

GUJARAT TECHNOLOGICAL UNIVERSITY (GTU)**Competency-focused Outcome-based Green Curriculum-2021 (COGC-2021)**
Semester - III**Course Title: History of Architecture (World & Modern)**
(Course Code: 4335003)

Diploma program me in which this course is offered	Semester in which offered
Architecture	Third

1. RATIONALE

This course is necessary for learners to realize and expand their knowledge regarding various architectural styles of the world, their historic evolution and modern architecture. Learners will be aware of factors like climate, geographical location, culture, construction technology as well as factors which lead towards the development of modern architecture; and also how these influence architectural styles around the world. Learners may also feel stimulated from this course by learning that a good architectural structure is admired by all for centuries.

Modern architecture is generally characterized by simplification of form and an absence of applied decoration. At diploma level, learners are expected to gain awareness of early modern architecture that began at the turn of the 20th century with efforts to reconcile the principles of underlying architectural design with rapid technological advancement and the modernization of society.

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 following competencies:

- Identify and explain architectural characteristics of different civilizations and periods of world and modern architectural history.

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 learner for the achievement of the following COs:

- Classify historical and modern buildings with respect to various periods of world and modern architecture.
- Elaborate the various factors affecting various periods of world and modern architecture.
- Describe the characteristics of various examples of world and modern architecture.
- Illustrate the various architectural elements with neat sketches of world and modern buildings.

4. TEACHING AND EXAMINATION SCHEME

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	
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. They 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
1	Make sketches of the great pyramid of Cheops at Gizeh pyramid and Temple at Karnak	1	Not applicable
2	Make sketches each of classical orders of Greek Architecture	1	
3	Make sketches of Colosseum and Pantheon	2	
4	Make sketches Pisa Cathedral	2	
5	Make sketches of Notre Dame Paris and features of Gothic architecture	3	
6	Make sketches of St Peter's Basilica, Rome	3	
7	Prepare sketches of the works of Louis Sullivan and Frank Lloyd Wright	4	
8	Prepare sketches of works of Le Corbusier and Louis Kahn	4	
9	Prepare sketches of buildings at Chandigarh and IIM Ahmedabad	5	
10	Prepare sketches of the works of B.V.Doshi and Charles Correa	5	
11	Prepare sketches of the works of Raj Rewal and Laurie Baker	6	

Note:

- Exclusive time for these exercises is not allotted in teaching scheme. Learners have to take out time for sketching at home during weekends, holidays or during study tours.
- This activity should be conducted as internal assessment during the semester by the concerned faculty member and internal marks should be allocated for it.

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 world and modern architecture 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 Egyptian and Greek Architecture	1a. State the important characteristics of Egyptian architecture 1b. Explain construction systems and materials used for tomb architecture 1c. Illustrate with sketches the temple architecture of Egypt 1d. Explain various elements of Greek Architecture. 1e. Discuss the features of the classical orders 1e. Describe with the help of neat sketches the optical corrections followed in Greek Architecture 1f. Describe 'Parthenon' with the help of neat sketches	1.1 Introduction of Egyptian Architecture. 1.2 Tomb Architecture 1.2.1 Mastabas 1.2.2 Pyramid - Great pyramid of Cheops at Gizeh 1.2.3 Temple architecture - Temple at Karnak 1.3.1 Introduction of Greek architecture. 1.3.2 Classical Orders <ul style="list-style-type: none"> • Doric • Ionic • Corinthian 1.3.3 Optical Corrections 1.3.4 Parthenon

Unit	Unit Outcomes (UOs) (4 to 6 UOs at different levels)	Topics and Sub-topics
Unit– 2 Roman and Romanesque Architecture	2a. Explain elements of Roman Architecture with the help of sketches. 2b. Classify types of buildings in Roman Architecture 2c. Explain elements of Romanesque architecture 2d. Classify types of buildings in Romanesque architecture with the help of sketches	2.1.1 Introduction of Roman architecture 2.2. Types of Roman buildings 2.2.1 Temples – Pantheon 2.2.2 Amphitheaters – Colosseum 2.3 Introduction of Romanesque architecture. 2.4 Study of Pisa Cathedral
Unit– 3 Gothic and Renaissance Architecture	3a. Explain elements and characteristics of Gothic architecture with help of neat sketches 3b. Describe with sketches-Notre Dame Paris 3c. Enlist the features of Renaissance buildings 3d. Describe with neat sketches-St. Peter’s Basilica, Rome	3.1 Introduction of Gothic architecture 3.2 Notre Dame Paris 3.3 Features of renaissance Architecture 3.4 Study of St. Peter’s Basilica, Rome
Unit–4 Formative years and Crystallization of Modern Architecture	4a. Discuss the important characteristics, features and style of modern architecture 4b. Illustrate and explain with sketches the buildings by Louis Sullivan, Le Corbusier and Louis Kahn	4.1 Idea of Modern Architecture in nineteenth century 4.1 Work of Louis Sullivan <ul style="list-style-type: none"> • Wainwright building 4.2 Works of Frank Lloyd wright <ul style="list-style-type: none"> • Falling water house • Guggenheim museum 4.3 Work of Le Corbusier <ul style="list-style-type: none"> • Villa Savoye 4.4 Work of Louis I Kahn <ul style="list-style-type: none"> • Salk Institute
Unit–5 Roots and Modernity in Indian Architecture	5a. Discuss the important characters and features of roots and modernity in India. 5b. Illustrate with sketches the buildings by Le Corbusier 5c. Illustrate with sketches the buildings by Louis Kahn 5d. Explain with sketches the buildings by Balkrishna Doshi 5e. Explain with sketches the buildings by Charles Correa	5.1 Features of modernity in India 5.2 Work of Le Corbusier in India <ul style="list-style-type: none"> • High Court, Chandigarh 5.3 Work of Louis I Kahn <ul style="list-style-type: none"> • IIM, Ahmedabad 5.4 Works of Balkrishna Doshi <ul style="list-style-type: none"> • Architect’s office-Sangath • Amdavad ni Gufa 5.5 Works of Charles Correa <ul style="list-style-type: none"> • Ganghi Smarak Sangrahalay • Kanchanjunga Apartment

Unit	Unit Outcomes (UOs) (4 to 6 UOs at different levels)	Topics and Sub-topics
Unit- 6 Modern Indian Architecture	6a. Explain with sketches buildings by Raj Rewal 6b. Explain with sketches the buildings by Laurie Baker	6.1 Work of Raj Rewal <ul style="list-style-type: none"> Asian Games Village, New Delhi 6.2 Work of Laurie Baker <ul style="list-style-type: none"> Centre for Development Studies

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	Egyptian and Greek Architecture	10	10	09	02	21
II	Roman and Romanesque Architecture	06	03	03	01	07
III	Gothic and Renaissance Architecture	06	03	03	01	07
IV	Formative years and Crystallization of Modern Architecture	08	03	03	02	14
V	Roots and Modernity in Indian Architecture	08	03	03	02	14
VI	Modern Indian Architecture	04	02	01	01	07
Total		42	30	30	08	70

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

Note: This specification table provides general guidelines to assist learners 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 LEARNER ACTIVITIES

Other than the classroom and laboratory learning, following are the suggested learner-related **co-curricular** activities which can be undertaken to accelerate the attainment of the various outcomes in this course: Learners 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 (learner's) portfolio which may be useful for their placement interviews:

- Visit historical monument and sketch the monument.
- Document historical monument.
- Make model of historical monument to understand its characteristics and elements.

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:

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

- b) Guide learner(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 learners 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 learners on how to address issues on freehand sketching, model making etc. (not related to this course).
- g) Guide learners 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 learner 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 learners in the group should **not exceed three**.

The micro-project could be industry application based, 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 learner 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 microproject should be about **14-16 (fourteen to sixteen) learner engagement hours** during the course. The learners 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 learners activities: topic based seminars, internet based assignments, teacher guided self-learning activities, etc. These could be either individual or group-based
- b) Prepare a report on Group case study with the photographs.

13. SUGGESTED LEARNING RESOURCES

S. No.	Title of Book	Author	Publication with place, year and ISBN
1	A Guide to the Architecture of Ancient Egypt, Including Luxor Temple, Karnak, Great Sphinx of Giza and More	Brantley Caroline	Webster's Digital Services ISBN: 9781241682637, 1241682631
2	The Encyclopedia of Ancient Egyptian Architecture	Dieter Arnold	ISBN-10 0691114889 ISBN-13 978-0691114880 Princeton Univ Pr

S. No.	Title of Book	Author	Publication with place, year and ISBN
3	Greek Architecture, Fifth Edition	A. W. Lawrence	The Yale University Press Pelican History of Art
4	A Companion to Roman Architecture	Roger B. Ulrich, Caroline K. Quenemoen	ISBN:9781405199643 ISBN:9781118325117
5	Design and Construction in Romanesque Architecture	C. Edson Armi	ISBN: 9781107407268, 1107407265 Cambridge University Press
6	Romanesque Architecture	Hans Erich Kubach	Rizzoli International Publications, Incorporated ISBN: 9780847809202, 084780920X
7	Gothic Architecture	Paul Frankl, Paul Crossley	ISBN: 9780300087994, 0300087993 Yale University Press
8	The Gothic Cathedral Origins of Gothic Architecture and the Medieval Concept of Order	Otto Georg Von Simson, Otto von Simson	ISBN: 9780691018676, 0691018677 Princeton University Press
9	Renaissance Architecture	Christy Anderson	OUP Oxford ISBN: 9780192842275, 0192842277
10	Meaning in Western Architecture	Christian Norberg-Schulz	Rizzoli
11	Corbusier	Willy Boesiger	Felix books
12	The complete architecture of Balkrishna Doshi : rethinking modernism for the developing world	James Steele	Super book house
13	Louis I Kahn	Robert Mc Carter	Phaidon press
14	Charles Correa	Hassanudin Khan	Perennial press publication
15	Laurie Baker	Gautam Bhatia	Penguin publications
16	Modern architecture in India, footprints on the sands of Indian architecture	Badha Sarbjit, Baga Sukhvinder	Galgotia publication
17	Le Corbusier oeuvre complete vol.8 1965-69	Boesiger	Les Editions
18	Frank Lloyd Wright	Triber	Birkhauser
19	History of Architecture	Sir Banister Fletcher	CBS publications, Delhi

S. No.	Title of Book	Author	Publication with place, year and ISBN
20	Living Architecture Series	Masuda	Tomoya
21	Raj Rewal: Innovative Architecture and Tradition	Raj Rewal , Kenneth Frampton , Suha Ozkan	Om Books International

14. SOFTWARE/LEARNING WEBSITES

- www.greatbuildings.com
- https://onlinecourses.nptel.ac.in/noc21_ar04/preview
- <https://www.khanacademy.org/>
- <https://www.archnet.org/sites/2848>

15. PO-COMPETENCY-CO MAPPING

Semester I	History of Indian Architecture (Course Code: 4325003)								
	POs and PSOs								
Competency & Course Outcomes	PO 1 Basic & Discipline specific knowledge	PO 2 Problem Analysis	PO 3 Design/development of solutions	PO 4 Engineering Tools, Experimentation & Testing	PO 5 Engineering practices for society, sustainability & environment	PO 6 Project Management	PO 7 Life-long learning	PSO 1 *	PSO 2 #
Competency	Explain various architectural characteristics of different civilizations and periods of world history; and identify and explain features and works of modern architects around the world and contemporary Indian architects.								
Course Outcomes									
CO a) Classify historical and modern buildings with respect to various periods of world and modern architecture.	2	1	-	-	1	-	1	1	1
CO b) Elaborate the various factors affecting various periods of world and modern architecture.	2	1	-	-	1	-	1	-	-
CO c) Describe the characteristics of various examples of world and modern architecture.	2	1	-	-	-	-	1	-	-
CO d) Illustrate the various architectural elements with neat sketches of world and modern buildings.	2	1	-	-	1	-	1	-	1

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@g mail.com
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