Based on Undergraduate Curriculum Framework 2022

Department of Sanskrit
UNIVERSITY OF DELHI

UNDERGRADUATE PROGRAMMES OF STUDY

STRUCTURE, COURSES & SYLLABI OF SEMESTER -II

UNIVERSITY OF DELHI
Delhi

DSC 4: Classical Sanskrit Literature (Prose)

Credit distribution, Eligibility and Pre-requisites of the Course

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course	Department Offering the Course
		Lecture	Tutorial	Practical/ Practice			
Classical Sanskrit Literature (Prose)	04	3	1	0	Class XII Pass	Nil	Sanskrit

Learning Objectives

- This course aims to acquaint students with Classical Sanskrit Prose Literature.
- Origin and development of prose, important prose romances and Sanskrit fables are also included here for students to get acquainted with the beginnings of Sanskrit Prose literature.
- The course also seeks to help students to creatively and critically engage with texts.

Learning outcomes

- The course will enable students enable students to familiarize themselves with some leading classical prose works and individual literary styles of their authors.
- After the completion of this course the learner will be exposed to the socio-cultural conditions of the Indian society as reflected in the prescribed texts.
- Course will also help students to develop their level of Sanskrit language comprehension.

SYLLABUS OF DSC-4

Unit: I (15 Hrs)

Śukanāsopadeśa (Ed. Prahlad Kumar)
Introduction – Author and his works, text reading (Grammar, translation and explanation)

(एवं समतिक्रामत्सु केषु चद् दिवसेषु ....रेणुमयीव स्वच्छम प कलुषीकरोति)

Unit: II Viśrutacaritam upto 11th Para

Introduction –Author and his works, Text reading (Grammar, translation and explanation)

(.........इति तमुत्थाप्य क्रीडानिर्भरमतिष्ठत्।)

Unit: III   **(15 Hrs)**

Shivarajvijayam

(------------------- न पारितं निरोद्धुं नयनवाष्पा ण) Introduction –Author and his works, text para 1 to10, Text reading (Grammar, translation and explanation)

Unit: IV   **(15 Hrs)**

General Survey of main Sanskrit Prose Works

Origin and Development of Prose literature and its Kind, Some Major Texts-Vāsavadattā, Kādambarī, Harṣacaritam, Daśakumaracaritam, Tilakmanjarī, Gadyacintāmaṇi, Śivarajavijyam, Pancatantra, Hitopdeśa, Vetālapancaviṁśikā, Siṁhāsanadvātriṁśikā, Puruṣaparīkṣā, Śukasaptati.

Essential/recommended readings:

1. प्रह्लाद कुमार. शुकनासोपदेश, मेहरचन्द लक्ष्मणदास, दिल्ली
2. शास्त्री, रामपाल, शुकनासोपदेश, चौखम्बा औरियन्ट लया, वाराणसी
3. सुरेन्द्रदेव शास्त्री, वश्रुतचरितम्, साहित्यभण्डार, मेरठ
4. झा, रमाकान्त, शुकनासोपदेश, चौखम्बा वद्याभवन, वाराणसी
5. देवनारायण मश्र, शवराज वजयम, साहित्यभण्डार, मेरठ
6. पन्त, सुबोधचन्द्र एवं झा, वश्वनाथ, दशकुमारचरितम्, मोतीलाल बनारसीदास, दिल्ली

Suggested readings:

1. शर्मा, उमाशंकर ऋ ष: संस्कृत साहित्य का इतिहास, चौखम्बा भारती अकादमी, वाराणसी
2. उपाध्याय, बलदेव: संस्कृत साहित्य का इतिहास, शारदा निकेतन, वाराणसी
3. प्रीतिप्रभा, गोयल: संस्कृत साहित्य का इतिहास, राजस्थानी ग्रन्थगार, जोधपुर
4. त्रिपाठी, राधावल्लभ: संस्कृत साहित्य का अ भनव इतिहास, वश्व वद्यालय प्रकाशन, वाराणसी
5. Keith, A.B., History of Classical Sanskrit Literature, MLBD, Delhi, हिन्दी अनुवाद सहित, मंगलदेव शास्त्री, मोतीलाल बनारसीदास, दिल्ली
6. M. Krishnamachariyar Shastri: History of Classical Sanskrit Literature, MLBD, Delhi
7. Gaurinath Shastri: A Concise History of Sanskrit Literature, MLBD, Delhi
8. Maurice, Winternitz: Ancient Indian Literature (Vol.1-III), also Hindi Translation, MLBD, Delhi

Examination scheme and mode: Subject to directions from the Examination Branch/University of Delhi from time to time.

> **DSC 5:** **Sanskrit Epics**

Credit distribution, Eligibility and Pre-requisites of the Course

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course	Department Offering the Course
		Lecture	**Tutorial**	**Practical/ Practice**			
Sanskrit Epics	04	3	1	0	Class XII Pass	Nil	**Sanskrit**

Learning Objectives
- To enable students to read simple classical Sanskrit
- To enable students to have a sense of the great impact of the epics on Indian life and literature.
- To impart knowledge of some important segments in the Gita and the Ramayana.
- To introduce Advaita philosophy through Shankaracharya's commentary on the Gita.

Learning outcomes
- The students will be able to understand simple classical Sanskrit.
- The students will build a good vocabulary to write and communicate in Sanskrit.
- Students will become more aware of the impact of the epics on life and literature in India
- They will get acquainted with Advaita philosophy.

SYLLABUS OF DSC-5

Unit1   **(15 Hrs)**

वाल्मी क रामायण अयोध्याकाण्ड सर्ग **109** (रामेण जाबा लमतनिराकरणम्)

From Verse 1 (जाबालेस्तु वचः श्रुत्वा...) से 27 कार्याकार्य वचक्षणः तक)

Unit 2 (15 Hrs)

Ramayana as the source of Sanskrit literature
i. Ramayana as the source book for Indian values – ideal king, ideal family, Ideal Polity, ideal society, ideal character
ii. Valmiki Ramayana as the source book for Sanskrit literature – Epics, Dramas, Lyric poetry, Adhyātma Ramayana, Adbhuta Ramayana.
iii. Works in Indian languages based on the Ramayana

Unit 3. (15 Hrs)

भगवद्गीता अध्याय २ पद्य ११ से २५ तक (शाङ्करभाष्य सहित)

Unit 4: (15 Hrs)

Mahabharata as the source book
i. Mahabharata as the source book for Indian knowledge and values
ii. Sanskrit literary works based on the Mahabharata – Dramas, long poems (Mahakavyas)
iii. Works in Indian languages based on the Mahabharata

Essential/recommended readings:
1. भगवद्गीता, शाङ्करभाष्य अनुवाद सहित, अनुवादक श्रीहरिकृष्णदास गोयन्दका, गीता प्रैस, गोरखपुर
2. Valmiki Ramayana – Valmiki.iitk.ac.in
3. गीताभाष्यनवाम्बरा- डॉ० शवनारायण शास्त्री

Suggested readings:
1. Bhagawadgita with the commentary of Shankaracharya – A.K. Warrior,
2. Bhagawadgita – Dr. S. Radhakrishnan
3. Śrimadbhagavadgītā, The Scripture of Mankind, text in Devanagari with transliteration in English and notes by Swami Tapasyananda, Sri Ramakrishna Math, 1984
4. Chattopadhyaya D.P., Lokayata- A Study in Ancient Indian Materialism, Popular Publishing House, New Delhi
5. Mishra, Pankaj Kumar, चार्वाक, शबा लक प्रकाशन, दिल्ली

Examination scheme and mode: Subject to directions from the Examination Branch/University of Delhi from time to time

DSC 6: Critical Survey of Śāstric Literature

Credit distribution, Eligibility and Pre-requisites of the Course

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course	Department Offering the Course
		Lecture	Tutorial	Practical/ Practice			
Critical Survey of Śāstric Literature	04	3	1	0	Class XII Pass	Nil	Sanskrit

Learning Objectives
- To enable students to Know the Ancient Indian Śāstric Literature.
- To impart knowledge of some important texts and authors who created knowledge on medical science, Aeronautics, music, dances, paintings etc.
- To prepare students to exhibit their understanding of ancient Knowledge System.
- To introduce the contribution of Charak, Sushrut, Bharat, Nagarjun, Paalkaapya etc.

Learning outcomes
- The students will be able to understand the long history of Indian Śāstric Tradition.
- The students will be able to exhibit their understanding of the Indian Knowledge System.
- Students will become more aware of some aspects of Ancient Scientific thoughts and achievements.
- They will get acquainted with Ancient Scientific texts/writings.

SYLLABUS OF DSC-6

Unit 1- **(15 Hrs)**

च कत्साशास्त्र, वनस्पतिशास्त्र, रसायनशास्त्र (**Medical Sciences, Botany and Rasāyana**) – Origin and development, major texts, major theories, contribution to current understanding

Unit 2- **(15 Hrs)**

संगीतशास्त्र, नृत्यशास्त्र, **मूर्तिकला,** चत्रकला (**Music, Dance, Iconography and Painting**)– Origin and development, major texts, major theories, contribution to current understanding.

Unit 3- **(15 Hrs)**

वैमानिकशास्त्र, अश्वशास्त्र, गजशास्त्र, आयुध वज्ञान (**Vimānaśāstra, Aśva-śāstra, Gaja- śāstra, Ayudhavijňāna** – Origin and development, major texts, major theories, contribution to current understanding

Unit 4- **(15 Hrs)**

कोशशास्त्र, छन्दः शास्त्र, निरुक्तशास्त्र, व्याकरणशास्त्र - Origin and development, major texts, major theories, contribution to current understanding

Essential/recommended readings:
1. संस्कृत वाङमय का ववेचनात्मक इतिहास- डॉ० सूर्यकान्त
2. संस्कृत साहित्य का इतिहास- डॉ० उमाशंकर शर्मा ऋ ष
3. अद्भुत भारत- बाशम, ए. एल. (1995,)अनु० पाण्डेय वेंकटेशचन्द्र शवलाल अग्रवाल एण्ड कम्पनी , आगरा
4. History of Classical Sanskrit Literature, M. Krishnamachariyar Shastri MLBD, Delhi
5. History of Classical Sanskrit Literature, Keith, A.B., MLBD, Delhi, हिन्दी अनुवाद सहित, मंगलदेव शास्त्री, मोतीलाल बनारसीदास, दिल्ली

Examination scheme and mode: Subject to directions from the Examination Branch/University of Delhi from time to time

UGCF for Multidisciplinary Courses of Study

SANSKRIT as MAJOR

DSC-3: Sanskrit Prose

Credit distribution, Eligibility and Pre-requisites of the Course

Course Title & Code	Credits	Credits distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
Sanskrit Prose DSC - 3	04	03	01	0	Class XII Pass	Nil

Learning Objectives:
- This course aims to acquaint students with Classical Sanskrit Prose Literature.
- Origin and development of prose, important prose romances and Sanskrit fables are also included here for students to get acquainted with the beginnings of Sanskrit Prose literature.
- The course also seeks to help students to creatively and critically engage with texts.

Learning outcomes:
- The course will enable students enable students to familiarize themselves with some leading classical prose works and individual literary styles of their authors.
- After the completion of this course the learner will be exposed to the socio-cultural conditions of the Indian society as reflected in the prescribed texts.
- Course will also help students to develop their level of Sanskrit language comprehension.

SYLLABUS OF DSC-3

Unit: I (15 Hrs)

Śukanāsopadeśa:

Introduction- Author/Text, Text up to page 116 of Prahlad Kumar upto यथा यथा चेयं

चपला दीप्यते. समाप्तिपर्यन्त (up to the end of the text.)

Society and political thought depicted in Śukanāsopadeśa, logical meaning and application of sayings.

Unit: II (15 Hrs)

Śivarājavijayam, Niḥśwāsa-I

Para 1 to 20 Introduction- Author/Text, Text reading (Grammar, Translation, and Explanation), poetic excellence, plot, Timing of Action.

Śivarājavijayam, Niḥśwāsa-I

From para 21 to the end of the text. Text reading (Grammar, Translation, and Explanation), Poetic excellence, plot, Timing of Action.

Unit: III (15 Hrs)

History of Sanskrit Literature: Prose:

Origin and development of prose and important prose romances. Subandhu, Bāṇa, Daṇḍin, Ambikādatta Vyāsa.

Unit: IV (15 Hrs)

Survey of Sanskrit Literature: Prose:

Pañcatantra, Hitopadeśa, Vetālapañcavṁsattikā, Siṁhāsanadvātriṁśikā and Purūṣaparīkṣā.

Essential/recommended readings:

1. प्रहलाद कुमार. शुकनासोपदेश, मेहरचन्द लक्ष्मणदास, दिल्ली

2. भानुचन्द्र संह, शुकनासोपदेश: संस्कृत टीका तथा हिन्दी व्याख्या व अनुवाद सहित ।

3. रामनाथ शर्मा सुमन (व्या.) , शुकनासोपदेश, साहित्य भण्डार, दिल्ली, 1968 ।

4. शवराज वजय – अम्बिकादत्तव्यास, व्या. – रमाशंकर मश्र, चौखम्बा सुरभारती प्रकाशन, वाराणसी ।

5. शास्त्री, रामपाल, शुकनासोपदेश, चौखम्बा औरियन्ट लया, वाराणसी

6. झा, रमाकान्त, शुकनासोपदेश, चौखम्बा वद्याभवन, वाराणसी

7. देवनारायण मश्र, शवराज वजयम्, साहित्यभण्डार, मेरठ

8. पन्त, सुबोधचन्द्र एवं झा, वश्वनाथ, दशकुमारचरितम्, मोतीलाल बनारसीदास, दिल्ली

9. शर्मा, उमाशंकर ऋ ष: संस्कृत साहित्य का इतिहास, चौखम्बा भारती अकादमी, वाराणसी

10. A.B. Keith, *History of Sanskrit Literature*, also Hindi translation, MLBD, Delhi (हिन्दी अनुवाद, मंगलदेव शास्त्री, मोतीलाल बनारसीदास, दिल्ली) ।

11. Krishnamachariar, History of Classical Sanskrit Literature, MLBD, Delhi.

Additional Resources:

1. उपाध्याय, बलदेव: संस्कृत साहित्य का इतिहास, शारदा निकेतन, वाराणसी

2. प्रीतिप्रभा, गोयल: संस्कृत साहित्य का इतिहास, राजस्थानी ग्रन्थगार, जोधपुर

3. त्रिपाठी, राधावल्लभ: संस्कृत साहित्य का अ भनव इतिहास, वश्व वद्यालय प्रकाशन, वाराणसी

4. M. Krishnamachariyar Shastri: History of Classical Sanskrit Literature, MLBD, Delhi

5. Gaurinath Shastri: A Concise History of Sanskrit Literature, MLBD, Delhi

6. Maurice, Winternitz: Ancient Indian Literature (Vol.1-III), also Hindi Translation, MLBD, Delhi

7. Winternitz, Maurice: *Indian Literature* (Vol. I-III), also Hindi Translation, MLBD, Delhi.

Examination scheme and mode:

Subject to directions from the Examination Branch/University of Delhi from time to time.

UGCF for Multidisciplinary Courses of Study

SANSKRIT as MAJOR

DSC - 4: Sanskrit Drama

Credit distribution, Eligibility and Pre-requisites of the Course

Course Title & Code	Credits	Credits distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
Sanskrit Drama DSC - 4	04	03	01	0	Class XII Pass	Nil

Learning Objectives:
This course is intended to acquaint the students with three of the most famous dramatic works of Sanskrit literature which represent the three stages of the development of Sanskrit drama.

Learning Outcomes:
- After completion of this course the students will be aware about the beauty and richness of classical Sanskrit dramatic tradition.
- This course will enhance the ability for critical thinking on issues of culture, polity, morality, religion etc as reflected in the prescribed texts.
- The course will make the students aware of the formal structures of Sanskrit drama in the tradition of Bharata's natya Shastra.

SYLLABUS OF DSC - 4

Unit: I (15 Hrs)
Dutavākyam: Act I – Bhāsa

First Act (प्रथम अङ्क) Introduction, Text Reading (Grammar, Translation, and Explanation), Poetic excellence, Plot.

Unit: II   **(15 Hrs)**

Abhijñānaśākuntalam Act IV- Kālidāsa
Text Reading (Grammar, Translation, Explanation), Poetic excellence, Plot, Timing of Action. Personification of nature. *kāvyeṣu nāṭakam ramyam, upamā,* Language of Kālidāsa, *dhvani* in Kālidāsa, Purpose and design behind *Abhijñānaśākuntalam* and other problems related to the text.

Unit: III   **(15 Hrs)**
Technical Terms from Sanskrit Dramaturgy

नाटक, नायक, नायिका, पूर्वरङ्ग, नान्दी, सूत्रधार, नेपथ्य, प्रस्तावना, कञ्चुकी, वदूषक, अङ्क, स्वगत, प्रकाश, अपवारित, जनान्तिक, आकाशभा षत, वष्कम्भक, प्रवेशक एवं भरतवाक्य।

Unit: IV   **(15 Hrs)**
History of Sanskrit Drama (Origin and Development),
Some important dramatists:
Bhāsa, Kālidāsa, Śūdraka, Viśākhadatta, Harṣa, Bhavabhūti, and their works.

Teaching Learning Process:
1. Since most learners will be new to classical Sanskrit drama, a step by step approach is recommended.
2. Teachers must read aloud the Sanskrit text and the students should repeat.
3. Teachers must help students in disjoining all sandhis and dissolving all samāsas.
4. Teachers will arrange words in verses according to the prose order (anvaya).
5. Students will identify the grammatical structure of each word.
6. Teachers will the guide students in translating each word and then the complete verse.
7. Teachers will discuss the social, political, cultural issues occurring in the text and their contemporary relevance.

Suggested Reading:
1. सुबोधचन्द्र पन्त, अ भज्ञानशाकुन्तलम्, मोतीलाल बनारसीदास, दिल्ली ।
2. सुरेन्द्रदेव शास्त्री, अ भज्ञानशाकुन्तलम्, रामनारायण बेनीप्रसाद, इलाहाबाद ।
3. नारायणराम आचार्य, अ भज्ञानशाकुन्तलम्, निर्णयसागर प्रेस ।
4. C.D. Devadhar (Ed.), Abhijñānaśākuntalam, MLBD, Delhi.
5. M.R. Kale (Ed.), Abhijñānaśākuntalam, MLBD, Delhi.
6. Gajendra Gadakar (Ed.), Abhijñānaśākuntalam.
7. Ramendramohan Bose, Abhijñānaśākuntalam, Modern Book Agency, Calcutta.
8. भागवतशरण उपाध्याय, का लदास, क व और काव्य, भारतीय ज्ञानपीठ, काशी ।
9. हजारीप्रसाद द् ववेदी, का लदास की ला लत्य योजना, राजकमल प्रकाशन, दिल्ली ।
10. पंकज कुमार मश्र, शाकुन्तल वषयक रम्यत्च की अवधारणा, परिमल पब्लिकेशन, दिल्ली ।
11. Minakshi Dalal, Conflict in Sanskrit Drama, Somaiya Publication Pvt. Ltd.
12. Ratnamayi Dikshit, Women in Sanskrit Dramas, Meherchand Lacchman Das, Delhi.
13. A.B. Keith, Sanskrit Drama, Oxford University Press London, 1970.

14. Minakshi Dalal, Conflict in Sanskrit Drama, Somaiya Publication Pvt. Ltd.
15. G. K. Bhat, Sanskrit Drama, Karnataka University Press, Dharwar, 1975.
16. दूतवाक्यम् - भास, (हिन्दी व्याख्या) रामलाल सावल, गयाप्रसाद एण्ड सन्स,आगरा, १९७

Additional Resources:
1. Mirashi, V.V. :*Kālidāsa*, Popular Publication, Mumbai.
2. Keith, A.B.: *History of Sanskrit Literature*, MLBD, Delhi.
3. Krishnamachariar :*History of Classical Sanskrit Literature*, MLBD, Delhi.
4. Gaurinath Shastri: *A Concise History of Sanskrit Literature*, MLBD, Delhi.
5. Winternitz, Maurice: *Indian Literature* (Vol. I-III), also Hindi Translation, MLBD, Delhi.

Examination scheme and mode: Subject to directions from the Examination Branch/University of Delhi from time to time.

UGCF for Multidisciplinary Courses of Study

SANSKRIT as MINOR

SEMESTER -II

DSC - 2: Sanskrit Prose

Course Title & Code	Credits	Credits distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
Sanskrit Prose DSC - 2	04	03	01	0	Class XII Pass	Nil

Learning Objectives:

● This course aims to acquaint students with Classical Sanskrit Prose Literature.
● Origin and development of prose, important prose romances and Sanskrit fables are also included here for students to get acquainted with the beginnings of Sanskrit Prose literature.
● The course also seeks to help students to creatively and critically engage with texts.

Learning outcomes:

● The course will enable students enable students to familiarize themselves with some leading classical prose works and individual literary styles of their authors.
● After the completion of this course the learner will be exposed to the socio-cultural conditions of the Indian society as reflected in the prescribed texts.
● Course will also help students to develop their level of Sanskrit language comprehension.

SYLLABUS OF DSC-2

Unit: I (15 Hrs)

Śukanāsopadeśa:

Introduction- Author/Text, Text up to page 116 of Prahlad Kumar upto यथा यथा चेयं

चपला दीप्यते. समाप्तिपर्यन्त (up to the end of the text.)

Society and political thought depicted in Śukanāsopadeśa, logical meaning and application of sayings.

Unit: II (15 Hrs)

Śivarājavijayam, Niḥśwāsa-I

Para 1 to 20 Introduction- Author/Text, Text reading (Grammar, Translation, and Explanation), poetic excellence, plot, Timing of Action.

Śivarājavijayam, Niḥśwāsa-I

From para 21 to the end of the text. Text reading (Grammar, Translation, and Explanation), Poetic excellence, plot, Timing of Action.

Unit: III (15 Hrs)

History of Sanskrit Literature: Prose:

Origin and development of prose and important prose romances. Subandhu, Bāṇa, Daṇḍin, Ambikādatta Vyāsa.

Unit: IV (15 Hrs)

Survey of Sanskrit Literature: Prose:

Pañcatantra, Hitopadeśa, Vetālapañcavṁsattikā, Siṁhāsanadvātriṁśikā and Purūṣaparīkṣā.

Essential/recommended readings:

1. प्रह्लाद कुमार. शुकनासोपदेश, मेहरचन्द लक्ष्मणदास, दिल्ली

2. भानुचन्द्र संह, शुकनासोपदेश: संस्कृत टीका तथा हिन्दी व्याख्या व अनुवाद सहित ।

3. रामनाथ शर्मा सुमन (व्या.) , शुकनासोपदेश, साहित्य भण्डार, दिल्ली, 1968 ।

4. शवराज वजय – अम्बिकादत्तव्यास, व्या. – रमाशंकर मश्र, चौखम्बा सुरभारती प्रकाशन, वाराणसी ।

5. शास्त्री, रामपाल, शुकनासोपदेश, चौखम्बा औरियन्ट लया, वाराणसी

6. झा, रमाकान्त, शुकनासोपदेश, चौखम्बा वद्याभवन, वाराणसी

7. देवनारायण मश्र, शवराज वजयम्, साहित्यभण्डार, मेरठ

8. पन्त, सुबोधचन्द्र एवं झा, वश्वनाथ, दशकुमारचरितम्, मोतीलाल बनारसीदास, दिल्ली

9. शर्मा, उमाशंकर ऋ ष: संस्कृत साहित्य का इतिहास, चौखम्बा भारती अकादमी, वाराणसी

10. A.B. Keith, *History of Sanskrit Literature*, also Hindi translation, MLBD, Delhi (हिन्दी अनुवाद, मंगलदेव शास्त्री, मोतीलाल बनारसीदास, दिल्ली) ।

11. Krishnamachariar, History of Classical Sanskrit Literature, MLBD, Delhi.

Additional Resources:

1. उपाध्याय, बलदेव: संस्कृत साहित्य का इतिहास, शारदा निकेतन, वाराणसी

2. प्रीतिप्रभा, गोयल: संस्कृत साहित्य का इतिहास, राजस्थानी ग्रन्थगार, जोधपुर

3. त्रिपाठी, राधावल्लभ: संस्कृत साहित्य का अ भनव इतिहास, वश्व वद्यालय प्रकाशन, वाराणसी

4. M. Krishnamachariyar Shastri: History of Classical Sanskrit Literature, MLBD, Delhi

5. Gaurinath Shastri: A Concise History of Sanskrit Literature, MLBD, Delhi

6. Maurice, Winternitz: Ancient Indian Literature (Vol.1-III), also Hindi Translation, MLBD, Delhi

7. Winternitz, Maurice: *Indian Literature* (Vol. I-III), also Hindi Translation, MLBD, Delhi.

Examination scheme and mode: Subject to directions from the Examination Branch/University of Delhi from time to time.

SANSKRIT (GENERIC ELECTIVE)

GE-5
Tools and Techniques for Computing Sanskrit Language

Credit distribution, Eligibility and Pre-requisites of the Course

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course	Department Offering the Course
		Lecture	Tutorial	Practical/ Practice			
	04	3	1	0	Class XII Pass	Nil	Sanskrit

Semester	Core (DSC) 4 credits	Elective (DSE) 4 credits	Generic Elective (GE) 4 credits	Ability Enhance-ment Course (AEC) – 2 credits	Skill Enhance-ment Course (SEC) – 2 credits	Internship/ Apprentice-ship/Project/ Community outreach 2 credits	Value addition course (VAC) 2 credits	Total Credits
II	DSC - 1 DSC - 2 DSC - 3	NIL	GE-1	AEC -I	Choose one from a pool of SEC courses	NIL	VAC- I	22 credits

 [A Learning Objectives:

This course will introduce the current research and development in Sanskrit computing. Primary emphasis will be on tools and techniques developed under government and private funding and to explore new technologies for Sanskrit.

Learning Outcomes:
The course-level learning outcomes that a student of this course is required to demonstrate are indicated below:

▪ Learn the basic concept of Sanskrit Phonology, Sanskrit Morphology, Syntax, Semantics, Lexicon and Corpora.

- Learn the origin and Development of Language Computing.
- Basic Introduction of Computing Sanskrit Language.
- Various methodologies used on Language Technology.
- Various tools developed for Sanskrit Language.
- Survey of Language Computing

SYLLABUS OF GE-5

Unit: I   **Credit: 01**
Major Components of Sanskrit Linguistics:
- Phonology
- Morphology
- Syntax
- Semantics
- Lexicon and Corpora

Unit: II   **Credit: 01**
Areas and Applications of the Sanskrit Language Computation
- Text Digitization/Content Creation and Search for Sanskrit
- Speech Technology
- Grammar Tools
- Machine Translation
- Preservation and Delivery of Cultural Heritage of Sanskrit

Unit: III   **Credit: 01**
Language Computing Methodology
- Rule Base
- Statistical
- Hybrid

Unit: IV   **Credit: 01**
Survey of Language Computing
- Survey of the Language Computing for Sanskrit
- Survey of the Language Computing for Indo Aryan Languages

[D] References:
Compulsory Readings:

1. Akshar Bharati, Vineet Chaitanya and Rajeeva Sanghal, Natural Language Processing: A Paninian Prospective, Prentice Hall of India, New Delhi, 1995.
2. Chandra Subhash (2021). भाषासंगणन (Language Computing), Upasana Publications, New Delhi, India, ISBN: 978-93-87677-05-0.
3. Girish Nath Jha, Madhav Gopal, Diwakar Mishra, Annotating Sanskrit Corpus: Adapting IL-POSTS, Human Language Technology. Challenges for Computer Science and Linguistics Lecture Notes in Computer Science Volume 6562, 2011, pp 371-379.
4. Tools developed by Computational Linguistics Group, Department of Sanskrit, University of Delhi, Delhi-110007 available at: http://cl.sanskrit.du.ac.in

5. Daniel Jurafsky and James H. Martin, Speech and Language Processing, Prentice Hall; 2008
6. Chandra, Subhash and Jha, GN. Computer Processing of Nominal Inflections in Sanskrit: Methods and Implementations, CSP, UK, 2012.
7. Jha, Girish Nath, Morphology of Sanskrit Case Affixes: A Computational Analysis, M.Phil Dissertation, Centre of English and Linguistics, School of Language, Literature and Culture Studies, JNU, 1993.
8. Sanskrit Computational Linguistics symposium 1-2: Springer Verlag LNCS 5402 G Huet, A Kulkarni and P Scharf (eds), Proceedings of the 1st and 2nd International Symposium, 2009.
9. Sanskrit Computational Linguistics symposium 3: Springer Verlag LNCS 5406 A Kulkarni, G Huet (eds), Proceedings of the 3rd International Symposium, Jan 15 - 17, 2009, Hyderabad.
10. Grishman, R., Computational Linguistics: An introduction, Cambridge University Press, 1986.
11. Chandra, Subhash .मशीनी अनुवाद (Machine Translation) Vidyanidhi Prakashana, New Delhi,

[E] Teaching Learning Process:

Lecture based Teaching Learning on the Basics of Tools and Techniques for Computing Sanskrit Language, Detailed Survey of Language Computing tools and Techniques for Background will be covered in this course. It will be very helpful to students to engage them in laboratory and practice basic tools and techniques of computer.

Examination scheme and mode: Subject to directions from the Examination Branch/University of Delhi from time to time.

Credit distribution, Eligibility and Pre-requisites of the Course

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course	Department Offering the Course
		Lecture	Tutorial	Practical/ Practice			
	04	3	1	0	Class XII Pass	Nil	Sanskrit

Semester	Core (DSC) 4 credits	Elective (DSE) 4 credits	Generic Elective (GE) 4 credits	Ability Enhance-ment Course (AEC) – 2 credits	Skill Enhance-ment Course (SEC) – 2 credits	Internship/ Apprentice-ship/Project/ Community outreach 2 credits	Value addition course (VAC) 2 credits	Total Credits
II	DSC - 1 DSC - 2 DSC - 3	NIL	GE-1	AEC -I	Choose one from a pool of SEC courses	NIL	VAC- I	22 credits

Learning Objectives:

This course will introduce the theory and practice of computer based translations and expose the students to the internal processes and inter module interactions in a typical Machine Translation (MT) system

Learning Outcomes:

The course-level learning outcomes that a student of this course will be able to demonstrate are indicated below:

- Learn the origin and Development of Machine Translation.
- Basic Introduction of Machine Translation.
- Human vs Machine Translation.
- Concepts to ideal various methodologies used on Machine Translation System.

- Using guidelines of the Machine Translation system: Google and Bing.
- Evaluation and Challenges in Machine Translation

SYLLABUS OF GE-6

Unit: I **Credit: 01**
Introduction and History of Machine Translation
- History and Survey of Machine Translation Systems.
- List of Major MT System for Indian Languages: Google Translate and Bing by Microsoft.

Unit: II **Credit: 01**
Theoretical Concepts of Machine Translation:
- Human vs Computer translation of languages.
- Basics of Machine Translation
- Tools and Techniques of Machine Translation
- Source and Target Language

Unit: III **Credit: 01**
Machine Translation (MT) Approaches
- Rule Base MT
  Transfer-based
- Interlingual and Dictionary Based
- Statistical MT
  Example Based MT
- Hybrid MT

Unit: IV **Credit: 01**
Evaluation of MT
- Evaluation of MT
- Challenges in Machine Translation
- Ambiguity and Acceptability

[D] References:
Compulsory Readings:

1. Chandra, Subhash. मशीनी अनुवाद (Machine Translation) यूजीसी सीबीसीएस स्कीम के तहत बीए (संस्कृत) के एईईसी (AEEC)-3 के पाठ्यक्रम पर आधारित. Vidyanidhi Prakashana, New Delhi, India, ISBN: 9789385539527.
2. Sergei Nirenburg, H. L. Somers, Readings in Machine Translation, MIT Press (MA)
3. Philipp Koehn, Statistical Machine Translation, Cambridge University Press.
4. Sergei Nirenburg, Jaime Carbonell, Masaru Tomita, Editors: Kenneth Goodman, Machine Translation: A Knowledge-Based Approach, Morgan Kaufmann Publishers Inc. San Francisco, CA, USA, 1994
5. Amba Kulkarli, Machine translation activities in India: A survey, In proceedings of workshop on survey on Research and Development of Machine Translation in Asian Countries, Thailand, May 13-14, 2002.

[E] Teaching Learning Process:

A variety of approaches to teaching-learning process, including lectures, seminars, tutorials, workshops, peer teaching and learning, practicum and project-based learning, substantial laboratory-based practical component and experiments in this course, open-ended project work, games, technology-enabled learning, etc. will need to be adopted to achieve this.

Lecture based Teaching Learning on the Basics of Machine Translation, Detailed Survey of MT tools and Techniques for Background will be covered in this course.

Examination scheme and mode: Subject to directions from the Examination Branch/University of Delhi from time to time.

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Head of the Department