MACHINE TRANSLATION

1	Course Title:	MACHINE TRANSLATION	
2	Course Code:	BM6040	
3	Type of Course:	Optional	
4	Level of Course:	Third Cycle	
5	Year of Study:	1	
6	Semester:	2	
7	ECTS Credits Allocated:	6.00	
8	Theoretical (hour/week):	3.00	
9	Practice (hour/week):	0.00	
10	Laboratory (hour/week):	0	
11	Prerequisites:		
12	Language:	Turkish	
13	Mode of Delivery:	Face to face	
14	Course Coordinator:	Doç. Dr. Metin BİLGİN	
15	Course Lecturers:		
16	Contact information of the Course Coordinator:	Bilgisayar Müh. Bölüm Binası, 1. kat, oda 109 Tel.:+90 (224) 275 52 63 email: metinbilgin at uludag.edu.tr	
17	Website:		
18	Objective of the Course:	Machine translation is an important subfield of Natural Language Processing and deals with various usage possibilities of computers in the process of text or speech translation from one language to another. Besides fully automatic translation systems, tools for helping human translators are also developed in this context. This course aims to cover the usage of computer systems in the translation process, to teach the modern approaches and tools for the state-of-the-art machine translation, to investigate the details of the current machine translation methods.	
19	Contribution of the Course to Professional Development:	Engineering Science: 85%; Engineering Design: 15%	
20	Learning Outcomes:		
		1	Students will learn how to use computers during natural language translation process.
		2	Students will learn the methods for evaluating the performance machine translation system outputs.
		3	Students will learn transfer based and example based machine translation systems.
		4	Students will learn how to apply statistical methods to machine translation.
		5	Students will learn basic knowledge about spoken language translation.

	6	Students will gain knowledge about the machine translation methods that can be used for cognate or resource poor languages.
	7	Students will have a broad knowledge about state-of-the-art and commercial machine translation systems.
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21	Course Content:	
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Week	Theoretical	Practice
1	Introduction, History of Machine Translation	
2	Recent Methods and Theory for Machine Translation	
3	Evaluation of Machine Translation	
4	Human Evaluation for Machine Translation Outputs	
5	Transfer Based Machine Translation Methods (I)	
6	Transfer Based Machine Translation Methods (II) Interlingua Based Methods	
7	Example Based Translation Methods	
8	Statistical Machine Translation (I) Introduction, Language Model Component	
9	Statistical Machine Translation (II) Translation Model	
10	Statistical Machine Translation (III) Decoding	
11	Phrase Based Statistical Machine Translation Incorporating Syntax in Statistical Machine Translation	
12	Speech-to-Speech Translation	
13	Machine Translation Between Related Languages Machine Translation for Resource Poor Languages	
14	Commercial Machine Translation Systems	

22	Textbooks, References and/or Other Materials:	Koehn, P. 2010. Statistical Machine Translation, Cambridge University Press. Trujillo, A., 1999. Translation Engines : Techniques for Machine Translation, Springer-Verlag Series on Applied Computing. Hutchins, W. J., Somers H.L., 1992. An Introduction to Machine Translation, Academic Press, San Diego. Nirenburg, S., Somers H.L., Wilks, A. Y., 2002. Readings in Machine Translation, The MIT Press, Cambridge Manning, C. D. and Schütze, H., 1999. Foundations of Statistical Natural Language Processing, The MIT Press, Cambridge.
23	Assesment	

TERM LEARNING ACTIVITIES	**NUMBER**	**WEIGHT**

Midterm Exam	0	0.00
Quiz	0	0.00
Home work-project	3	40.00
Final Exam	1	60.00
Total	4	100.00
Contribution of Term (Year) Learning Activities to Success Grade		40.00
Contribution of Final Exam to Success Grade		60.00
Total		100.00
Measurement and Evaluation Techniques Used in the Course		3 Project/Homework (%40) and 1 Final Exam (%60)

24 ECTS / WORK LOAD TABLE

Activites	Number	Duration (hour)	Total Work Load (hour)
Theoretical	14	3.00	42.00
Practicals/Labs	0	0.00	0.00
Self study and preperation	14	1.00	14.00
Homeworks	3	30.00	90.00
Projects	0	0.00	0.00
Field Studies	0	0.00	0.00
Midterm exams	0	0.00	0.00
Others	0	0.00	0.00
Final Exams	1	30.00	30.00
Total Work Load			176.00
Total work load/ 30 hr			5.87
ECTS Credit of the Course			6.00

25 CONTRIBUTION OF LEARNING OUTCOMES TO PROGRAMME QUALIFICATIONS

	PQ1	PQ2	PQ3	PQ4	PQ5	PQ6	PQ7	PQ8	PQ9	PQ10	PQ11	PQ12	PQ13	PQ14	PQ15	PQ16
ÖK1	1	1	2	2	2	2	0	0	0	0	0	0	0	0	0	0
ÖK2	2	2	2	3	3	3	0	0	0	0	0	0	0	0	0	0
ÖK3	3	3	3	3	3	3	0	0	0	0	0	0	0	0	0	0
ÖK4	3	3	4	4	4	4	0	0	0	0	0	0	0	0	0	0
ÖK5	4	4	3	3	4	4	0	0	0	0	0	0	0	0	0	0
ÖK6	4	3	3	3	3	3	0	0	0	0	0	0	0	0	0	0
ÖK7	5	5	4	4	4	4	0	0	0	0	0	0	0	0	0	0

LO: Learning Objectives PQ: Program Qualifications

Contribution Level:	1 very low	2 low	3 Medium	4 High	5 Very High