GUJARAT TECHNOLOGICAL UNIVERSITY (GTU)

Competency-focused Outcome-based Green Curriculum-2021 (COGC-2021)
Semester - II

Course Title: History of Indian Architecture
(Course Code: 1026304)

Diploma programme in which this course is offered	Semester in which offered
Diploma in Architecture	Second

1.   RATIONALE

This course is essential for learners to appreciate and acquire knowledge regarding various architectural styles of ancient India and their historic evolution with respect to factors influencing them e.g. climate, geographical location, culture, construction technology, etc. This course plays a significant role of inspiring learners to learn about and appreciate a well-designed architectural structure and also understand that such a building gets admired and appreciated for centuries.   Study and understanding of various building elements, proportions, scale and other such design parameters found in Historical Structures helps a learner to apply this knowledge for his/her own architectural creations.

2.   COMPETENCY

The course content should be taught and implemented with the aim to develop different types of skills so that learners are able to acquire the following competencies:
- Appreciate and Interpret Architectural Characteristics of Historical Monuments of India

3.   COURSE OUTCOMES (COs)

The practical exercises, the underpinning knowledge and the relevant soft skills associated with the identified competency are to be developed in the learners for the achievement of the following COs:
   a) Classify historical buildings with respect to various periods of Indian architecture.
   b) Elaborate the various factors affecting various periods of Indian architecture.
   c) Illustrate the various elements of Indian architecture.
   d) Describe the characteristics of various examples of Indian architecture.

4.   TEACHING AND EXAMINATION SCHEME

Teaching Scheme (In Hours)			Total Credits (L+T+P/2)	Examination Scheme				
				Theory Marks		Practical Marks		Total Marks
L	T	P	C	CA	ESE	CA	ESE	
3	0	0	3	30*	70	0	0	100

(*):Out of 30 marks under the theory CA, 10 marks are for assessment of the micro-project to facilitate integration of COs and the remaining 20 marks is the average of 2 tests to be taken

during the semester for the assessing the attainment of the cognitive domain UOs required for the attainment of the COs.

*Legends: **L**-Lecture; **T** – Tutorial/Teacher Guided Theory Practice; **P** -Practical; **C** – Credit, **CA** -Continuous Assessment; **ESE** -End Semester Examination.*

5.   SUGGESTED PRACTICAL/STUDIO EXERCISES

The following practical outcomes (PrOs) are the sub-components of the COs. T*hey are crucial for that particular CO at the 'Precision Level' of Dave's Taxonomy related to 'Psychomotor Domain'.*

S. No.	Practical Outcomes (PrOs)	Unit No.	Approx. Hrs. required
	Not Applicable		

6.   MAJOR EQUIPMENT/ INSTRUMENTS REQUIRED

These major equipment with broad specifications for the PrOs is a guide to procure them by the administrators to usher in uniformity of practicals in all institutions across the state.

S. No.	Equipment Name with Broad Specifications	PrO.No.
	Not Applicable	

7.   AFFECTIVE DOMAIN OUTCOMES

The following sample Affective Domain Outcomes (ADOs) are embedded in many of the above-mentioned COs. More could be added to fulfill the development of this course competency.
   a) Work as a leader/a team member.
   b) Follow ethical practices.
   c) Appreciate different monuments of various periods of Indian Architectural history

The ADOs are best developed through the field-based exercises. Moreover, the level of achievement of the ADOs according to Krathwohl's 'Affective Domain Taxonomy' should gradually increase as explained below:
   i.   'Valuing Level' in 1st year
   ii.   'Organization Level' in 2nd year.
   iii. 'Characterization Level' in 3rd year.

8.   UNDERPINNING THEORY

The major underpinning theory is given below based on the higher level UOs of *Revised Bloom's taxonomy* that are formulated for development of the COs and competency. If required, more such UOs could be included by the course teacher to focus on attainment of COs and competency.

Unit	Unit Outcomes (UOs) (4 to 6 UOs at different levels)	Topics and Sub-topics

Unit:1 Introduction	1a. Differentiate between History And History of Architecture.
	1b. Explain the importance of history of architecture.
	1c. List the Periods of Indian History of Architecture
	1d. Describe different Factors influencing architecture
		1.1. History &History of Architecture
		1.2. Importance of History of Architecture
		1.3. Periods of Indian History of Architecture
		1.4. Factors influencing architecture
		  1.4.1. Climate
		  1.4.2. Topography
		  1.4.3. Material
		  1.4.4. Technology
		  1.4.5. Socio-cultural forces.

Unit – II Ancient Indian architecture	2.a Describe with help of neat sketches the planning, construction systems and use of materials during Indus valley civilization.
	2.b Describe with the help of neat sketches the planning, construction systems and use of elements in a Vedic Village.
		2.1 Indus Valley Civilization:
		  2.1.1 Planning and construction systems and materials
		  2.1.2 Harappa & Mohen-jo-Daro
		  2.1.3 Dholavira & Lothal
		2.2 Vedic Village:
		  2.2.1 Planning and construction systems and materials
		  2.2.2 Elements: Huts, Railing & Gate

Unit-III Architecture of Buddhist Period	3.a Enlist various types of Buddhist Architecture 3.b Explain Elements of Buddhist Architecture with help of neat sketches	3.1 Introduction to types of Buddhist Architecture. (Stambha, stupa, chaitya, and Vihara) 3.2 Stambha : Its character study of Ashoka Pillar, 3.3 Stupa : Architectural Character of Sanchi Stupa

Unit	Unit Outcomes (UOs) (4 to 6 UOs at different levels)	Topics and Sub-topics
	3.c Illustrate the architectural features of the Ashoka Pillar with neatly labelled sketches. 3.d Describe the architectural features of the Sanchi Stupa with neatly labelled sketches.	
Unit- IV Rock-Cut Architecture and Cave Architecture	4.a Classification of Rock Cut Architecture (Monolith, Cave & Temples) 4.b Describe the architectural features of Chaitya Hall at Karle and Vihara at Ajanta cave. 4.c Describe the architectural features of Badami Caves. 4.d Explain the architectural features of Kailash Temple with neatly labelled sketches. 4.e Describe The Rathas at Mahabalipuram with the help of neatly labelled sketches.	4.1 Introduction to Rock Cut Architecture 4.2 Chaitya: Architectural Character of Karle Chaitya Hall 4.3 Vihara at Ajanta Caves. 4.4 Badami Caves 4.5 Kailash Temple at Ellora 4.6 Rathas of Mahabalipuram
Unit–V Temple Architecture	5. a Enlist various styles of Temple Architecture in India. 5.b Describe various parts and elements of typical temple architecture. 5.c Illustrate the architectural features of the given temple with neatly labelled sketches.	5.1 Introduction to Temple Architecture in India. 5.2 Typical temple: Architectural characteristics and planning. 5.3 Architectural characteristics and planning of following temples 5.1.1 Aihole- Ladkhan temple & Durga Temple. 5.1.2 Lingaraja temple at Bhuvaneswer 5.1.3 Sun Temples of Konark & Modhera 5.1.4 Kandaria Mahadev Temple
Unit– VI Islamic Architecture	6.a Enlist various periods of Islamic Architecture in India. 6.b Describe various parts and elements of typical mosque in India. 6.c Illustrate the given building or a structure with a neatly labelled sketch.	6.1 Introduction to Islamic architecture in India 6.2 Typical Mosque: Architectural characteristics and planning. 6.2.1 Mosques : Jama Masjid Ahmedabad & Delhi 6.3 Tombs : TajMahal, GolGumbaz

Unit	Unit Outcomes (UOs) (4 to 6 UOs at different levels)	Topics and Sub-topics
	6.d Explain the planning of Fatehpur Sikri with the help of sketches.	6.4 Qutub Minar 6.5 FatehpurSikri: Planning of Fatehpur Sikri, Salim Chistie's Tomb, Buland Darwaja, Diwan –e –Aam, Diwan –e –Khas, Jodhabai's Palace, Panchmahal, Lotus Throne and Birbal Bhavan

9. SUGGESTED SPECIFICATION TABLE FOR QUESTIONPAPER DESIGN

Unit No.	Unit Title	Teaching Hours	Distribution of Theory Marks			
			R Level	U Level	A Level	Total Marks
I	**Introduction**	02	2	2	0	4
II	**Ancient Indian architecture**	05	2	4	2	8
III	**Architecture of Buddhist Period**	04	2	2	2	6
IV	**Rock-Cut Architecture and Cave Architecture**	07	3	3	6	12
V	**Temple Architecture**	12	5	5	10	20
VI	**Islamic Architecture**	12	5	5	10	20
	Total	42	**19**	**21**	**30**	**70**

Legends: *R=Remember, U=Understand, A=Apply and above (Revised Bloom's taxonomy)*

<u>Note</u>: *This specification table provides general guidelines to assist students for their learning and to teachers to teach and question paper designers/setters to formulate test items/questions to assess the attainment of the UOs. The actual distribution of marks at different taxonomy levels (of R, U and A) in the question paper may slightly vary from above table.*

10. SUGGESTED STUDENT ACTIVITIES
Other than the classroom and laboratory learning, following are the suggested student-related **co-curricular** activities which can be undertaken to accelerate the attainment of the various outcomes in this course: Students should perform following activities in group and prepare reports of about 5 pages for each activity. They should also collect/record physical evidences for their (student's) portfolio which may be useful for their placement interviews:
   a) Document historical monuments
   b) Visit to historical monuments

11.   SUGGESTED SPECIAL INSTRUCTIONAL STRATEGIES (if any)

These are sample strategies, which the teacher can use to accelerate the attainment of the various outcomes in this course:

a)   Massive open online courses (**MOOCs**) may be used to teach various topics/sub topics.

b)   Guide student(s) in undertaking micro-projects.

c)   *'L' in section No. 4*means different types of teaching methods that are to be employed by teachers to develop the outcomes.

d)   About **20% of the topics/sub-topics** which are relatively simpler or descriptive in nature is to be given to the students for *self-learning*, but to be assessed using different assessment methods.

e)   With respect to **section No.10**, teachers need to ensure to create opportunities and provisions for *co-curricular activities*.

f)   Guide students on how to address issues on freehand sketching, model making etc. (not related to this course).

g)   Guide students for using relevant ordering principle.

h)   Arrange visit to nearby site for understanding various concepts related to Architectural Design.

i)   Use video/animation films to explain various concepts/processes related to Architectural Design themes.

j)   Use different instructional strategies in classroom teaching.

k)   Display various technical brochures of recent Architectural Design processes.

12.   SUGGESTED MICRO-PROJECTS

Only one micro-project is planned to be undertaken by a student that needs to be assigned to him/her in the beginning of the semester. In the first four semesters, the micro-project are group-based (group of 3 to 5). However, **in the fifth and sixth semesters**, the number of students in the group should **not exceed three**.

The micro-project could be internet-based, workshop-based, laboratory-based or field-based. Each micro-project should encompass two or more COs which are in fact, an integration of PrOs, UOs and ADOs. Each student will have to maintain dated work diary consisting of individual contribution in the project work and give a seminar presentation of it before submission. The duration of the micro-project should be about **14-16 (fourteen to sixteen) student engagement hours** during the course. The students ought to submit micro-project by the end of the semester to develop the industry-oriented COs.

A suggestive list of micro-projects is given here. This must match with the competency and the COs. Similar micro-projects could be added by the concerned course teacher:

a)   Proposed students activities: topic based seminars, internet based assignments, teacher guided self-learning activities, sketching/making models of historical monuments, etc. These could be either individual or group-based.

b)   Prepare a report on Group case study of a Historical Monument/s with photographs.

13.   SUGGESTED LEARNING RESOURCES

S. No.	Title of Book	Author	Publication with place, year and ISBN
1	Indian Architecture, Hindu & Buddhist	Percy Brown	Taraporewala Publications ISBN: 9781446510216, 1446510212
2	Indian Architecture - Islamic	Percy Brown	Taraporewala Publications ISBN-10 : 1446509362 ISBN-13 : 978-1446509364
3	Indian Architecture - Islamic	Grover Satish	Vikas Publishing House ISBN-10 : 070691130X ISBN-13 : 978-0706911305
4	The History of Architecture in India	Tadgell Christopher	Phaidon,1994 ISBN: 07 14829609 ISBN 13 9780714829609
5	Islam Art and Architecture.	Hattstein Markus & Delius Peter	Konemann ISBN 10-978-3829025584 13-978-3829025584
6	A Global History of Architecture	Francis D. K. Ching	ISBN-13: 978-1118981337

14.   SOFTWARE/LEARNING WEBSITES

1.   https://onlinecourses.nptel.ac.in/noc21_ar04/preview
2.   https://www.india.gov.in/official-website-archaeological-survey-india
3.   https://whc.unesco.org/en/list/242/
4.   www.greatbuildings.com

15.   PO-COMPETENCY-CO MAPPING

Semester II	History of Indian Architecture (Course Code: 4325004)								
	POs and PSOs								
Competency & Course Outcomes	**PO 1 Basic & Discipline specific knowledge**	**PO 2 Problem Analysis**	**PO 3 Design/ develop -ment of solutions**	**PO 4 Engineeri ng Tools, Experime ntation &Testing**	**PO 5 Engineerin g practices for society, sustainabili ty & environme nt**	**PO 6 Project Manage - ment**	**PO 7 Life-long learning**	**PSO1 ***	**PSO2 #**
Competency	**Use the relevant building materials for the given architectural applications**								
Course Outcomes CO a) Classify historical buildings with respect to various periods of Indian architecture.	3	-	-	-	1	-	1	-	1
CO b) Elaborate the various factors affecting various periods of Indian architecture.	3	2	-	-	2	-	1	_	1
CO c) Illustrate the various elements of Indian architecture.	3	2	-	1	-	-	1	1	2
CO d) Describe the characteristics of various examples of Indian architecture.	3	2	-	-	-	-	1	1	2

Legend: '3' for high, '2' for medium, '1' for low and '-' for no correlation of each CO with PO/PSO.

*PSO1: Planning & Design: Prepare architectural designs and all types of drawings with appropriate Building elements and construction techniques as per specific project requirements.

#PSO2: Execution: Suggest appropriate building elements and construction techniques and materials with joinery as per the requirement.

16.   COURSE CURRICULUM DEVELOPMENT COMMITTEE

GTU Resource Persons

Sr. No.	Name and Designation	Institute	Contact No.	Email
1	Shri Bhaskar J. Iyer, HOD, Coordinator & Associate Dean	Government Polytechnic for Girls, Ahmedabad	9879474833	bhaskariyer2004@gmail.com
2	Smt.Sangita J. Vaghasia, I/c HoD	Government Polytechnic for Girls, Surat	9428060818	sangitavaghasia@yahoo.com
3	Shri Bhavesh M. Patel Lecturer	Government Polytechnic for Girls, Ahmedabad	9427462830	bhavesh0arch222@gmail.com
4	Ms. Arpita M.Mistry Lecturer	Government Polytechnic for Girls, Ahmedabad	9712938971	arpitamistry89@gmail.com
5	Mr. Pratik M. Bagul Lecturer	Government Polytechnic for Girls,Surat	9687879139	pratikbagul1375@gmail.com