SCHEME & SYLLABUS

M. Phil.

(Choice Based Credit System)

Sant Baba Bhag Singh University

Khiala, Padhiana, Jaladhar, Punjab, India

2019

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Course Scheme for M. Phil.

S No.	Sub Code	Subject Name	Contact Hour (L:T:P)	Credits (L:T:P)	Total Contact Hours	Total Credit Hours
SEMESTER-I						
Paper-I (Compulsory for all)						
1	RM901-19	Research Methodology	4:0:0	4:0:0	4	4
Paper-II (Departmental 1)						
2	CSA903-19	Department Specific-I	4:0:0	4:0:0	4	4
Paper-III (Departmental 2)						
3	CSA907-19	Department Specific-II	4:0:0	4:0:0	4	4
SEMESTER-II						
Paper-IV(Based on Paper II or III)						
4	RLS902-19	M.Phil.- Review of Literature and Seminar	4:0:0	4:0:0	4	4
Dissertation						
5	DRT904-19	Dissertation on research topic allotted by Supervisor	0:0:8	0:0:8	8	8

Paper-II and III (Department Specific)

Computer Applications						
6	CSA903-19	Advancements in Natural Language Processing	4:0:0	4:0:0	4	4
8	CSA907-19	Advances in Semantics Techniques	4:0:0	4:0:0	4	4

First Semester

Second Semester

Paper-I (Compulsory for all)

Subject Code: RM901-19	Research Methodology

UNIT-I

Objectives and Types of Research: Motivation and objectives – research methods vs. Methodology. Types of research – Descriptive vs. Analytical, applied vs. Fundamental, Quantitative vs. Qualitative, and Conceptual vs. Empirical.

UNIT-II

Research Formulation: Defining and formulating the research problem - Selecting the problem - Necessity of defining the problem - Importance of literature review in defining a problem – Literature review– Primary and secondary sources – reviews, treatise, monographs-patents – web as a source – searching the web - Critical literature review – Identifying gap areas from literature review - Development of working hypothesis.

UNIT-III

Research Design and Methods: Research design – Basic Principles- Need of research design — Features of good design – Important concepts relating to research design – Observation and Facts. Prediction and Explanation. Developing a research plan. Data Collection and analysis: Execution of the research - observation and Collection of Data Analysis with Statistical Packages - Hypothesis-testing - Generalization and Interpretation.

UNIT-IV

Reporting and Thesis Writing – Structure and components of scientific reports - Types of report – Technical reports and thesis – Significance – Different steps in the preparation – Layout, structure and Language of typical reports – Illustrations and tables - Bibliography, referencing and footnotes – Oral presentation – Planning – Preparation – Practice – Making presentation – Use of visual aids - Importance of effective communication. Application of Results and Ethics - Copy right – royalty - Intellectual property rights and patent law –Plagiarism - Citation and acknowledgement.

Text/Reference Books:

S. No	Name	Author(S)	Publisher
1.	An introduction to Research Methodology	Garg, B.L., Karadia, R., Agarwal, F. and Agarwal, U.K.	RBSA Publishers
2.	Research Methodology: Methods and Techniques	Kothari, C.R.,	New Age International
3.	Research Methodology	Sinha, S.C. and Dhiman, A.K	Ess Ess Publications

Computer Applications
Paper-II (Departmental I)

Subject Code:CSA903-19	Advancements in Natural Language Processing

UNIT-I

Basics of NLP: Introduction, Application of Natural Language, Various areas of NLP

Understanding NLP Models: Identifying the task, selecting a Model, Building and training a Model, Verifying the Model, Using the Model.

Understanding Part of Speech or Text Processing: Tokenization, Sentence segmentation or Splitting, Normalization.

UNIT-II

POS Tagging: Introduction, Word Classes, Rule Based POS, Stochastic POS, Markov assumption, Markov chain, HMM Tagging, Issues of Ambiguity, Multiple tags, Multiple words and unknown words.

Words and Word Forms : Morphology fundamentals; Morphological Diversity of Indian Languages; Morphology Paradigms; Finite State Machine Based Morphology; Automatic Morphology Learning; Shallow Parsing; Named Entities; Maximum Entropy Models; Random Fields.

UNIT-III

Semantics: Introduction, Semantical Analysis, Lexical Semantics.
Machine Translation: Introduction, Different methods of MT.
Speech Processing: Issues in Speech Recognition, the Sound Structure of Language, Signal Processing, Speech Recognition, Prosody and Intonation.

UNIT-IV

Structures: Theories of Parsing, Parsing Algorithms; Robust and Scalable Parsing on Noisy Text as in Web documents; Hybrid of Rule Based and Probabilistic Parsing; Scope Ambiguity and Attachment Ambiguity resolution.

Text/Reference Books:

S. No	Name	Author(S)	Publisher
1.	Speech and Language Processing	D. Jurafsky and J. Martin	Pearson Education
2.	Natural Language Understanding	James Allen	Pearson Education
3.	Natural Language processing: A Paninian Perspective	Bharati A., Chaitanya V and Sangal R,	Prentice Hall of India

Computer Applications

Paper-III (Departmental II)

Subject Code:CSA907-19	Advances in Semantics Techniques

UNIT-I

Semantic Web & Agent Technology: Ontology Engineering, Web Ontology Language (OWL), Architecture and Applications, Knowledge Acquisition, SWRL, (Semantic Web Rule Language), Semantic Web Services.

Multi-Agent System (MAS): Agent Communication Language (ACL), FIPA, Contract Net Protocol (CNP), Knowledge Query Manipulation Language (KQML), Swarm Intelligent, Java Agent Development Environment (JADE).

UNIT-II

Word Sense Disambiguation (WSD): Introduction of Ambiguity, WordNet, ConceptNet, ImageNet, NLP Applications and WSD, Knowledge-Based WSD Algorithm, Supervised Corpus and Unsupervised Corpus Based Methods for WSD.

UNIT-III

Web Mining: Web Content Mining (WCM), Web Structure Mining (WSM), Web Usage Mining (WUM), Semantic Web Mining (SWM), Data Mining, Text Mining, PageRank Algorithm, Web Personalization, Sentiment Analysis.

UNIT- IV

Neuro Linguistic Programming (NLP): Introduction & Applications, Difference between Natural Language Processing and Neuro Linguistic Programming, Semantic Relatedness Algorithm, Semantic Similarity Algorithm, Semantic Distance Algorithm, Semantic Network.

Text/Reference Books:

S. No	Name	Author(S)	Publisher
1.	Semantic Web for the Working Ontologist	Dean Allemang and James Hendler	Elsevier
2.	Semantic Web	K. Breitman, W. Truszkowsarco, A. Casanova	Springer Customer Service Center Gmbh
3.	Foundations of Semantic Web Technologies	Pascal Hitzler, Markus Krotzsch, Sebastian Rudolph	Taylor & Francis

REVIEW OF LITERATURE

(All Departments)

Subject Code:RLS902-19	M. Phil.- Review of Literature /Seminar (in Relevant Research Area)

1. The research student is required to prepare a concept paper/working, paper/review

2. Paper by reviewing at least 30 research papers / references books / unpublished doctoral dissertations / other reports etc.

3. To qualify the paper the research student is required either to present the prepared

4. Paper in an International Conference/ Seminar/ Workshop or publish the same in a research journal. Acceptance for publication or presentation will be considered as published/ presented.

5. A duly constituted RDC of the university shall evaluate the completion of the paper Note: Seminar will be based on the Literature Review done.

DISSERTATION

(All Departments)

Subject Code:DRT904-19	**Dissertation (in Relevant Research Area)**

Each student will submit Dissertation on any topic in relevant research area. Dissertation work will be guided by Supervisor allotted to them by the Department of the University and will be examined by external Examiner.