ಕರ್ನಾಟಕ ಸಂಸ್ಕೃತ ವಿಶ್ವವಿದ್ಯಾಲಯ
कर्नाटक-संस्कृत-विश्वविद्यालयः

श्री चामराजेन्द्र संस्कृत महाविद्यालयस्य परिसरः:

ಶ್ರೀ ಚಾಮರಾಜೇಂದ್ರ ಸಂಸ್ಕೃತ ಮಹಾವಿದ್ಯಾಲಯ ಆವರಣ
ಪಂಪಮಹಾಕವಿ ರಸ್ತೆ, ಚಾಮರಾಜಪೇಟೆ, ಬೆಂಗಳೂರು – 560018.

पम्पमहाकविमार्गः:, चामराजपेटे, बेङ्गलूरु – ५६००१८.

Date: 21.03.2019

Minutes of the Board of Studies meeting of Vyakarana Shastra held on 21.03.2019 at Karnataka Samskrit University, Bengaluru

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

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

Members Present :

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

	Dr. K. R. Shreedhar, Assistant Professor, Department of Vyakarana Shreemanmaharaja Samskrita Collage, Mysore	Member
	Dr. Anupama B Assistant Professor, Department of Vyakarana, Karnataka Samskrita University, Bangalore	Member

BOS Members approved the changes in the syllabus based on CBCS pattern.

Revision based the feedback analysis of few texts in M.A. Programme and PGDSCL Programme was approved.

Dr. SHIVANI.V
Professor and Head
Dept. of Vyakarana Shastra Faculty
Karnataka Samskrit University,
BENGALURU - 560 004.

Karnataka Samskrit University

Pampamahakavi Road, Chamrajpet, Bangalore

M.A. VYAKARANAM
Choice Based Credit System (CBCS Pattern)

Course Curriculum (Syllabus)

(Onwards 2019-2020)

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

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 :

a. 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.

c. 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) Vidyalankara and Vedalankara examinations of Gurukula Kangeri Viswavidyalaya, Haridwar

(h) Vidwat Madhyama Examination of Karnataka Government.

  i. 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 Shastras -:** <u>Vyakarana</u>

    B. **B. Soft Core Shastras -:** <u>Vyakarana</u>

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
<u>M.A. Vyakarana Semester -I</u>

Paper –I	अष्टाध्यायीसंरचना,काशिकायाः संज्ञापरिभाषाप्रकरणे च।	Total Marks 100
		Theory Marks 70
		Internal Assessment -Marks 30

Paper -II	महाभाष्यम् - (प्रथमाह्निकम्)	Total Marks 100
		Theory Marks 70
		Internal Assessment -Marks 30

Paper -III	भूषणसारः (धात्वर्थप्रकरणम्)	Total Marks 100
		Theory Marks 70
		Internal Assessment - Marks 30

Paper –IV   Nyaya/vedanta/Sahitya/Manuscriptology (Students' choice)

तर्कसङ्ग्रहः   Total Marks 100

Theory Marks 70

Internal Assessment - Marks 30

CBCS

Paper -V   NLP/Linguistics and भाषाशास्त्रम् (MOOC and Swayam Course by choice)

Samskrit Computational Tools

(for students having other specializations)

महाभाष्यम् - (प्रथमाह्निकम्)   Total Marks 100

Theory Marks 70

Internal Assessment - Marks 30

M.A. Vyakarana Semester -II

Paper –I   वैयाकरणसिद्धान्तकौमुदी - कृदन्तप्रकरणम्   Total Marks 100

Theory Marks 70

Internal Assessment - Marks 30

Paper -II   महाभाष्यम् - (कारकभागः)   Total Marks   100

Theory Marks 70

Internal Assessment - Marks 30

Paper -III   वैयाकरणभूषणसारः -(समासशक्तिभागः)   Total Marks   100

Theory Marks 70

Internal Assessment - Marks 30

Paper–IV   Nyaya/vedanta/Sahitya/Manuscriptology (Students' choice)

तर्कसौरभम्(शब्दखण्डम्)   Total Marks   100

          Theory Marks   70

          Internal Assessment - Marks   30

CBCS

Paper - V   **अभिज्ञानशाकुन्तलम् चतुर्थोऽङ्कः**/महाभाष्यम् - (कारकभागः)

          Total Marks   100

          Theory Marks 70

          Internal Assessment- Marks   30

M.A. Vyakarana Semester -III

Paper –II   वैयाकरणसिद्धान्तकौमुदी (तिङन्तप्रकरणे)   Total Marks   100

          Theory Marks   70

          Internal Assessment - Marks   30

Paper -II   परिभाषेन्दुशेखरः (पञ्चाशत् परिभाषाः)   Total Marks   100

          Theory Marks   70

          Internal Assessment - Marks   30

Paper -III   परमलघुमञ्जूषा (शक्तितः स्फोटपर्यन्तम्)   Total Marks   100

          Theory Marks 70

          Internal Assessment - Marks   30

Paper –IV   Nyaya/vedanta/Sahitya/

Manuscriptology (Students' choice)   Total Marks   100

सांख्यकारिका   Theory Marks 70

          Internal Assessment -   Marks   30

CBCS

Paper -V   Vyakarana (for students having other specializations)

लघुमञ्जूषा (वृत्तिविचारः - बौद्धार्थनिर्णयं विना)

पाणिनीयशिक्षा   Total Marks   100

          Theory Marks 70

          Internal Assessment - Marks   30

M.A. Vyakarana Semester -IV

Paper –I   तद्धितप्रक्रिया   Total Marks 100

          Theory Marks 70

          Internal Assessment - Marks   30

Paper -II   निरुक्तम् - १-२ अध्यायौ   Total Marks 100

          Theory Marks 70

          Internal Assessment - Marks   30

Paper -III   वाक्यपदीयम् (ब्रह्मकाण्डम्/साधनसमुद्देशः)   Total Marks   100

          Theory Marks 70

Paper –IV   Nyaya/vedanta/Sahitya/Manuscriptology (Students' choice)

शाब्दबोधः कादम्बरी   Total Marks   100

Theory Marks 70

Internal Assessment -Marks 30

Paper –V   Project   Total Marks 100

Theory Marks 70

Internal Assessment -Marks 30

CBCS

Paper -V   Vyakarana (for students having other specializations)

वाक्यपदीयम् (ब्रह्मकाण्डम्/साधनसमुद्देशः)   Total Marks 100

Theory Marks 70

Internal Assessment -Marks 30

Syllabus for P. G. Diploma in Sanskrit Computational LinguisticsDepartment of Vyakarana, Shastra Faculty, KSU

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 Hallof 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 Liguistics, 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 familarise the students with the parallel Linguistic terminology and concepts so as to enable them to read and understandthe 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. कारणानि - आकाङ्क्षा, योग्यता, सन्निधिः

4. शाब्दबोधोत्पत्तिक्रमः

5. पदज्ञानं तु करणं …

6. वाक्यं वाक्यलक्षणम्

7. वाक्यार्थः

8. विशेष्यविशेषणभावः

9. पदम् - पदविभागः

10. वृत्तिः - शक्तिः,लक्षणा, व्यञ्जना

11. शक्तिग्रहोपायाः

12. शाब्दबोधे मतानि

13. मुख्यविशेष्यः कः?

14. क्रिया-भावना-प्रथमान्ताथर्ः

15. अन्वताभिधानम्

16. अभिहितान्वयः

17. संसगर्मयार्दावादः

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 offundamental 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 anddata 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 familarise the students with the parallel Linguistic terminology and concepts so as to enable them to read and understandthe 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:

- Ashtaadhyaayii

- 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 theend 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)