GUJARAT TECHNOLOGICAL UNIVERSITY

Program Name: Engineering

Level: Diploma

Branch: All

Course / Subject Code : DI02000151

Course / Subject Name : Essence of Indian knowledge and Tradition

w. e. f. Academic Year:	2024-25
Semester:	2nd
Category of the Course:	HSMC

Prerequisite:	-
Rationale:	National education Policy 2020, has given ample emphasis on Indian Knowledge system. The significance of teaching of Indian knowledge and Tradition is very much required as for centuries this great tradition had been trampled under the feet of invaders. Even after Independence, Indian Knowledge System had been neglected and only Western parameters have been considered as standard. The essence of Indian culture has been carried through centuries only because of its scientific and humanitarian approach. It is the need of the hour that young students learn the significance of the contribution made by Indian Knowledge Systems and contribute to the world with pride and confidence even in the field of Science and technology which had been mastered centuries ago but was perished by invaders. This course will provide an opportunity to the students the hidden secrets of the great heritage of knowledge that existed thousands of years ago in Indian Tradition.

COMPETENCY:

1) Study of IKS will enable students to respect and relish the greatness of our tradition. The awareness of IKS will make them feel proud about their own culture.
2) The knowledge of Indian knowledge will enable and empower them with the firsthand knowledge of India's great heritage, culture and traditions.
3) This will create a scope and awareness amongst the foreigners regarding India and its contribution to the world.

Course Outcome:

After Completion of the Course, Student will able to:

No	Course Outcomes
01	Students will attain awareness regarding the significance of IKS
02	The syllabus will enhance their confidence in Indian traditional knowledge system and enable them to perceive at the problems with Indian perspective

03	This will also enable them to analyze the issues on their own and enable them for critical thinking.
04	The knowledge about the ancient Indian Scientific traditions will generate more confidence in themselves.
05	This will lead them to make research and innovative thinking which can result in global contribution at later stage.

**Revised Bloom's Taxonomy (RBT)*

Teaching and Examination Scheme:

Teaching Scheme (in Hours)			Total Credits L+T+ (PR/2)	Assessment Pattern and Marks				Total Marks
				Theory		Tutorial / Practical		
L	T	PR	C	ESE (E)	PA / CA (M)	PA/CA (I)	ESE (V)	
3	0	0	3	70	30	20	30	150

PRACTICAL / PROJECT :

The student can visit any historical / monumental sights like Adalaj step well or Rani Ki Vav – Patan and study about architectural skills of Indians in past.

Topics:-

1. **Ancient Indian Astronomy :**

- **Development of Astronomy**:
  A) Consideration of Purnima and Amavasya
  B) Beginning of The New Year- Vasant Ritu- (Vernal Equinox)
  C) Ancient Indian Calender
  D) Science Behind "Adhikmaas"
  E) Uttarayan and Dakshinayan

- **Knowledge about Constellations / planets / distance between planets etc.**

A) Saptarushi – seven Seers- Significant Knowledge of star and constellations
B) Knowledge of Speed of Light – Rigveda(1.50.04)
C) Distance between Earth and Sun (Hanuman Chalisa)

- **Advances in Mathematics and Geometry in Ancient India**

A) Sulbha- Sutra (Kalpa Sutra) composed by Baudhayana, Manava, Apastamba and Katyayana

B) Contribution of Ancient Rushis to Mathematics

A) Bodhayana's value of pie
B) Lilavati
C) Bhaskaracharya
D) Arya Bhatt.

2. **Town Planning in Ancient India**

A) Roads in Ancient India – Uttarpath by Chandra Gupta
B) Ancient Indian Trade Routs/ Waterways
C) Ship- Building In Ancient India
D) Temple Architecture
-Nagar Style/ Dravida style/ Vesara style

3. **Atomic Theory of by Kanada**

A) Concept of Seven Padartha and Nine Dravyas
B) Theory of Gurutva
C) Characteristics of Atom

4. **Metallurgical Discoveries in Ancient India**

- Lime a Mortar
- Bronze
- Gold & Silver /\
- Glass / Iron
- Nagarjuna's Contribution in making Alloys

5. **Vimanshastra - Airbourne Vehicles.**

A) References of Vimana- Flying Machines in Rigveda, Mahabharat and Ramayana
B) BhardwajSutra- Chapter-1 Rasyagnoadhikari

REFERENCE BOOKS:

- History of Science, Arts & Technology By Dr. Shripad Dattatrya Kulkarni, Bhishma Prakashan, Mumbai -1998.

- Introduction to Indian Knowledge System: Concepts and Applications by B. Mahadevan, Vinayak Rajat Bhat, Nagendra Pavana, PHI Learning Pvt. Ltd., Delhi
- Town Planning in Ancient India by Binode Bihari Dutt, Thacker, Spink & Co.
- ભારતનો વૈજ્ઞાનનક વારસો લેખક- J.J Raval University

EXAMINATION PATTERN:

End Semester Examination Pattern:

1.0 The final examination will cover all five modules included in the course content.

2.0 The examination is largely understanding and application oriented. Thus, a thorough appreciation of the key concepts of the course to recognize contributor thinking and application of the concepts in everyday life & work context, will help students to do well in the examination.

3.0 The examination paper will have 35 questions and is to be completed in 2 ½ hours.

4.0 All questions are compulsory.

5.0 Pattern of questions –
- All questions are in multiple-choice format (MCQ).
- The questions are in the form of scenarios / situations giving options. The student is expected to choose one option out of the given options.

6.0 The total number of marks is **70 marks**.

Sample Question Paper Pattern:

1. Which system was used in Harappa town planning?
a) Circular planning b) Grid system
c) Pyramid structure d) Mountain structure

૧. હડપ્પા નગર આયોજનમાં કઈ પ્રણાલીનો ઉપયોગ કરવામાં આવ્યો હતો?
a) વર્તુળાકાર યોજના b) ગ્રીડ પ્રણાલી
c) પિરામિડ રચના d) પર્વતીય ઢાંચો

2. Which Indian mathematician first introduced the concept of "Zero"?
a) Aryabhata b) Brahmagupta
c) Bhaskaracharya d) Varahamihira

૨. "શૂન્ય) "Zero) ની કલ્પના સૌપ્રથમ કયા ભારતીય ગણિતજ્ઞે રજૂ કરી હતી?
a) આર્યભટ્ટ b) બ્રહ્મગુપ્ત
c) ભાસ્કરાચાર્ય d) વરાહમિહિર

3. What was the most remarkable engineering achievement in Mohenjo-Daro and Harappa cities?

a) Huge temples
b) Well-planned drainage system
c) Metal sculptures
d) Astronomical observatories

૩. મોહેંજોદડો અને હડપ્પા નગરોમાં સૌથી નોંધપાત્ર ઈજનેરી સિદ્ધિ શું હતી-?
a) વિશાળ મંદિર
b) સુવ્યવસ્થિત નિકાસ પ્રણાલી
c) ધાતુની પ્રતિમાઓ
d) ખગોળીય વેદશાળાઓ

4. The Iron Pillar of Delhi is a remarkable example of which ancient metallurgical technique?
a) Bronze casting
b) Corrosion-resistant iron making
c) Alloy technology
d) Gold plating

૪. દિલ્હીનો લોહ સ્તંભ)Iron Pillar of Delhi) કઈ પ્રાચીન ધાતુકર્મ તકનીકનું અદ્ભુત ઉદાહરણ છે?
a) કાંસ્ય નિર્માણ
b) જંગપ્રતિરોધક લોહ નિર્માણ-
c) મિશ્રધાતુ તંત્ર
d) સોનાની પરત ચડાવવી

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