SYLLABUS

1. Information regarding the programme

1.1 Higher education institution	Babeş Bolyai University
1.2 Faculty	Faculty of Mathematics and Computer Science
1.3 Department	Department of Computer Science
1.4 Field of study	Computer Science
1.5 Study cycle	Master
1.6 Study programme / Qualification	Applied Computational Intelligence

2. Information regarding the discipline

2.1 Name of the discipline				Applications of Computational Linguistics			
2.2 Course coordinator				Lecturer PhD. Dana Lupsa			
2.3 Seminar coordinator				Lecturer PhD. Dana Lupsa			
2.4. Year of study	**2**	2.5 Semester	**4**	2.6. Type of evaluation	**E**	2.7 Type of discipline	**Compulsory**

3. Total estimated time (hours/semester of didactic activities)

3.1 Hours per week	3	Of which: 3.2 course	2	3.3 seminar/laboratory	1
3.4 Total hours in the curriculum	36	Of which: 3.5 course	24	3.6 seminar/laboratory	12

Time allotment:	hours
Learning using manual, course support, bibliography, course notes	29
Additional documentation (in libraries, on electronic platforms, field documentation)	29
Preparation for seminars/labs, homework, papers, portfolios and essays	40
Tutorship	11
Evaluations	30
Other activities:	

3.7 Total individual study hours	139
3.8 Total hours per semester	175
3.9 Number of ECTS credits	7

4. Prerequisites (if necessary)

4.1. curriculum	
4.2. competencies	• Average programming skills • Knowledge of data structures

5. Conditions (if necessary)

5.1. for the course	•
5.2. for the seminar /lab activities	• Laboratory with computers; high level programming language environment

6. Specific competencies acquired

Professional competencies	• Knowledge, understanding and use of IR concepts and their algorithms • Knowledge, understanding and use of of MT systems
Transversal competencies	• Perform Internet-based research. • Ability to use techniques specific to information retrieval and machine translation.

7. Objectives of the discipline (outcome of the acquired competencies)

7.1 General objective of the discipline	• Advanced knowledge of theoretical, methodological, and practical developments in computer science • Systematic use of computer science knowledge to model and interpret new situations, within application contexts larger than the known ones
7.2 Specific objective of the discipline	• Explain basic information storage and retrieval concepts. • Describe what issues are specific to efficient information retrieval. • Perform Internet-based research. • Design and implement a small to medium size information storage and retrieval system, or digital library. • Understand techniques for information retrieval, language translation • Study the usage of corpora. Identify examples of corpora for MT

8. Content

8.1 Course	Teaching methods	Remarks
1, 2. Information Storage and Retrieval. Evaluation	Exposure, examples, discussion	
3,4. IR Dictionaries and tolerant retrieval.	Exposure, description, explanation, examples, case studies	
5. Link analysis and PageRank	Description, examples, case studies, discussion	
6 High Performance Issues in Web Search Engines	Description, discussion	
7, 8 Machine translation (MT). MT: the problem MT in practice: resources and processing Evaluating MT Directions in MT	Exposure, description, explanation, examples, case studies, discussion	
9. Dictionaries	Description, examples	
10. Translation problems	Exposure, examples,	

	case studies	
11,12. Aplications of Natural Language to Information Systems	Exposure, description, examples, case studies	

Bibliography
1. R. Mitkov (Ed), Oxford Handbook of Computational Linguistics. Oxford University Press, 2003.
2. C.D. Manning, P. Raghavan, H. Schütze, Introduction to Information Retrieval. Cambridge, England: Cambridge University Press, 2008.
   http://nlp.stanford.edu/IR-book/html/htmledition/irbook.html
3. D. Arnold, L. Balkan, S. Meijer, R. Humphreys, L. Sadler, Machine Translation: An Introductory Guide, Manchester, UK: NEC Blackwell, 1994. http://clwww.essex.ac.uk/~doug/book/book.html.

8.2 Seminar / laboratory	Teaching methods	Remarks
1,2: Recent advances in CL	Dialogue, examples	
3: Web Information Extraction Systems	Dialogue, examples	
4: Two Web IR Tools: Clustering and Ranking	Dialogue, case studies, examples	
5,6: Experimenting translation problems	Case studies, examples	

Bibliography

1. R. Mitkov (Ed), Oxford Handbook of Computational Linguistics. Oxford University Press, 2003.
2. C.D. Manning, P. Raghavan, H. Schütze,. Introduction to Information Retrieval. Cambridge, England: Cambridge University Press, 2008.
   http://nlp.stanford.edu/IR-book/html/htmledition/irbook.html
3. D. Arnold, L. Balkan, S. Meijer, R. Humphreys, L. Sadler, Machine Translation: An Introductory Guide, Manchester, UK: NEC Blackwell, 1994. http://clwww.essex.ac.uk/~doug/book/book.html.
4. http://www.mt-archive.info/
5. http://www.statmt.org/

9. Corroborating the content of the discipline with the expectations of the epistemic community, professional associations and representative employers within the field of the program

- Two fields of CL with immediate applications in real life are IR and MT. IR systems are used on an everyday basis by a wide variety of users. The Internet has proven to be a huge stimulus for MT, with hundreds of millions of pages of text and an increasingly global -- and linguistically diverse – public.
- The course respects ACM Curriculla Recommendations for Computer Science studies

10. Evaluation

Type of activity	10.1 Evaluation criteria	10.2 Evaluation methods	10.3 Share in the grade (%)
10.4 Course	- know the basic principle of the domain; - apply the course concepts	Written exam	70%
	- applications of the studied concepts and algorithms	Project evaluation	10%
10.5 Seminar/lab activities	- apply the course concepts - problem solving	Project evaluation	20%
10.7 Minimum performance standards			
➢ At least grade 5 (from a scale of 1 to 10) at both written exam and project evaluation			

Date   Signature of course coordinator   Signature of seminar coordinator

....   lecturer PhD Dana Lupsa   lecturer PhD Dana Lupsa

Date of approval   Signature of the head of department

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