareness of the legal conse
P10	Information on business practices such as project management, risk management and change management; awareness of entrepreneurship and innovation; information about sustainable developn
P06	Ability to work effectively in disciplinary and multi-disciplinary teams; individual study skills.
P02	Ability to identify, formulate, and solve complex engineering problems; ability to select and apply appropriate analysis and modeling methods for this purpose.
P01	Adequate knowledge in mathematics, science and related engineering discipline; the ability to use theoretical and practical knowledge in these areas in complex engineering problems.
P03	Ability to design a complex system, process, device or product to meet specific requirements under realistic constraints and conditions; ability to apply modern design methods for this purpose.
P05	An ability to design, conduct experiments, collect data, analyze and interpret results for the study of complex engineering problems or disciplinary research topics.
P04	Ability to develop, select and use modern techniques and tools for the analysis and solution of complex problems encountered in engineering applications; ability to use information technologies effe

Assessment Methods and Criteria

In-Term Studies	Quantity	Percentage
Mid-terms	1	%30
Quizzes	0	%0
Assignment	1	%10
Attendance	0	%0
Practice	1	%10
Project	0	%0
Final examination	1	%50
Total		**%100**

ECTS Allocated Based on Student Workload

Activities	Quantity	Duration	Total Work Load
Course Duration	28	1	28
Hours for off-the-c.r.stud	86	1	86
Assignments	1	8	8
Presentation	0	0	0
Mid-terms	1	2	2
Practice	28	1	28
Laboratory	14	1	14
Project	0	0	0
Final examination	1	2	2
Total Work Load			**168**
ECTS Credit of the Course			**6**

Contribution of Learning Outcomes to Programme Outcomes

bbb

	P01	P02	P03	P04	P05	P06	P07	P08	P09	P10
All	5	5	5	5	5	5	5	5	5	5
C01	5									
C02	5									
C03	5									
C04	5									
C05	5									
C06	5									
C07	5									
C08	5									
C09	5									

Turkish-German University

Faculty of Engineering
Mechanical Engineering (German)

MEC107	Design Methods I: Technical Drawing and CAD				
Semester	**Course Unit Code**	**Course Unit Title**	**L+P**	**Credit**	**Number of ECTS Credits**
1	MEC107	Design Methods I: Technical Drawing and CAD	3	4	6

Mode of Delivery:
Face to Face
Language of Instruction:
Deutch
Level of Course Unit:
Bachelor's Degree
Work Placement(s):
No
Department / Program:
Mechanical Engineering (German)
Type of Course Unit:
Required
Objectives of the Course:
Information students will receive: • Technical Drawing Principles as Design and Manufacturing Information Source • Parts Creation and Sizing • Three Dimensional Computer Aided Design Introduction • Introduction to Design Hierarchy and Design Methodology in Production Process • Methodical Approach and Process in Creating Simple Parts • Tolerance and Compliance The skills to be acquired by the students: • Basic Skill about the Implementation of the Engineering Approach Format and the Working Techniques in Creating Simple Designs • Ability to create Design Drawings Independently Based on Given Boundary Conditions Competencies: • Competence about the solution and analysis of a simple technical problem Subject Adequacy: 40% Method Adequacy: 30% System Adequacy: 20% Social Qualification: 10%
Teaching Methods and Techniques:
Lecture: • Technical Drawing Principles as Design and Manufacturing Information Source • Parts Creation and Sizing • Introduction to Design Hierarchy and Design Methodology in Production Process (Construction Process and Production Modularization) • Introduction to Standard / Norm Information • Tolerance Applications: • Manually Creating Technical Drawings of Given Bodies Considering Boundary and Connection Conditions • Modeling with 3D Computer Aided Design Environment Laboratory: • Detailed Design with All Required Drawings • Modeling with 3D Computer Aided Design Environment
Prerequisites and co-requisities:

Course Coordinator:

Name of Lecturers:
Asist Prof.Dr. Mete BUDAKLI
Assistants:
Ismail KÜLCÜResearch Assist. Ahmet Ugur BATUKResearch Assist. Süleyman SISMANResearch Assist. Sefer Arda SERBES

Recommended or Required Reading

Resources

D.C. Planchard ve M.P. Planchard, Engineering Design with SolidWorks 2014 and Video

• Schlecht, Berthold: Maschinenelemente 1. Pearson Studium,
• München, 2007
• DIN-Normen; & Quot; Tabellenbuch Metall & quot ;, Europa-Verlag 2014
• Course notes are available in electronic environment. Drawing tools, Autodesk Inventor

Course Category

Mathmatics and Basic Sciences	:	0	**Education**	:	0
Engineering	:	10	**Science**	:	0
Engineering Design	:	80	**Health**	:	0
Social Sciences	:	0	**Field**	:	0

Weekly Detailed Course Contents

Week	Topics	Study Materials	Materials
1	Introduction to Design Methods		
2	Product Design Process		
3	Principles of Methodical Design		
4	Introduction to Design Process with Autodesk Inventor IIntroduction to Design Process with Autodesk Inventor II		
5	Introduction to Design Process with Autodesk Inventor III		
6	Introduction to Design Process with Autodesk Inventor IV		
7	Technical drawing		
8	Creating Assembly Design with Autodesk Inventor ICreating Assembly Design with Autodesk Inventor II		
9	Standards / Norms		
10	Creating Assembly Design with Autodesk Inventor IIICreating Assembly Design with Autodesk Inventor IV		
11	Computer Aided Design Introduction and Design IComputer Aided Design Introduction and Design II		
12	Computer Aided Design Introduction and Design IIIComputer Aided Design Introduction and Design IV		

Course Learning Outcomes

No	Learning Outcomes
C01	To acquire sufficient knowledge about mathematics, science and mechanical engineering and to apply the theoretical and practical knowledge in these fields to model and solve engineering problem
C02	Ability to identify, define, formulate and solve complex engineering problems, and to select and apply appropriate analysis and modeling methods in mechanical engineering for this purpose.
C03	Experiment design, experimentation, data collection, analysis and interpretation of results for engineering problems.
C04	Understanding of two-dimensional views of 3D objects (conjugate projection, auxiliary and cross-section) in terms of vertical projection
C05	Dimensioning of 2D technical drawings and recognition of tolerances
C06	Understanding technical drawing standards and practices applied in the industry

Program Learning Outcomes

No	Learning Outcome
P08	Awareness of the necessity of lifelong learning; ability to access information, to follow developments in science and technology and to renew himself continuously.
P07	Ability to communicate effectively in verbal and written Turkish; knowledge of at least one foreign language; writing active reports and writing reports, preparing design and production reports, mal
P09	To act in accordance with ethical principles, professional and ethical responsibility; Information on the standards used in engineering applications.
P11	Knowledge of the effects of engineering practices on health, environment and safety in the universal and social dimensions and the problems of the era in engineering; awareness of the legal conse
P10	Information on business practices such as project management, risk management and change management; awareness of entrepreneurship and innovation; information about sustainable developn
P06	Ability to work effectively in disciplinary and multi-disciplinary teams; individual study skills.
P02	Ability to identify, formulate, and solve complex engineering problems; ability to select and apply appropriate analysis and modeling methods for this purpose.
P01	Adequate knowledge in mathematics, science and related engineering discipline; the ability to use theoretical and practical knowledge in these areas in complex engineering problems.
P03	Ability to design a complex system, process, device or product to meet specific requirements under realistic constraints and conditions; ability to apply modern design methods for this purpose.
P05	An ability to design, conduct experiments, collect data, analyze and interpret results for the study of complex engineering problems or disciplinary research topics.
P04	Ability to develop, select and use modern techniques and tools for the analysis and solution of complex problems encountered in engineering applications; ability to use information technologies effe

Assessment Methods and Criteria

In-Term Studies	Quantity	Percentage
Mid-terms	1	%40
Quizzes	0	%0
Assignment	0	%0
Attendance	0	%0
Practice	0	%0
Project	0	%0
Final examination	1	%60
Total		**%100**

ECTS Allocated Based on Student Workload

Activities	Quantity	Duration	Total Work Load
Course Duration	14	45	630
Hours for off-the-c.r.stud	84	45	3780
Assignments	0	0	0
Presentation	0	0	0
Mid-terms	1	80	80
Practice	28	45	1260
Laboratory	14	45	630
Project	0	0	0
Final examination	1	120	120
Total Work Load			**6500**
ECTS Credit of the Course			**217**

Contribution of Learning Outcomes to Programme Outcomes

bbb

	P01	P02	P03	P04	P05	P06	P07	P08	P09	P10
All	5	5	5	5	5	5	5	5	5	5

Turkish-German University

Faculty of Engineering
Mechanical Engineering (German)

MEC109	Statics				
Semester	**Course Unit Code**	**Course Unit Title**	**L+P**	**Credit**	**Number of ECTS Credits**
1	MEC109	Statics	5	5	6

Mode of Delivery:
Face to Face
Language of Instruction:
Deutch
Level of Course Unit:
Bachelor's Degree
Work Placement(s):
No
Department / Program:
Mechanical Engineering (German)
Type of Course Unit:
Required
Objectives of the Course:
Fundamental Static Lecture
Teaching Methods and Techniques:
In the scope of this lecture, the students learn the fundamental concepts and the formulas of the static systems. Specifically, they concentrate on the general equilibrium of support and frame structures. They calculate the reaction forces of the rigid systems. They learn how to calculate the internal forces of the bent and twisted, mixed-geometry systems that are very useful in practice. In the light of this education, students become ready to work on the advanced subjects of technical mechanic and other related further technical subjects.
Prerequisites and co-requisities:

Course Coordinator:

Name of Lecturers:
Prof. Dr. rer. nat. Wolfgang MÜLLER
Assistants:
Research Assist. Ferit Yardımcı

Recommended or Required Reading

Resources

Wolfgang H. Müller, Ferdinand Ferber, Technische Mechanik für Ingenieure, 4. Auflage, Hanser Verlag / Fachbuch Verlag Leipzig. Russell C. Hibbeler: Technische Mechar
Wolfgang H. Müller, Ferdinand Ferber, Technische Mechanik für Ingenieure, 4. Auflage, Hanser Verlag / Fachbuch Verlag Leipzig.
Russell C. Hibbeler: Technische Mechanik/2 - Festigkeitslehre 8. aktualisierte Aufl. München: Pearson Studium 2013 (insges. 3 Bände).
Martin Mayr: Technische Mechanik. Übungsbeispiele und Aufgaben. 2. stark erw. Auflage. München: Hanser 2000.

Wolfgang H. Müller, Ferdinand Ferber, Technische Mechanik für Ingenieure, 4. Auflage, Hanser Verlag / Fachbuch Verlag Leipzig.

Course Category

Mathmatics and Basic Sciences	:	35	**Education**	:	0
Engineering	:	60	**Science**	:	25
Engineering Design	:	5	**Health**	:	0
Social Sciences	:	0	**Field**	:	0

Weekly Detailed Course Contents

Week	Topics	Study Materials	Materials
1	Introduction to Mechanics	No preparation	Section 1

Course Learning Outcomes

No	Learning Outcomes
C01	The students can: evaluate the basic laws of mechanics within the framework of a given definition or problem, make conversions with SI units, analyse equilibrium conditions of the external forces a

Program Learning Outcomes

No	Learning Outcome
P08	Awareness of the necessity of lifelong learning; ability to access information, to follow developments in science and technology and to renew himself continuously.
P07	Ability to communicate effectively in verbal and written Turkish; knowledge of at least one foreign language; writing active reports and writing reports, preparing design and production reports, mal
P09	To act in accordance with ethical principles, professional and ethical responsibility; Information on the standards used in engineering applications.
P11	Knowledge of the effects of engineering practices on health, environment and safety in the universal and social dimensions and the problems of the era in engineering; awareness of the legal conse
P10	Information on business practices such as project management, risk management and change management; awareness of entrepreneurship and innovation; information about sustainable developn
P06	Ability to work effectively in disciplinary and multi-disciplinary teams; individual study skills.
P02	Ability to identify, formulate, and solve complex engineering problems; ability to select and apply appropriate analysis and modeling methods for this purpose.
P01	Adequate knowledge in mathematics, science and related engineering discipline; the ability to use theoretical and practical knowledge in these areas in complex engineering problems.
P03	Ability to design a complex system, process, device or product to meet specific requirements under realistic constraints and conditions; ability to apply modern design methods for this purpose.
P05	An ability to design, conduct experiments, collect data, analyze and interpret results for the study of complex engineering problems or disciplinary research topics.
P04	Ability to develop, select and use modern techniques and tools for the analysis and solution of complex problems encountered in engineering applications; ability to use information technologies effe

Assessment Methods and Criteria

In-Term Studies	Quantity	Percentage
Mid-terms	2	%40
Quizzes	0	%0
Assignment	0	%0
Attendance	0	%0
Practice	0	%0
Project	0	%0
Final examination	1	%60
Total		**%100**

ECTS Allocated Based on Student Workload

Activities	Quantity	Duration	Total Work Load
Course Duration	1	70	70
Hours for off-the-c.r.stud	1	70	70
Assignments	0	0	0
Presentation	0	0	0
Mid-terms	1	7	7
Practice	0	0	0
Laboratory	0	0	0
Project	0	0	0
Final examination	1	21	21
Total Work Load			**168**
ECTS Credit of the Course			**6**

Contribution of Learning Outcomes to Programme Outcomes

bbb

	P01	P02	P03	P04	P05	P06	P07	P08	P09	P10	P11
C01	1	5	5	1	1	1	1	1	1	1	1

Turkish-German University

Faculty of Engineering
Mechanical Engineering (German)

MEC207	Material Technology				
Semester	**Course Unit Code**	**Course Unit Title**	**L+P**	**Credit**	**Number of ECTS Credits**
3	MEC207	Material Technology	3	3	6

Mode of Delivery:
Face to Face
Language of Instruction:
Deutch
Level of Course Unit:
Bachelor's Degree
Work Placement(s):
No
Department / Program:
Mechanical Engineering (German)
Type of Course Unit:
Required
Objectives of the Course:
• Materials science knowledge • View of the fundamentals and diverse fields of activity of materials science • Structure-property relationships of materials • Know and differentiate engineering materials • Learn material properties as the basis of material selection • Learn mechanical test methods as test methods Professional competence: 40%, methodological competence: 30%, system competence: 20%, social skills: 10%
Teaching Methods and Techniques:
• Introduction • Structure of the atoms and molecules • engineering materials (metals, polymers, ceramics, composites) • crystal structures • Phase diagrams • microstructure • Mechanical, electrical, magnetic and optical properties of the materials • Mechanical test methods • breakage, fatigue, creep, corrosion
Prerequisites and co-requisities:

Course Coordinator:

Name of Lecturers:
Asist Prof.Dr. Mehmet İpekoğlu
Assistants:

Recommended or Required Reading

Resources • Bargel, H.-J., G. Schulze, "Werkstoffkunde", Springer, 1999. • Bergmann, W.: "Werkstofftechnik Teil I: Grundlagen", 5. Auflage, Carl Hanser, 2003, • Will be disseminated to the students in digital form

Course Category

Mathmatics and Basic Sciences	:	10	**Education**	:	
Engineering	:	30	**Science**	:	20
Engineering Design	:		**Health**	:	
Social Sciences	:		**Field**	:	40

Weekly Detailed Course Contents

Week	Topics	Study Materials	Materials
1	History of materials science, engineering materials, classification of materials		
2	Structure of atoms, atomic bondings, bondings in different materials		
3	Crystal structure, unit cells, crystallographic directions and planes, Miller indices		
4	Irregularities in crystal structure, 0-1-2 dimensional crystal defects		
5	Solid state diffusion		
6	Phase diagrams, microstructure		
7	Mechanical properties, elasticity, plasticity, viscoelasticity, tensile test		
8	Mechnical properties, hardness-strength relation, ductility, brittleness, hardness measuring techniques		
9	Hardening methods, Jominy end-quench test		
10	Failure of materials under various working conditions, fracture, fatigue, creep, oxidation and corrosion		
11	Electrical properties, corrosion prevention methods		
12	Magnetic and optic properties		
13	Polymers		
14	Ceramics and composites		

Course Learning Outcomes

No	Learning Outcomes
C01	Material science knowledge
C02	View of the fundamentals and diverse fields of activity of materials science
C03	Structure-property relationships of materials
C04	Know and differentiate materials in engineering
C05	Learn material properties as the basis of material selection
C06	Learn mechanical test methods as test methods

Program Learning Outcomes

No	Learning Outcome
P08	Awareness of the necessity of lifelong learning; ability to access information, to follow developments in science and technology and to renew himself continuously.
P07	Ability to communicate effectively in verbal and written Turkish; knowledge of at least one foreign language; writing active reports and writing reports, preparing design and production reports, mal
P09	To act in accordance with ethical principles, professional and ethical responsibility; Information on the standards used in engineering applications.
P11	Knowledge of the effects of engineering practices on health, environment and safety in the universal and social dimensions and the problems of the era in engineering; awareness of the legal conse
P10	Information on business practices such as project management, risk management and change management; awareness of entrepreneurship and innovation; information about sustainable developn
P06	Ability to work effectively in disciplinary and multi-disciplinary teams; individual study skills.
P02	Ability to identify, formulate, and solve complex engineering problems; ability to select and apply appropriate analysis and modeling methods for this purpose.
P01	Adequate knowledge in mathematics, science and related engineering discipline; the ability to use theoretical and practical knowledge in these areas in complex engineering problems.
P03	Ability to design a complex system, process, device or product to meet specific requirements under realistic constraints and conditions; ability to apply modern design methods for this purpose.
P05	An ability to design, conduct experiments, collect data, analyze and interpret results for the study of complex engineering problems or disciplinary research topics.
P04	Ability to develop, select and use modern techniques and tools for the analysis and solution of complex problems encountered in engineering applications; ability to use information technologies effe

Assessment Methods and Criteria

In-Term Studies	Quantity	Percentage
Mid-terms	1	%30
Quizzes	0	%0
Assignment	1	%10
Attendance	0	%0
Practice	0	%0
Project	1	%20
Final examination	1	%40
Total		**%100**

ECTS Allocated Based on Student Workload

Activities	Quantity	Duration	Total Work Load
Course Duration	14	2	28
Hours for off-the-c.r.stud	14	4	56
Assignments	1	6	6
Presentation	0	0	0
Mid-terms	1	2	2
Practice	14	1	14
Laboratory	0	0	0
Project	1	12	12
Final examination	1	2	2
Total Work Load			**120**
ECTS Credit of the Course			**4**

Contribution of Learning Outcomes to Programme Outcomes

bbb

	P01	P02	P03	P04	P05	P06	P07	P08	P09	P10
All	5	5	5	5	5	5	5	5	5	5

Turkish-German University

Faculty of Engineering
Mechanical Engineering (German)

MEC209	Kinematics and Dynamics				
Semester	**Course Unit Code**	**Course Unit Title**	**L+P**	**Credit**	**Number of ECTS Credits**
3	MEC209	Kinematics and Dynamics	4	5	6

Mode of Delivery:
Face to Face
Language of Instruction:
Deutch
Level of Course Unit:
Bachelor's Degree
Work Placement(s):
No
Department / Program:
Mechanical Engineering (German)
Type of Course Unit:
Required
Objectives of the Course:
The following skills should be developed among the students of mechanics: Formation of a basic knowledge in mechanics, which facilitates and promotes the attendance of further courses in the bachelor and master studies. The basic knowledge in mechanics, which is to be taught in the basics, is to secure the professional ability, in order to enable further and new education during the entire professional life. However, the students' skills should not be confined to the theoretical penetration of mechanical problems, but also promote the ability to work through and solve concrete and practical engineering problems. The ability to verify own results and to clearly recognize the application limits of the used models is to be reached as a basis for the technical reliability of the trainee engineers. For this, a deeper understanding of the necessary base material of the mechanics must be achieved. Students are introduced to the basics of modeling. The basic knowledge in mechanics enables the students to recognize analogies to other subject areas and to apply this knowledge there as well.
Teaching Methods and Techniques:
First half of the semester: Fundamentals of kinematics the terms force, torque, work, power, energy, momentum, angular momentum; Theorem of the second half of the semester: the motion of the rigid body (angular velocity, inertial tensor, fundamental concepts of gyro theory) Theory of vibrations (free and forced vibrations, damping, resonance) Vibrations of systems with two degrees of freedom dynamic stability
Prerequisites and co-requisities:

Course Coordinator:

Name of Lecturers:
Prof. Dr. rer. nat. W. H. MÜLLER
Assistants:

Recommended or Required Reading

Resources	Technische Mechanik 3 Kinetik , Autoren: Gross, D., Hauger, W., Schröder, J., Wall, W.A. ISBN 978-3-642-53954-1 ? Skripte in elektronischer Form vorhanden http://mec Technische Mechanik 3 Kinetik , Autoren: Gross, D., Hauger, W., Schröder, J., Wall, W.A. ISBN 978-3-642-53954-1 ? Skripte in elektronischer Form vorhanden http://mechanik.tuberlin.de/ - - -

Course Category

Mathmatics and Basic Sciences	:	30	**Education**	:	
Engineering	:	30	**Science**	:	
Engineering Design	:		**Health**	:	
Social Sciences	:		**Field**	:	40

Weekly Detailed Course Contents

Week	Topics	Study Materials	Materials
1	Fundamentals of kinematics the terms force		
2	Torque		
3	Work, performance, energy,		
4	Power, energy, momentum, angular momentum		
5	Set of center of gravity and twist set elastic and not elastic shocks		
6	Set of center of gravity and twist set elastic and not elastic shocks		
7	The movement of the rigid body (angular velocity, inertial tensor, basic concepts of gyro theory)		
8	The movement of the rigid body (angular velocity, inertial tensor, basic concepts of gyro theory)		
9	The movement of the rigid body (angular velocity, inertial tensor, basic concepts of gyro theory)		
10	Theory of vibrations (free and forced vibrations, damping, resonance)		
11	Theory of vibrations (free and forced vibrations, damping, resonance)		
12	Theory of vibrations (free and forced vibrations, damping, resonance)		
13	Vibrations of systems with two degrees of freedom dynamic stability		
14	Vibrations of systems with two degrees of freedom dynamic stability		

Course Learning Outcomes

No	Learning Outcomes
C01	Students will be able to gain the ability to mathematically model the problems faced in dynamics and obtain sought solutions with a reasonable approximation.
C02	Students will be able to understand basic principles of 2-D motion of systems of particles and rigid bodies.
C03	Students will gain the ability to understand the basic principles of vibration analysis and to use them in practice.

Program Learning Outcomes

No	Learning Outcome
P08	Awareness of the necessity of lifelong learning; ability to access information, to follow developments in science and technology and to renew himself continuously.
P07	Ability to communicate effectively in verbal and written Turkish; knowledge of at least one foreign language; writing active reports and writing reports, preparing design and production reports, mal
P09	To act in accordance with ethical principles, professional and ethical responsibility; Information on the standards used in engineering applications.
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P04	Ability to develop, select and use modern techniques and tools for the analysis and solution of complex problems encountered in engineering applications; ability to use information technologies eff

Assessment Methods and Criteria

In-Term Studies	Quantity	Percentage
Mid-terms	1	%50
Quizzes	0	%0
Assignment	0	%0
Attendance	0	%0
Practice	0	%0
Project	0	%0
Final examination	1	%50
Total		**%100**

ECTS Allocated Based on Student Workload

Activities	Quantity	Duration	Total Work Load
Course Duration	28	2	56
Hours for off-the-c.r.stud	0	0	0
Assignments	4	7	28
Presentation	0	0	0
Mid-terms	1	7	7
Practice	28	2	56
Laboratory	14	1	14
Project	0	0	0
Final examination	1	7	7
Total Work Load			**168**
ECTS Credit of the Course			**6**

Contribution of Learning Outcomes to Programme Outcomes

bbb

	P01	P02	P03	P04	P05	P06	P07	P08	P09	P10	P11
All	5	5	5	5	5	5	5	5	5	5	5