Rashtriya Sanskrit Vidyapeetha

(University Established under section 3 of UGC Act, 1956)

Tirupati – 517 064.

M.A. Sanskrit (Shabdabodha systems and Language Technology)

Semester 1

Course No.	Course Name	Course type	Credits
MSLT 111	Introduction to paninian Grammar	Hard Core	4
MSLT 112	Introduction to Process of Sentence understanding	Hard Core	4
MSLT 113	Introduction to Navya Nyaya	Hard Core	4
MSLT 114	Introduction to computers	Hard Core	4
MSLT 115	Natural Language Processing	**Soft core**	4

Semester 2

Course No.	Course Name	Course type	Credits
MSLT 121	Introduction to Paninian Grammar & Etymology	Hard Core	4
MSLT 122	शाब्दबोधप्रक्रियापरिचयाः	Hard Core	4
MSLT 123	Language and Speech Processing	Hard Core	4
MSLT 124	Computer Programming - PERL	Hard Core	4
MSLT 125	Introduction to Paninian Grammar & Nirukta	**Soft Core**	4

Semester 3

Course No.	Course Name	Course type	Credits
MSLT 231	Detailed Study of Samasas	Hard Core	4
MSLT 232	Introduction to Verbal suffixes	Hard Core	4
MSLT 233	Language and Linguistics	Hard Core	4
MSLT 234	Corpus Linguistics	Hard Core	4
MSLT 235	JAVA	**Soft core**	4

Semester 4

Course No.	Course Name	Course type	Credits
MSLT 241	Sabdabodha Text - I	Hard Core	4
MSLT 242	Artificial Intelligence	Hard Core	4
MSLT 243	Major Project Work	Internship	8
MSLT 244	Sabdabodha Text - II	**Soft Core**	4

Soft skill course for PG students

Course code	Course Name	Course Type	Credits
SBSS	Text processing using Python	Soft Skill	4

M.A. Sanskrit (Shabdabodha systems and Language Technology)
Semester – 1

Introduction to paninian Grammar

Course Code	Course Type	Credits	Theory
MSLT111	Hard core	4	4hrs/week

विषयाः --

1. व्याकरणशास्त्रसामान्यपरिचयः
2. अष्टाध्यायीपरिचयः
3. संज्ञाप्रकरणम् - लघुसिद्धान्तकौमुदी
4. अच्सन्धिः - लघुसिद्धान्तकौमुदी
5. हल्सन्धिः - लघुसिद्धान्तकौमुदी
6. विसर्गसन्धिः - लघुसिद्धान्तकौमुदी
7. असिद्धत्वविचारः - सामान्यपरिचयः (पूर्वत्रासिद्धम्, असिद्धं बहिरङ्गमन्तरङ्गे)
8. परनित्यान्तरङ्गापवादानामुत्तरोत्तरं बलीयः

सहायकग्रन्थाः -

1. लघुसिद्धान्तकौमुदी
2. वैयाकरणसिद्धान्तकौमुदी
3. अष्टाध्यायी
4. व्याकरणशास्त्रेतिहासः - पं. वेङ्कटरामशास्त्री

M.A. Sanskrit (Shabdabodha systems and Language Technology)
Semester – 1

Introduction to Process of Sentence understanding

Course Code	Course Type	Credits	Theory
MSLT112	Hard core	4	4hrs/week

विषयाः -

1. शक्तिनिरूपणम् – परमलघुमञ्जूषा

स्फोटभेदाः, वृत्तिस्वरूपम् - तद्भेदाः, शक्तिस्वरूपम्, मतान्तरनिरासः, शब्दार्थायोः तादात्म्यम्, अपभ्रंशेषु शक्तिविचारः, शक्तिभेदाः, विशेषार्थनिर्णायकाः संयोगादयः

2. लक्षणानिरूपणम् - परमलघुमञ्जूषा

न्यायमते लक्षणापदार्थः, लक्षणानिमित्तानि, लक्षणाबीजम्, लक्षणाभेदाः, लक्षणानिरासः

3. व्यञ्जनानिरूपणम् - परमलघुमञ्जूषा

4. शाब्दबोधसहकारिकारणानि - परमलघुमञ्जूषा

सहायकग्रन्थाः -

1. परमलघुमञ्जूषा
2. न्यायसिद्धान्तमुक्तावली

M.A. Sanskrit (Shabdabodha systems and Language Technology)
Semester – 1

Introduction to Navya Nyaya

Course Code	Course Type	Credits	Theory
MSLT113	Hard core	4	4hrs/week

विषयाः --

1. तर्कसंग्रहः - शब्दपरिच्छेदान्तः 50
2. नव्यन्यायभाषाप्रदीपः 25

धर्मस्वरूपम्, तद्भेदौ जातिरुपाधिश्च, सम्बन्धस्वरुपम्, साक्षात्परम्परासम्बन्धभेदौ, वृत्तिनियामकतदनियामकसंबन्धस्वरूपम्, वृत्तिनियामकसंबन्धाः समवायादयः।

निर्दिष्टविष्यानामध्ययनम् -

प्रतियोग्यनुगिभावः, आधाराधेयभावः, व्याप्यवृत्तिः अव्याप्यवृत्तिश्च अभावः, अवच्छेद्यावच्छेदकभावः, विशेषणविशेष्यभावः, सविकल्पकनिर्विकल्पकज्ञानस्वरूपम्, विषयविषयिभावः

सहायकग्रन्थाः -

1. तर्कसंग्रहः
2. नव्यन्यायभाषाप्रदीपः -महेषन्यायरत्न

M.A. Sanskrit (Shabdabodha systems and Language Technology)
Semester – 1

Introduction to Computers

Course Code	Course Type	Credits	Theory	Practicals	Tutorial
MSLT114	Hard core	4	4hrs/week	2hrs/week	1hr/week

Unit I

Fundamentals of Computers: Computer definition – Types of Computer – Logical Organization of a Digital Computer – Memory: Main Memory: RAM, ROM and Cache – Secondary Memory: Magnetic tape, Floppy disk, Hard disk, Compact disk – Input devices – Output devices

Unit II

Operating system : Definition, functions of an operating system, Types of Operating systems : Brief details of batch processing, Multi Programming, multi tasking, time sharing, real time operating systems - Introduction to Windows, Desktop, File, Folder, My Computer, My documents, Recycle bin, Internet Explorer, Windows Explorer – Types of Programming Languages – Introduction to Linux operating System: Kernel and different types of shells- File system and Directory structure - Important concepts in a Linux environment : Login, login scripts and Profiles – GUI Under Linux.

Unit III

MS Word Basics : Starting word, Creating a new document, Opening preexisting document, The parts of a word window, Typing text, Selecting text, Deleting text, Undo, Redo, Repeat, Inserting text, Replacing text, Formatting text, Cut, Copy, Paste – Printing. Formatting Text and Documents: Auto format, Line spacing, Margins, Borders and Shading. - Working with Headers and Footers: Definition of headers and footers, creating basic headers and footers, creating different headers and footers for odd and even pages. - Tables: Creating a simple table, Creating a table using the table menu, Entering and editing text in a table, selecting in table, adding rows, changing row heights, Deleting

rows, Inserting columns, Deleting columns, changing column width - Power Point: Basics, Terminology, Getting started, Views - Creating Presentations : Adding slides, Deleting a slide, Importing Images from the outside world, Drawing in power point, Transition and build effects, Deleting a slide, Numbering a slide, Saving presentation, Closing presentation, Printing presentation elements

Unit IV

File manipulation under Linux: copy, rename, delete and move, directory listing, file handling and IO redirection - Users and Groups: Concept of users and groups, Owner, Primary and secondary group, types of file and directory permissions - Basic commands and shell-scripting: Miscellaneous other commands cat, cal, date, passwd, less, grep, wc, bc uname, etc. Archiving utilities, tar, gzip/gunzip, bzip/bunzip etc. - Introduction to shell scripts.- Writing basic shell scripts

Unit V

Regular Expressions: Special characters, Literal characters, Escapes for non-alphanumeric special characters, Single character patterns, Grouping patterns, Alternatives, Substitutions, Global replacements, Split and joint operators

III Prescribed Text Books

1. Peter Norton, Introduction to Computers, Sixth edition, Tata McGraw Hill(2007).
2. Ron Mansfield, Working in Microsoft Office, Tata McGraw Hill (2008)
3. Linux Complete, Linux Documentation project compiled by Grant Taylor

M.A. Sanskrit (Shabdabodha systems and Language Technology)
Semester – 1

Natural Language Processing

Course Code	Course Type	Credits	Theory	Practicals	Tutorial
MSLT115	Soft core	4	4hrs/week	2hrs/week	1hr/week

Unit I

Introduction to NLP: Goal, History of NLP - Applications of NLP – Open Problems – Knowledge sources

Unit II

Language Structure and Language analyzer: Introduction to Language Structure, Overview of Language analyzer: Morphological Analyzer, Local word grouping (LWG), Core Parser.

Unit III

Words and their Analyzer: Introduction to Morphological Analysis (MA), MA using Paradigms - Speeding up of MA by compilation - Local Word Grouping: Verb groups, Noun groups, Strategy for grammar Development.

Unit IV

Paninian Grammar: Introduction to Paninian grammar – Semantic model - Paninian theory: Karaka Relations – Active Passive: Karaka to Vibhakti Mapping, Karaka shares.

Unit V

Paninian Parser: Introduction, Core Parser: Constraints – Preferences over Parses – Lakshan charts for Sense Disambiguation – Machine Translation: Introduction, Anusaraka or Language Accessor

Prescribed Text Books

1. Natural Language Processing: Paninian Perspective. Prof. V.Chaitanya, Rajeev Sangal, published by Prentice Hall of India 1997
2. Natural Language Modeling: Prof G.U. Rao book- 413 published by HCU 2006

M.A. Sanskrit (Shabdabodha systems and Language Technology)
Semester – 2

Introduction to Paninian Grammar & Etymology

Course Code	Course Type	Credits	Theory
MSLT121	Hard core	4	4hrs/week

विषयाः –

1. स्त्रीप्रत्ययाः - लघुसिद्धान्तकौमुदी 20
2. कारकप्रकरणम् 40
(उपपदविभक्तीः वर्जयित्वा) - वैयाकरणासिद्धान्तकौमुदी
3. Etymology of the following words. (शब्दव्युत्पत्तिः) 15
आचार्य-वीर-ह्रद-गो-समुद्र-वृत्र-आदित्य-उषस्-मेघ-वाक्-उदक-नदी-अश्व-निघण्टुशब्दाः-
निरुक्तम् द्वितीयाध्यायः

सहायकग्रन्थाः –

1. वैयाकरणसिद्धान्चकौमुदी
2. अष्टाध्यायी
3. निरुक्तम्

M.A. Sanskrit (Shabdabodha systems and Language Technology)
Semester – 2

शाब्दबोधप्रक्रियापरिचयाः

Course Code	Course Type	Credits	Theory
MSLT122	Hard core	4	4hrs/week

1. शब्दखण्डः - न्यायसिद्धान्तमुक्तावली 65

पदज्ञानं तु करणमिति कारिकाव्याख्यानम्

शक्तिस्वरूपम्

शक्तिग्राहकानि

आख्यातशक्तिवादः

घटादिपदानां कार्यान्वितघटादौ शक्तिविचारः

जातिशक्तिवादः

यौगिकादिपदभेदाः

लक्षणास्वरूपम् - तद्भेदाः

समासलक्षणानिरासः

शाब्दबोधकारणानि आकाङ्क्षादीनि

2. वेदाङ्गानां सामान्यपरिचयः 10

सहायकग्रन्थाः -

1. न्यायसिद्धान्तमुक्तावली
2. तर्कसंग्रहदीपिका
3. लघुमञ्जूषा
4. वैदिकवाङ्मयस्येतिहासः
5. ऋग्वेदभाष्यभूमिका

M.A. Sanskrit (Shabdabodha systems and Language Technology)
Semester – 2

Language and Speech Processing

Course Code	Course Type	Credits	Theory	Practicals	Tutorial
MSLT123	Hard core	4	4hrs/week	2hrs/week	1hr/week

Unit I

Introduction to NLP: Knowledge in Speech and Language Processing – Ambiguity – Models and Algorithms – Language, Thought and Understanding – Brief History – Words : Basic Regular Expression patterns – Disjunction, Grouping and precedence, advanced operators – Regular Expression substitution.

Unit II

Finite state automata, Using FSA to recognize sheeptalk, NMondeterministic FSAs, Using an NFSA to accept strings, Relating Deterministic and Non-Deterministic Automata.

Unit III

Morphology and Finite State Transducers: English Inflectional and Derivational Morphology, Finite state Morphological parsing, Combining FST Lexicon and Rules, Lexicon-Fee FST – Porter Stemmer, Human Morphological Processing

Unit III

Features and Unification : Feature Structures – Unification of Feature Structurs – Features structures in the Grammar – Implementing Unification – Parsing with Unification Constrains – Types and Inheritance

Unit V

Discourse: Reference resolution – Text Coherence- Discourse Structure – Psycholinguistic studies of Reference and coherence - Dialogue and Conversational Agents: What makes dialogue different – Dialogue Acts – Automatic Interpretation of Dialogue Acts – Dialogue Structure and Coherence – Dialogue managers in conversational Agents.

Prescribed Text Books:

1. Speech and Language Processing – Danial Juafsky, Jamaes H. Martin.

M.A. Sanskrit (Shabdabodha systems and Language Technology)
Semester – 2

Computer Programming – PERL

Course Code	Course Type	Credits	Theory	Practicals	Tutorial
MSLT124	Hard core	4	4hrs/week	2hrs/week	1hr/week

Unit I

Introduction to Perl: The structure of a Perl – a sample Perl Program – Editing and Execution of Perl - Variables and constants - types – operators and types - Input from STDIN - Output to STDOUT

Unit II

Scalar Variables: Defining Scalar Variables - Literal Representation - Scalar Operators – Reading and Printing scalar variables - Arrays: Defining a List or Array - Literal Representation - Array Operators- Reading and Printing scalar variables - Hashes: Defining Hash Array- Hash Key and its value -Literal Representation - Accessing Hash Array values - Hash Array Operators- Reading and Printing scalar variables

Unit III

Perl Loops and control statements: Relational Operators- if, if..else, while, do..while, do..until statements- Loop control statements: Next,Last, Redo statements

Unit IV

What is a Filehandle - Opening & Closing a Filehandle - Using Filehandles to read and Write data. - Perl Functions - Defining a User Function - Creating a User Function that takes arguments - Private Variables in Functions - Return Values

Unit V

Regular Expressions: Concepts, Patterns, Matching Operators - Substitutions, The Split & Join Functions

Prescribed Text Books

1. Learning Perl (Second edition) by Randal L. Schwartz and Tom Christiansen, Shroff Publishers and Distributers Pvt. Ltd
2. Progrmming Perl, Second edition bt Larry Wall, Tom Christiansen and L. Schwartz, Shroff Publishers and Distributers Pvt. Ltd
3. Mastering Perl 5 by Herrmann – BPB Publications, New Delhi
4. Perl Primer by R J Rama Sree published by RSVP

M.A. Sanskrit (Shabdabodha systems and Language Technology)
Semester – 2

Introduction to Paninian Grammar & Nirukta

Course Code	Course Type	Credits	Theory
MSLT125	Soft core	4	4hrs/week

विषयाः –

1. लघुसिद्धान्तकौमुदी अजन्तपुँलिङ्ग - स्त्रीलिङ्ग - नपुंसकलिङ्गप्रकरणानि - 50
2. निरुक्तम् - प्रथमाध्याये प्रथमपादादारभ्य चतुर्थपादपर्यन्तम्। 25

प्रथमपादः -

निघण्टुशब्दव्युत्पत्तिः, चत्वारि पदजातानि, षड्भावविकाराः, उपसर्गार्थविषये शाकटायनगार्ग्ययोः मतम्।

द्वितीयतृतीयपादौ -

निपातार्थविशेषाः

चतुर्थः पादः -

नामविषये शाकटायनादीनां मतानि

सहायकग्रन्थाः -

1. लघुसिद्धान्तकौमुदी
2. वैयाकरणसिद्धान्तकौमुदी
3. निरुक्तम्
4. अष्टाध्यायी

M.A. Sanskrit (Shabdabodha systems and Language Technology)
Semester – 3

Detailed Study of Samasas

Course Code	Course Type	Credits	Theory
MSLT211	Soft core	4	4hrs/week

I. लघुसिद्धान्तकौमुदी (समासप्रकरणम्) 50

1. केवलसमासः - लघुसिद्धान्तकौमुदी
2. अव्ययीभावः - लघुसिद्धान्तकौमुदी
3. तत्पुरुषः - लघुसिद्धान्तकौमुदी
4. बहुव्रीहिः - लघुसिद्धान्तकौमुदी
5. द्वन्द्वः - लघुसिद्धान्तकौमुदी

II. वैयाकरणभूषणसारः - समासशक्तिनिर्णयः 25

सहायकग्रन्थाः -

1. लघुसिद्धान्तकौमुदी
2. वैयाकरणसिद्धान्तकौमुदी
3. समासपारिजातः
4. समासप्रबन्धः
5. वैयाकरणभूषणसारः
6. शाब्दतरङ्गिणी

M.A. Sanskrit (Shabdabodha systems and Language Technology)
Semester – 3

Introduction to Verbal suffixes

Course Code	Course Type	Credits	Theory
MSLT212	Hard core	4	4 hrs/week

I. लघुसिद्धान्तकौमुदी - निर्दिष्टविष्याः 60

1. भूधातुप्रक्रिया - लघुसिद्धान्तकौमुदी
2. एधधातुप्रक्रिया - लघुसिद्धान्तकौमुदी

3. णिच् - लघुसिद्धान्तकौमुदी

4. सन् - लघुसिद्धान्तकौमुदी

5. कृदन्ते कृत्यप्रकरणम् - लघुसिद्धान्तकौमुदी

II. सर्वनामपदशक्तिविचारः (सामान्यपरिचयः) तत्, अस्मद्, युष्मद्, सर्व, किम् शब्दाः- शक्तिवादः 15

सहायकग्रन्थाः -

1. वैयाकरणसिद्धान्तकौमुदी
2. लघुसिद्धान्तकौमुदी
3. शक्तिवादार्थसंग्रहः
4. लघुमञ्जूषा

M.A. Sanskrit (Shabdabodha systems and Language Technology)
Semester – 3

Language and Linguistics

Course Code	Course Type	Credits	Theory
MSLT213	Hard core	4	4 hrs/weeks

1. Definition and Classification of Languages.

Morphological Classification
Geneological Classification

2. Theories on the origin of Languages.
   old and Modern.
   Bow Vow, Pooh Pooh, Ding Dong, Ye-he-ho theries.

3. History of Indo-Aryan.
   1. Old Indo Aryan
   2. Middle Indo Aryan
   3. Modern Indo Aryan

4. Phonology.
   1. तालव्यादिस्थानानि
   2. तालव्यादिवर्णाः
   3. आभ्यन्तरप्रयत्नः
   4. बाह्यप्रयत्नः
   5. स्पर्शाः अन्तः स्थाः, ऊष्माणः, स्वराः, अनुनासिकाः
   6. ध्वनिपरिवर्तनकारणानि

5. Phonetic Laws
   1. Grimm's Law
   2. Grassmann's Law
   3. Verner's Law
   4. Palatal Law

6. Types of Phonetic Changes
   1. लोपः
   2. आगमः
   3. विपर्ययः (Metathesis)
   4. समीकरणम् (Assimilation)
   5. विषमीकरणम् (Dissimilation)
   6. सन्धिः
   7. अनुनासिकता (Nazalization)

7. Semantics

Primary meaning, Secondary meaning. semantic changes. (अर्थसंकोचादयः) causes of semantic changes.

सहायकग्रन्थाः -

1. भाषाशास्त्रप्रवेशिनी
2. Language - Bloomfield
3. भाषाविज्ञान
4. आधुनिकभाषाविज्ञान
5. Linguistics

M.A. Sanskrit (Shabdabodha systems and Language Technology)
Semester – 3

Corpus Linguistics

Course Code	Course Type	Credits	Theory	Practicals	Tutorial
MSLT214	Hard core	4	4 hrs/week	2 hrs/week	1hrs/week

Unit I

Introduction: Basic Concepts - What can we do with corpora- Need for Corpus Linguistics - Types of Corpus - Historical development: two competing approaches - How to build corpus - Applications of Corpus Linguistics **Tools for finding and displaying texts using Unix tools**: sorting- counting text tokens –Generating frequency lists for a given text file, making n-grams, solving small problems using Unix tools and Perl

Unit II

Concordances: What is concordance? Key word in context (KWIC) index – How to prepare KWIC-studying existing concordance programs for concordance.
Corpus Design: How to design our own corpus – enrichment of corpus for our own applications

Unit III

Annotation – Tools for annotation –Methods to annotate the given text -Issues in annotation – Annotating the texts of Indian Language Texts

Unit IV

Probability and Language Modeling: Probability – Joint probability- Conditional Probability– chain Rule- Bayes Rule- How probability is useful in NLP.

Unit V

Hidden Morkov Models and POS tagging – Statistical parsing

Prescribed Text book:

1. Data intensive Linguistics by Chris Brew and Marc Moens – 2004.

M.A. Sanskrit (Shabdabodha systems and Language Technology)
Semester – 3

JAVA Programming

Course Code	Course Type	Credits	Theory	Practicals	Tutorial
MSLT215	Soft core	4	4 hrs/week	2 hrs/week	1hrs/week

Unit I

Fundamentals of Object Oriented Programming: Object Oriented Programming Concepts - Objects and Classes - Data abstraction and encapsulation

Unit II

Introduction to Java Programming Language: Java program structure - Java tokens- Java statements- Java virtual machine – constants – Variables - Data types - Arrays and Strings

Unit III

Classes, Objects and Methods – Implementation using interfaces – packages- multithread programming – Exception handling Catch and finally statements.

Unit IV

Managing I/O files in Java, Concept of streams, Reading / Writing characters and bytes, Interactive I/O.

Unit V

Intro to applet Programming: Applets Vs applications.- Local and Remote Applets, Designing web pages.

Prescribed Text books

1. Programming with JAVA by E. Balaguruswami, Tata McGraw Hill Pub.

M.A. Sanskrit (Shabdabodha systems and Language Technology)
Semester – 4

Sabdabodha Text – I

Course Code	Course Type	Credits	Theory
MSLT221	Soft core	4	4hrs/week

1. महाभाष्यम् - पस्पशाह्निकम्
2. वृत्तरत्नाकरः (निर्दिष्टवृत्तानि)
    1. इन्द्रवज्रा
    2. उपेन्द्रवज्रा
    3. दोधकम्
    4. वंशस्थम्
    5. तोटकम्
    6. द्रुतविलम्बिता
    7. भुजङ्गप्रयातम्
    8. स्रग्विणी
    9. वसन्ततिलका
    10. मालिनी
    11. शिखिरिणी
    12. मन्दाक्रान्ता
    13. शार्दूलविक्रीडितम्
    14. स्रग्धरा
    15. मत्तेभविक्रीडितम्
3. कृत्प्रत्ययाः निर्दिष्टाः (उदाहरणपरिचयः - प्रक्रिया च)

णवुल्, तृच्, ल्युः, णिनिः, कः, अण्, टः, खश्, णिनिः, निष्ठा

सहायकग्रन्थाः -

1. महाभाष्यम्
2. वैयाकरणसिद्धान्तकौमुदी
3. वृत्तरत्नाकरः

M.A. Sanskrit (Shabdabodha systems and Language Technology)
Semester – 4

Artificial Intelligence

Course Code	Course Type	Credits	Theory
MSLT222	Soft core	4	4hrs/weeks

Unit I

Overview of AI: What is AI? Importance, Related fields - What is AI – The Early work in AI – AI and Related Fields. **Knowledge: General concepts**: Introduction – Definition and Importance of Knowledge – Knowledge- Based systems-Representation of Knowledge- Knowledge Manipulation- Acquisition of Knowledge

Unit II

Formalized symbolic logic: Introduction – Syntax and Semantics for Prepositional Logic – Syntax and Semantics for FOPL – Properties of Wffs – Conversion to Clausal Form – Inference Rules – The Resolution Principle – No deductive Inference Methods – Representations Using Rules. **Structured Knowledge**:Introduction – Associative Networks – Frame Structures – Conceptual Dependencies and Scripts.

Unit III

Object-oriented representations : Introduction – overview of object-oriented systems – Objects, Classes, Messages, and Methods – Simulation Example Using an OOS Program – Object Oriented Languages and Systems

Unit IV

Knowledge Acquisition: Introduction – Types of Learning – Knowledge Acquisition Is Difficult – General Learning Model – Performance Measures

Unit V

Early Work in Machine Learning: Introduction – Perceptions – Checker Playing Example – Learning Automata – Genetic Algorithms – Intelligent Editors. **Learning by Induction**: Introduction – Basic Concepts – some Definitions – Generalization and specializations - Inductive Bias – Example of an inductive Learner.

Prescribed Text Book:

Introduction to Artificial Intelligence and expert systems, Prntice –Hall of India Private Limited, New Delhi.

M.A. Sanskrit (Shabdabodha systems and Language Technology)
Semester – 4

Major Project Work

Course Code	Course Type	Credits
MSLT223	Internship	8

This course gives students an opportunity to implement the theories they studied and will be a testing bed for their understanding. Students have to work on a problem selected on the guidance of his/her teacher/supervisor and submit a small dissertation at the end of the year in order to fulfill the requirement of the course.

Note for Marks division and evaluation.
100 Marks for Dissertation by external evaluator other than guide
100 Marks for presentation before examiners including guide

Semester – 4

Sabdabodha Text – II

Course Code	Course Type	Credits
MSLT224	Soft core	4

शाब्दबोधमीमांसा – एन्.एस्.आर्.ताताचार्यः

(प्रथमद्वितीयभागौ – भूमिकामात्रम्)

1. शब्दस्याप्रामाण्यनिरासः
2. न्यायदर्शने शब्दस्य पृथक् प्रामाण्यम्
3. शब्दस्यानुमानत्वमिति दिङ्नागमतखण्डनम्
4. शब्दस्य प्रमाणान्तरत्वसाधनम्
5. शब्दलक्षणम् – विभिन्नमतपरिचयः
6. वाक्यस्वरूपपरिचयः
7. वाक्यार्थविचारः – विभिन्नमतसामान्यपरिचयः
8. मतभेदेन स्फोटतत्खण्डनपरिचयः
9. अभिहितान्वय – अन्विताभिधानवादपरिचयः
10. कारकलक्षणपरिचयः
11. प्रथमार्थे भिन्नमतपरिचयः

सहायकग्रन्थाः –

1. शाब्दबोधमीमांस
2. शाब्दतरङ्गिणी
3. भूषणसारः
4. लघुमञ्जूषा

Soft skill course for PG students under Shabdabodha

Text Processing using PYTHON

Course Code	Course type	Credits	Theory	Practicals	Tutorial
SBSS	Soft Skill	4	4hrs/week	2hrs/week	1hr/week

Unit – 1

INTRODUCTION : The Usefulness of Programming for Language Research – Installing Python – Our First python Programm

Unit – II

s

STATEMENTS, DATA TYPES, DATA STRUCTURES: Variables – Simple Statements – Data Types : Strings, Numbers, None – Data Structure : List and Tuples.

Unit – III

DATA FLOW, FUNCTIONS, ERRORS AND EXCEPTIONS : conditional Statements : If-Then – Looping : While-loops, For-loops – Functions : arguments and return Values – Errors and Exceptions.

Unit – IV

INPUT/OUTPUT (IO): Input/Output: Reading from and Writing to files – Strings in Depth – Sample Programs

Unit – V

OBJECT-ORIENTED PROGRAMMING, REGULAR EXPRESSIONS: A Brief Introduction - Regular Expressions : The Basic – Writing a GUI with Python.

Prescribed Book

1. Beginning Python, Peter Norton, etc., Wiley India