Dr. Bhimrao Ambedkar University, Agra

A State University of Uttar Pradesh (Paliwal Park, Agra -282004)

www.dbrau.ac.in

A Documentary Support

for

Matric No. – 1.1.2

employability/ entrepreneurship/ skill development

under the

Criteria – I

(Curriculum Design and Development)

Key Indicator - 1.1

in

Matric No. – 1.1.2

MASTER OF SCIENCE IN COMPUTATIONAL LINGUISTICS

2018

Mapping of course to:

Employability | Entrepreneurship | Skills Development

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CENTRE FOR TRANSDISCIPLINARY STUDIES

DR. BHIMRAO AMBEDKAR UNIVERSITY, AGRA

4.1. The credits requirement for students admitted to the 1st semester of the programme shall be 96.

4.1a. A student admitted to the 1st semester of the programme may be awarded Post-graduate Diploma in Computational Linguistics if (s)he completes two semesters of the program with a minimum of 48 credits. All other requirements such as CGPA will remain the same as for the award of the maters degree.

Course Structure for the 4 semesters of the MSc in Computational Linguistics*

Course Code	Course Title	Credits	Assessment Pattern		
Semester 1#			**Continuous Assessment**	**Internal Practical / Project**	**End-Sem**
Soft Core Courses [Group A: Language Sciences]^^					
CLI102	Introducing Phonetics and Phonology	4	40%	30%	30%
CLI104	Introducing Sociolinguistics	4	40%	30%	30%
Soft Core Courses [Group – B: Computer Science]^^^					
CLI172	Fundamental of Programming for NLP with Python	4	40%	60%	–
Soft Core Courses [Group – C: Mathematics / Statistics]					
CLI203	Linear Algebra	4	40%	30%	30%
Core Courses [Group – D: Natural Language Processing]					
CLI176	Language Resources and Technologies: Fundamentals	4	40%	30%	30%
Non-credit Compulsory Courses* **					

CLI211NC	Communication and Academic Writing Skills	– (Non-credit)	100%	–	–
Elective Courses: Students may elect additional elective courses from any group					
Semester 2					
Soft Core Courses [Group A: Language Sciences]					
CLI103	Introducing Morphological and Syntactic Analysis	4	40%	30%	30%
Soft Core Courses [Group – B: Computer Science]					
CLI173	Machine and Deep Learning for Natural Language Processing - I	4	40%	30%	30%
Soft Core Courses [Group – C: Mathematics / Statistics]					
CLI204	Multivariate Calculus	4	40%	30%	30%
CLI218	Foundations of Data Science and Statistical Analysis	4	40%	30%	30%
Core Courses [Group – D: Natural Language Processing]					
CLI177	Language Resources and Technologies: Low-resource, Minority and Endangered Languages	4	40%	30%	30%
Non-credit Compulsory Courses* **					
CLI212NC	Research Ethics in Natural Language Processing	--	100%	–	–
Elective Courses: Students may elect additional elective courses from any group					
Academic / Industrial Internship / Major Project [spanning across the 1st and 2nd Semester]**		8	Project Mid-Sem Presentations (Internal) - 20% Project Output (Internal + External) - 40% Project Report (Internal + External) - 30%		

			Project Final Presentation (Internal + External) - 10%		
Semester 3					
Soft Core Courses [Group A: Language Sciences]					
CLI106	Introducing Semantics and Pragmatics	4	40%	30%	30%
Soft Core Courses [Group – B: Computer Science]					
CLI174	Machine and Deep Learning for Natural Language Processing - II	4	40%	30%	30%
Core Courses [Group – D: Natural Language Processing]					
CLI178	Language Resources and Technologies: Advanced	4	40%	30%	30%
Elective Courses: Select at least **any 2** courses from the list of elective courses in any group					
Semester 4					
Soft Core Courses [Group A: Language Sciences]					
CLI145	South Asian Linguistic Diversity and Typology	4	40%	30%	30%
Core Courses [Group – D: Natural Language Processing]					
CLI179	Computational Sociolinguistics and Pragmatics	4	40%	30%	30%
Elective Courses: Select at least **any 3** courses from the list of elective courses in any group					
Dissertation [spanning across the 3rd and 4th Semester]		8	Dissertation Mid-Sem Presentations (Internal) - 20% Dissertation (Internal + External) - 50% Dissertation Final Presentation (Internal + External) - 30%		

#The semester-wise division of soft core courses is only tentative and not binding - the order of these courses may be altered across the semesters. Moreover, if not required, these courses may not be offered to every batch of students.
*** Non-credit compulsory courses could be completed in any semester

**In the first semester, the students are required to do a major project and submit an intermediate report in partial fulfilment of the requirements for project / internship in the first 2 semesters. However, in the second semester, they may choose to do a summer internship after the end of the semester (or partially overlapping with the semester) OR continue with the major project that they started in the first semester. If they choose to do an internship in the second semester, they will need to submit a report of only the internship; however, if they decide to continue with the project of the first semester, they will need to submit a major, consolidated report based on the work done in both the semesters.

**There are no major changes in this MSc program since it is already compatible with the NEP-2020 requirements. The only changes we have made are - (a) moved the internship / project to 2nd sem instead of 3rd/4th; (b) increased the credits for dissertation and internship/project and consequently the overall credit requirements; (c) introduced a new course on Data Science (that replaces two different courses in Statistics).

^^ In continuation of the first ordinances of the program, soft core courses will become compulsory for a student only if that group is decided to be the core group for the student (based on a written test conducted by the centre)

List of Elective Courses for M.Sc. in Computational Linguistics (Common across all 4 semesters)

Elective Courses [Group – A: Language Sciences]			Assessment Pattern		
Course Code	**Course Title**	**Credits**	**Continuous Assessment**	**Internal Practical / Project**	**End-Sem**
CLI105	Introducing Generative Syntax	4	40%	30%	30%
CLI107	Field Methods and Language Documentation	4	40%	30%	30%
CLI108	Phonological analysis	4	40%	30%	30%
CLI109	Acoustics and Experimental Phonetics	4	40%	30%	30%
CLI110	Instrumental Phonetics	4	40%	30%	30%
CLI111	Optimality Theory	4	40%	30%	30%
CLI112	Generative Morphology	4	40%	30%	30%
CLI113	Word-based Morphology	4	40%	30%	30%
CLI114	Generative Syntax – II	4	40%	30%	30%

CLI115	Linguistic Minimalism	4	40%	30%	30%
CLI116	Logic and Natural Language Semantics	4	40%	30%	30%
CLI117	Pragmatics	4	40%	30%	30%
CLI118	Theories in Linguistics	4	40%	30%	30%
CLI119	Grammatical Categories \ Basic Linguistic Theory	4	40%	30%	30%
CLI120	Semiotics and philosophy of structures	4	40%	30%	30%
CLI121	Historical and comparative Linguistics	4	40%	30%	30%
CLI122	Language Learning and Language Pedagogy	4	40%	30%	30%
CLI123	Second Language Acquisition and Teaching	4	40%	30%	30%
CLI124	Neurolinguistics and Language Disorders	4	40%	30%	30%
CLI125	Structures of Languages	4	40%	30%	30%
CLI126	Endangered languages. Issues and Perspectives	4	40%	30%	30%
CLI127	Areal Linguistics \ South Asia as a Linguistic Area	4	40%	30%	30%
CLI128	Developmental Psycholinguistics	4	40%	30%	30%
CLI129	Experimental Psycholinguistics	4	40%	30%	30%
CLI130	Cognitive Linguistics	4	40%	30%	30%
CLI131	Language Politics and Planning in India	4	40%	30%	30%
CLI132	Conversation Analysis and Discourse Analysis	4	40%	30%	30%
CLI133A	Seminar - I	4	100%	–	–
CLI133B	Seminar - II	4	100%	–	–
CLI144	Exploring Language, Mind and Brain	4	40%	30%	30%
CLI146	Indian Linguistic Tradition	4	40%	30%	30%

CLI147	Writing Grammars	4	40%	30%	30%
CLI165	Biolinguistics	4	40%	30%	30%
CLI166	Sociology of Language	4	40%	30%	30%
CLI167	Forensic Linguistics	4	40%	30%	30%
CLI168	Perceptual Dialectology	4	40%	30%	30%
CLI169	Language and Education	4	40%	30%	30%
CLI170	Sign Language Linguistics	4	40%	30%	30%
CLI171	Language and Gender	4	40%	30%	30%
Elective Courses [Group – D: Natural Language Processing]					
CLI134	Grammatical Frameworks in Computational Linguistics - I	4	40%	30%	30%
CLI135	Grammatical Frameworks in Computational Linguistics - II	4	40%	30%	30%
CLI136	Hybrid Systems for Natural Language Processing	4	40%	30%	30%
CLI137	Computational Lexicography	4	40%	30%	30%
CLI138	Machine Translation	4	40%	30%	30%
CLI139	Language Technologies for Artificial Intelligence	4	40%	30%	30%
CLI142	Corpus Linguistics and Quantitative Methods	4	40%	30%	30%
CLI148	Computational Semantics and Pragmatics	4	40%	30%	30%
CLI180	Crowdsourcing for Speech Technology & Natural Language Processing	4	40%	30%	30%
CLI181	Introduction to Speech Technology	4	40%	30%	30%
CLI182	Spoken Dialogue Systems	4	40%	30%	30%
CLI183	Language Documentation and Computation	4	40%	30%	30%

CLI184	Creating Natural Language Processing Resources for Resource-Poor Languages	4	40%	30%	30%
CLI185	Linguistic Expressions and Processing of Sentiment, Subjectivity & Stance	4	40%	30%	30%
CLI186	Automatic Processing of Social Media Data	4	40%	30%	30%
CLI187	Understanding and identifying Politeness, Impoliteness and Aggression in Human Language	4	40%	30%	30%
CLI188	Deep Processing Techniques for Natural Language Processing	4	40%	30%	30%
CLI189	Computational Discourse Modelling	4	40%	30%	30%
CLI190	Processing Multilingual and Code-mixed Data	4	40%	30%	30%
CLI191	Social Implications of Natural Language Processing	4	40%	30%	30%
CLI192	Natural Language Processing for Artificial Intelligence	4	40%	30%	30%
CLI193	Automated Speech Recognition and Synthesis	4	40%	30%	30%
CLI194	Computational Natural Language Learning	4	40%	30%	30%
CLI211	User Interfaces and User Experience in Natural Language Processing Applications	4	40%	30%	30%
CLI212	Linked Open Data in Linguistics	4	40%	30%	30%
CLI217	NLP and Stylometry	4	40%	30%	30%
Elective Courses [Group – B: Computer Science]					
CLI175	User Applications for NLP	4	40%	30%	30%
CLI195	Big Data	4	40%	30%	30%
CLI196	Social Network Analysis	4	40%	30%	30%

CLI197	Database Management Systems	4	40%	30%	30%
CLI198	Data Mining	4	40%	30%	30%
CLI199	Pattern Recognition	4	40%	30%	30%
CLI200	Artificial Intelligence	4	40%	30%	30%
CLI205	XML and Semantic Web Technologies	4	40%	30%	30%
CLI206	Signal Processing	4	40%	30%	30%
CLI213	Web Programming	4	40%	30%	30%
CLI214	Information Storage and Retrieval Techniques	4	40%	30%	30%
CLI215	Programming with C	4	40%	30%	30%
CLI216	Object-oriented Programming in Java	4	40%	30%	30%
Elective Courses [Group – C: Mathematics / Statistics]					
CLI201	Univariate Statistics using Python	4	40%	30%	30%
CLI202	Probability Theory and Probabilistic Models	4	40%	30%	30%
CLI207	Advance Probability Theory and Probabilistic Models	4	40%	30%	30%
CLI208	Advance Linear Algebra and Linear Programming	4	40%	30%	30%
CLI209	Advance Multivariate Calculus	4	40%	30%	30%
CLI210	Convex Optimization	4	40%	30%	30%
Non-credit Elective Courses					
CLI213NC	Fundamentals of Mathematics and Statistics	--	100%	–	–
CLI214NC	Basic Computer Awareness	--	100%	–	–

##Non-credit elective courses may be opted in any semester

Employability

Entrepreneurship

Skill Development