

GUJARAT TECHNOLOGICAL UNIVERSITY (GTU)**Semester – IV****Course Title: Essence of Indian knowledge and Tradition****(Course Code: 41046306)**

Diploma programme in which this course is offered	Semester in which offered
All branches of Diploma Engineering	4 th Semester

1. 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.

2. 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 first hand 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.

3. COURSE OUTCOMES

1. Students will attain awareness regarding the significance of IKS
2. The syllabus will enhance their confidence in Indian traditional knowledge system and enable them to perceive at the problems with Indian perspective
3. This will also enable them to analyze the issues on their own and enable them for critical thinking.
4. The knowledge about the ancient Indian Scientific traditions will generate more confidence in themselves.
5. This will lead them to make research and innovative thinking which can result in global contribution at later stage.

4. TEACHING AND EXAMINATION SCHEMES

Teaching Scheme (In Hours)			Total Credits (L+T+P/2)	Examination Scheme				Total Marks
L	T	P		Theory Marks		Practical Marks		
			C	CA	ESE	CA	ESE	
2	0	0	2	30	70	25	25	150

5. 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 Rishis to Mathematics

- A) Bodhayana's value of pi
- 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

6. REFERENCE BOOKS:

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

- 2) Introduction to Indian Knowledge System: Concepts and Applications by B. Mahadevan, Vinayak Rajat Bhat, Nagendra Pavana, PHI Learning Pvt. Ltd., Delhi
- 3) Town Planning in Ancient India by Binode Bihari Dutt, Thacker, Spink & Co.
- 4) ભારતનો વૈજ્ઞાનિક વારસો લેખક-જે. જે. રાવલ યુ. ડી. નર્સિણ રાત રાજ્ય
નવમસ ગ્રંથ બોર્ડ, ગજ