

Date: 21.03.2018

**Minutes of the Board of Studies meeting of Vyakarana Shastra held on 21.03.2018 at  
Karnataka Samskrit University, Bengaluru**

Agenda:1 Approval of the CBCS syllabus of M.A. Programme in Vyakarana

Agenda:2 Approval of the syllabus of PG Diploma in Samskrit Computational Linguistics.

**Members Present :**

Sl. No.	Members	
	<b>Dr. Shivani V</b> Associate Professor, Head of the Vyakarana Department Karnataka Samskrita University, Bangalore	<b>Chair Person</b>
	<b>Dr. B. V. Venkataramana,</b> Associate Professor,Dean of Shastra Faculty, Karnataka Samskrita University, Bangalore	<b>Dean</b>
	<b>Prof. R. L. N. Shastri,</b> Dean & HOD of Shikshashastra, National Sanskrit Vidyapeetham, Tirupati	Member
	<b>Dr. Chandrashekhhar Bhat</b> Assistant Professor, Department of Vyakarana, Rajiv Gandhi Campus, Sringeri, RSS	Member
	<b>Vyakarana Ratnam Gururaja kulakarni,</b> Assistant Professor, Poornaprajnya Vidyapeetham, Bangalore	Member
	<b>Dr. Yashasvi,</b> Assistant Professor, Department of Vyakarana, National Sanskrit Vidyapeetham, Tirupati	Member
	<b>Dr .Udaya Bhat</b> Assistant Professor, Department of Vyakarana Shreemanmaharaja Samskrita Collage, Mysore	Member
	<b>Dr. K. R. Shreedhar,</b> Assistant Professor, Department of Vyakarana Shreemanmaharaja Samskrita Collage, Mysore	Member

	<b>Dr. Anupama B</b> Assistant Professor, Department of Vyakarana, Karnataka Samskrita University, Bangalore	Member
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The members of the Board discussed in detail the CBCS syllabus for M.A. Programme in Samskrit Vyakarana and Post Graduate Diploma in Sanskrit Computational Linguistics

- The Board members approved the CBCS syllabus of MA Vyakarana with few suggestions and recommended to offer the courses of the programme from June 2018 onwards.
- The members suggested to add rare and innovative texts to the curriculum.

**Dr. SHIVANI.V**  
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**Pampamahakavi Road, Chamrajpet, Bangalore**

**M.A. VYAKARANA**  
**Choice Based Credit System (CBCS Pattern)**

**Course Curriculum (Syllabus)**

Approved by the Academic Council Meeting, Dt. 05.07.2018  
(Onwards 2018-2019)

Name of the Program	<b>ACHARYA (M.A.) VYAKARANA</b>
Name of the Faculty	<b>Faculty of Shastra</b>
Name of the Department	<b>Vyakarana</b>
Examination Type	Semester
Program Duration	02 years (04 Semesters)
Total Credits	80
Eligibility	Any Graduate with Sanskrit Subject/

**ACHARYA (M.A.) VYAKARANA**

Medium : - Sanskrit

Duration :- Two Years (Four semesters)

Total Marks – 2000 (First Year - Semester I =500 & Semester II =500, Second Year - Semester III =500 & Semester IV =500)

Examination Pattern :- Semester Paper Patten :- 70:30

Theory Marks – 70 Internal Assessment Marks – 30

Age limit :- No age limit.

**Eligibility :**

1. Pass in 3 year degree course/Shastri/Any Graduate from a recognized University with Sanskrit as second language or as an elective subject.
- (b) Two years degree course with Bridge course of
  - i) Rashtriya Sanskrit Vidyapeetha, Tirupati,
  - ii) Shri Lal Bahadur Sastri Rashtriya Sanskrit Vidyapeetha, New delhi,
  - iii) Rashtriya Sanskrit Sanskthan, New Delhi.
1. Shiromani Final Examination of i) Madras University, Chennai, ii) Annamalai University, Annamalai nagar.
- (d) Shiromani final Examination of S.V.University, Tirupati
- (e) Shastra Bhushana Final Examination of Kerala Government.

- (f) Vidyapraveena Final Examination of Andhra University, Waltair.  
 (g) Vidyalkara and Vedalkara examinations of Gurukula Kangeri  
 Viswavidyalaya, Haridwar  
 (h) Vidwat Madhyama Examination of Karnataka Government.  
 1. B.A.(O.L)/B.A.(L).B.A./B.A (Hons.)/B.O.L equivalent examinations with  
 Sanskrit of all recognized universities.  
 (a) Any other examination recognized by the State/National level Sanskrit  
 University/ Institution as equivalent to Shastri.

Choice Based Credit System (In this scheme for each of the following Shastras, five papers, in which four papers will be from (A) Hard core Sastras and 1 Paper will be from (B) Soft Core Shastras for each Semester).  
 Soft Core has to option from other Shastras.

**A. Hard Core Sastras -:** [Vyakarana](#)

**B. B. Soft Core Sastras -:** [Vyakarana](#)

The structure of the syllabus would be:

1. प्रक्रियाग्रन्थः
2. आर्थिकग्रन्थः
3. सिद्धान्तग्रन्थः/व्याकरणदर्शनग्रन्थः
4. प्रधानम् (Hard core)
5. गौणम् (Soft core)

**Internal Assessment Details –**

One periodical class test held in the given semester, Subject specific Term Work Module / Assessment modes as decided by the department in the beginning of the Semester (like Extension / field / Experimental work, Short Quiz; Objective test, lab practical, open book test etc. and written assignments, Case study, Projects, Posters and exhibits etc. for which the assessment is to be based on class presentations wherever applicable), Active participation in routine instructional deliveries (and in practical work, tutorial, field work etc. as the case may be), Overall conduct as a responsible learner, mannerism and articulation and exhibit of leadership qualities in organizing related academic etc.

**SYLLABUS**

**Acharya (M.A.) Vyakarana Semester -I**

Paper –I	लघुशब्देन्दुशेखरः - (नपदान्तसूत्रपर्यन्तः भागः)	Total Marks 100 Theory Marks 70 Internal Assessment -Marks 30
Paper -II	महाभाष्यम् - (प्रथम-द्वितीयाह्निके)	Total Marks 100 Theory Marks 70 Internal Assessment -Marks 30
Paper -III	भूषणसारः (धात्वर्थलकारार्थी)	Total Marks 100 Theory Marks 70 Internal Assessment - Marks 30

Paper –IV शिशुपालवधम्/भाषाशास्त्रम् Total Marks 100  
Theory Marks 70  
Internal Assessment - Marks 30

**CBCS**

Paper -V – व्युत्पत्तिवादः/शाब्दतरङ्गिणी/शब्दशक्तिप्रकाशिका

(for students having other specializations)

वैयाकरणसिद्धान्तकौमुदी - (पञ्चसन्ध्यन्तो भागः) Total Marks 100  
Theory Marks 70  
Internal Assessment - Marks 30

**Acharya (M.A.) Vyakarana Semester -II**

Paper –I वैयाकरणसिद्धान्तकौमुदी (कृदन्तप्रकरणम्,  
आत्मनेपद-परस्मैपद-लकारार्थप्रकरणम्) Total Marks 100  
Theory Marks 70  
Internal Assessment - Marks 30

Paper -II महाभाष्यम् - (III, IV, V) Total Marks 100  
Theory Marks 70  
Internal Assessment - Marks 30

Paper -III वैयाकरणभूषणसारः -(समासशक्तिपर्यन्तः भागः) Total Marks 100  
Theory Marks 70  
Internal Assessment - Marks 30

Paper–IV परिभाषेन्दुशेखरः -II (पञ्चाशत् परिभाषाः) Total Marks 100  
Theory Marks 70  
Internal Assessment - Marks 30

**CBCS**

Paper -V Vyakarana (for students having other specializations)

महाभाष्यम् - पस्पशाह्निकम् Total Marks 100  
Theory Marks 70  
Internal Assessment- Marks 30

**Acharya (M.A.) Vyakarana Semester -III**

Paper –I वैयाकरणसिद्धान्तकौमुदी (तिङन्तप्रकरणम्) Total Marks 100  
Theory Marks 70  
Internal Assessment - Marks 30

Paper -II प्रौढमनोरमा (शब्दरत्नसहितं कारकप्रकरणम्) Total Marks 100  
Theory Marks 70  
Internal Assessment - Marks 30

Paper -III वाक्यपदीयम् (ब्रह्मकाण्डम्/साधनसमुद्देशः) Total Marks 100  
Theory Marks 70  
Internal Assessment - Marks 30

Paper –IV लघुमञ्जूषा (वृत्तिविचारः - बौद्धार्थनिर्णयं विना) Total Marks 100  
Theory Marks 70  
Internal Assessment - Marks 30

**CBCS**

Paper -V Vyakarana (for students having other specializations)

भाषाशास्त्रम् /कारकम् - लघुसिद्धान्तकौमुदी Total Marks 100

Theory Marks 70  
Internal Assessment - Marks 30

**Acharya (M.A.) Vyakarana Semester -IV**

Paper –I 100	वैयाकरणसिद्धान्तकौमुदी (समासः, तद्धिते अपत्याधिकारः)	Total Marks
		Theory Marks 70 Internal Assessment - Marks 30
Paper -II	परमलघुमञ्जूषा (शक्तिनिरूपणतः तात्पर्यपर्यन्तम्)	Total Marks 100
		Theory Marks 70 Internal Assessment - Marks 30
Paper -III	महाभाष्यम् (कारकम्)	Total Marks 100
		Theory Marks 70 Internal Assessment - Marks 30
Paper –IV	ज्ञापकसंग्रहः (परिशिष्टं विहाय)	Total Marks 100
		Theory Marks 70 Internal Assessment -Marks 30
Paper –V	Project	Total Marks 100
		Theory Marks 70 Internal Assessment -Marks 30
<b>CBCS</b>		
Paper -V	Vyakarana (for students having other specializations) समासः - लघुसिद्धान्तकौमुदी	Total Marks 100 Theory Marks 70

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## **Semester – I**

Paper – I	Natural Language Processing – I
Paper – II	Computer Programming – I
Paper – III	Vyakarana and Linguistics - I
Paper – IV	Introduction to Shabdabodha

## **Semester – II**

Paper – V	Natural Language Processing – II
Paper – VI	Computer Programming – II
Paper – VII	Vyaakarana - II
Paper – VIII	Project

*For each of the paper, we describe the objective, and the topics that are likely to be covered. The syllabus, as well as the reading material and reference list is only indicative.*

## **Detailed Syllabus**

### **Paper -I                      Natural Language Processing – I**

Objective: At the end of this course the students should be able to assess our traditional linguistic resources vis-a-vis the modern linguistic resources, also assess the relevance of fundamental principles and concepts in Indian traditional theories to the modern languages.

1. Introduction and brief History of NLP
2. MT in India and abroad
3. Linguistic issues in NLP
4. Morpheme, Word, Sentence, and Paragraphs
5. Morphological Analysis and finite State Transducers
6. Chunking
7. Parsing

Annotation of Sanskrit texts at various stage

### **Recommended Books and reading material:**

- NLP: A Paninian Perspective by Akshar Bharati, Vineet Chaitanya, Sangal, Prentice Hall of India,
- 1995
- Speech and Language Processing By Daniel Jurafsky and James H Martin
- Annotation guidelines developed by Sanskrit Consortium
- Relevant research papers in the field of Machine Translation, Natural Language Processing,
- Computational Linguistics, Sanskrit Computational Linguistics, etc.
- A Key to Karaka

### **Paper-II Computer Programming -I**

Objective: The goal of this course is to introduce the students to various Unix tools and scripting languages so that students can develop small interfaces on the top of existing tools, process corpus, do preliminary linguistic and statistical analysis of the corpus.

1. Introduction to Unix file system
2. Introduction to various Unix tools such as cut, paste, more, less, tr, diff, comm, locate, find
3. regular expressions - grep, sed, flex (lexical analyser)
4. Simple shell programmes command line arguments, loop, conditional statements
5. Introduction to HTML, and XML
6. Introduction to Apache, server programming
7. Philosophy behind GPL, Creative Commons and similar licences

### **Recommended Books:**

- Unix Power Tools, by Jerry Peek, Shelley Powers, Tim O'Reilly, Mike Loukides
- Online tutorials for Apache, HTTP and Javascript

### **Paper-III Vyakarana -I**

Objective: The aim of this course is to introduce the concepts of vyaakarana with reference to various issues in Natural Language Processing, and also to familiarise the students with the parallel Linguistic terminology and concepts so as to enable them to read and understand the latest research articles in the area of computational linguistics.



1. Phonology; Phonemics; Sandhi rules in A.s.taadhyaayii
2. Pada formation – subanta, tinganta, k.rt, taddhita; inflectional and derivational morphology, various approaches of morphological analysis
3. Syntactic Analysis, Kaaraka relations, theta roles
4. Akaanksha, yogytaa, sannidhi

**Recommended Book:**

- Siddhanta Kaumudi
- Ashtadhyayi
- Phonetics in Ancient India, W S Allen, 1971
- Sandhi, W. S. Allen
- Morphology
- Syntax

**Paper -IV Introduction to Shabdabodha**

Objective: This course aims at introducing the prominent concepts of Shabdabodha to the students.

1. शाब्दबोधः
2. प्रमाणम्, शब्दः
3. कारणां - आकाङ्क्षा, योग्यता, सिद्धिः
4. शाब्दबोधोत्पत्तिक्रमः
5. पदज्ञानं तु करणं ...
6. वाक्यं वाक्यलक्षणम्
7. वाक्याथर्ः
8. विशेष्यविशेषणभावः
9. पदम् - पदविभागः
10. वृत्तिः - शक्तिः, लक्षणा, व्यञ्जना
11. शक्तिग्रहोपायाः
12. शाब्दबोधे मतां
13. मुख्यविशेष्यः कः?

14. क्रिया-भावना-प्रथमान्ताथर्:

15. अन्वताभिधानम्

16. अभिहतान्वयः

17. संसर्गयार्दावादः

### **Recommended Books:**

- शाब्दतरिङ्गणी, सुब्रह्मण्यशास्त्री,- Prof. KTP edition - 2006.
- "The word and the world" - B.K.Matilal - 1992
- "Indian theories of Meaning" - Raja K. Kunjuni - 1963
- Philosophy of word and meaning, Gourinath Shastri - 1959
- "Sanskrit Philosophy of Language" JF Stall 1969
- "Logic, Language, Reality" - B.K. Matilal 1985

### **Paper -V Natural Language Processing – II**

Objective: At the end of this course the students should be able to assess our traditional linguistic resources vis-a-vis the modern linguistic resources, also compare the relevance of fundamental principles and concepts in Indian traditional theories to the modern languages.

1. Corpus Linguistics
2. Corpus, collection, Digital Resources
3. Word Sense Disambiguation
  - Problems
  - Various approaches
4. Various Sanskrit Koshas, Amarakosha: Knowledge Structure
5. Electronic dictionaries and their linking
6. E-lexicons
7. WordNet, ConceptNet, PropNet, VerbNet
8. Lakshan Charts, Kaaraka Charts

### **Recommended Books and reading material:**

- Speech and Language Processing By Daniel Jurafsky and James H Martin

- Amarakos ṣa: Sudhā Vyākhyāna
- Nirukta: durgā vyākhyā,
- Nirukta: laks ṣman ṣsarupa
- Lexicography: Rama-dhara SiMha
- Relevant research papers
- Online Lexical resources and their Documentation

### **Paper-VI Computer Programming -II**

Objective: The basic aim of this course is to introduce basic concepts of programming and data structure to the students.

1. Introduction to Computer programming
2. Variables
3. Various Data structures scalar, array, hash, string, enumeration, set
4. String processing
5. Memory, pointers
6. Various constructs: Loop, conditional
7. Modularity, subroutines
8. Global Vs local variables
9. Parameter passing
10. Use of various libraries

### **Reference Books:**

As decided by the instructor depending upon the language chosen.

### **Paper-VII Vyaakarana -II**

Objective: The aim of this course is to introduce the concepts of vyaakarana with reference to various issues in Natural Language Processing, and also to familiarise the students with the parallel Linguistic terminology and concepts so as to enable them to read and understand the latest research articles in the area of computational linguistics.

1. Compounds – Analysis and generation
2. Derivation process in A.s.taadhyayii
3. Abhidhaa, lakshanaa, vyanjanaa
4. Meaning deciding linguistic factors

**Reference Material:**

- Ashtadhyayii
- Prathamaa Av.rtti of Yudhi.s.tiir miimaansaka
- Theories of Meaning: Kunjunni Raja

**Paper-VIII Project**

Objective: This course given Students and apparently to implement the thesis they studied and the will be a testing bed for thesis understanding. Students have to work on a problem selected on the guidance of hi/her teacher/ supervisor and submit a small dissertation of the end of the year in order to fulfill partial the requirement of the course.

**Areas for Projects**

1. Sanskrit Language Processing
2. Any language analysis based on Shastric approach
3. Machine Translation
4. Word-sense-disambiguation
5. Speech processing and so on.

**Model Question Paper Pattern for all papers**

I. Objective type Questions -	2X20 =	40
II. Short Notes	5X5 =	25 (with two extra Choices)
III. Small Essay	10X2 =	20 (with two extra Choices)
IV. Long Essay	15X1 =	15 (with two extra Choices)