|  |   |              |                   |         | GAI                                   | NPAT      | UNIVERSITY         | ,            |               |         |        |
|--|---|--------------|-------------------|---------|---------------------------------------|-----------|--------------------|--------------|---------------|---------|--------|
|  |   |              | ΣΔCIII            | TV C    | )F ΔRCH                               | HTFC      | TURE DESIG         | N & PI A     | MNING         |         |        |
| Programme Bachelor of Architecture Branch/Spec. INSTITUTE OF ARCHITECTURE                      |   |              |                   |         |                                       |           |                    |              |               |         |        |
| Seme   |   |              | V Version 2.0.0.0 |         |                                       |           |                    |              |               |         |        |
|  |   | m Ac         | ademic            | Vear    | 2021-22                               |           | Effective for th   |              | dmitted in    | lune    | 2019   |
|  | ect cod   |              | 2VA01             |         | Subject                               |           | Architectural D    |              |               | June    | 2013   |
|  | hing scl  |              | ZVAUI             | ADD     | Jubject                               | INATTIC   | Examination so     | _            | _             |         |        |
|  | week)   |              | ıre(DT)           | Pract   | ical(Lab.)                            | Total     | Examination 30     | CE CE        | SEE           | Total   |        |
| (1 C1  | WCCK  | L            | TU                | Р       | TW                                    | Total     |                    | CL           | JLL           | Total   |        |
| Cred   | it  | 2            | 2                 | 4       | 2                                     | 10        | Theory             | _            | _             | _       |        |
| Hour   |   | 2            | 2                 | 6       | 2                                     | 12        | Practical          | 40           | 60            | 100     |        |
|  | ctive   |              |                   | U       |                                       | 12        | Fractical          | 140          | 00            | 100     |        |
|  |   | chite        | rtural D          | Acian I | Process to                            | Under     | stand character    | of Instituti | ion           |         |        |
| •  | ning Ou   |              |                   | CSIGITI | 10003310                              | Onacis    | staria character t | or mistituti | 011.          |         |        |
|  |   |              |                   | Snace   | s and Lind                            | erstand   | ing the scale of t | the projec   | +             |         |        |
|  | -   |              |                   | •       |                                       |           | , evaluation of    |              |               | dament  | als of |
|  | posite s  |              | •                 | progre  | , , , , , , , , , , , , , , , , , , , | arrarysis | , evaluation of    | acsign cir   | teria ana ran | adment  | ui3 01 |
|  | ry sylla  | <u> </u>     | <u> </u>          |         |                                       |           |                    |              |               |         |        |
| Unit   |   | <del> </del> |                   |         |                                       | C         | ontent             |              |               |         | Hrs    |
| 1  |   | tical o      | case stu          | dies o  | f Institutio                          |           |                    | and time     | periods       |         | 30     |
| _  | 1 Analytical case studies of Institutions in different cultures and time periods Study of Organization and Disposition of Spaces.                 |              |                   |         |                                       |           |                    |              |               |         |        |
|  |   |              | _                 |         | -                                     |           | ural Study, Form   | nulation of  | design criter | ia.     |        |
| 2  | _   |              |                   |         |                                       |           | cation of climati  |              |               |         | 32     |
| _  |   | •            |                   | _       | •                                     |           | siderations, App   |              |               |         | 32     |
|  |   |              | •                 |         |                                       |           | nt functional, se  |              | _             |         |        |
| 3  |   |              |                   |         | ·                                     |           | circulation, land  |              |               |         | 45     |
|  | -   |              |                   |         | _                                     | -         | eds and client re  |              | =             |         |        |
| 4  |   |              |                   |         |                                       | -         | complexity with    |              |               |         | 85     |
| •  | _   |              |                   |         |                                       |           | ge and characte    |              | 3110010113    |         |        |
|  |   |              | -                 |         | Principals                            |           | _                  | .•           |               |         |        |
|  |   |              |                   | _       | •                                     | -         | drawing exercise   | e in View.   |               |         |        |
| Refe   | rence B   |              |                   |         | 1- 0                                  | - 0       | <u> </u>           |              |               |         | 1      |
| 1  | ı   |              | n Archit          | ecture  | e - Christia                          | n Nobe    | rg Schultz         |              |               |         |        |
| 2  |   |              |                   |         | - Todd, Ki                            |           |                    |              |               |         |        |
| 3  | -   | •            |                   |         | s – Vol. 1 t                          |           |                    |              |               |         |        |
| 4  |   |              |                   |         |                                       |           | Penguin Books.     |              |               |         |        |
| 5  |   |              |                   |         |                                       |           |                    | opeka: os    | tens000000/   | America | n      |
|  | Kanvinde, A., & Miller, H. (1969). Campus Design in India. Topeka: ostens000000/American Yearbook Co. Lynch, K. (1962). Site Planning. MIT Press. |              |                   |         |                                       |           |                    |              |               |         |        |
| 6 Pandya, Y., & Foundation, V. S. (2007). Elements of Space Making: Map in Publishing Pvt Ltd. |   |              |                   |         |                                       |           | td.                |              |               |         |        |
| 7  |   |              |                   |         |                                       |           | rchitecture of Jo  |              | -             |         |        |
|  |   | , ,          | ,                 |         |                                       |           |                    |              |               |         |        |
|  |   |              |                   |         | G/                                    | ANPAT     | UNIVERSITY         |              |               |         |        |
|  |   |              | FA                | CULTY   | OF ARC                                | HITEC     | TURE DEISGN        | & PLANI      | NING          |         |        |
| Prog   | ramme   |              |                   |         | Architectu                            |           | Branch/Spec        |              | TUTE OF ARCH  | HITECTU | RE     |
| C  |   |              | 1/                | 5. 5.7  |                                       | . •       | Version            | 200          |               | 0.0     |        |

Version

2.0.0.0

Semester

٧

| Effective from Academic Year 2021-22 |                 |        |    |                    |     | Effective for the                       | Effective for the batch Admitted in June 202 |     |       |
|--------------------------------------|-----------------|--------|----|--------------------|-----|---|--|-----|-------|
| Subject cod                          | le              | 2VA02B | MC | Subject Na         | ıme | Building Materials and Construction - V |  |     |       |
| Teaching scheme                      |                 |        |    |                    |     | Examination sc                          | Examination scheme (Marks)                   |     |       |
| (Per week)                           | Lecture(DT) Pra |        |    | ctical(Lab.) Total |     |   | CE   | SEE | Total |
|                                      |                 |        |    |                    |     |   |  |     |       |
|                                      | L TU P          |        | Р  | TW                 |     |   |  |     |       |
| Credit                               | 2               | -      | 2  | 2                  | 6   | Theory                                  | -  | -   | -     |
| Hours                                | 2               | -      | 2  | 2                  | 6   | Practical                               | 40   | 60  | 100   |

- The main objective of this course is to impart the principles of designing different structural elements of a building based on their functions and applications.
- Students will develop application based understanding of different types of construction system.
- Understanding various building elements and its use in a building along with the techniques used in different forms of construction.

# Learning Outcome:

LO1: Understanding various types of foundations and its application in the building according to the appropriate selection criteria

LO2: Understanding about various roofing system and its construction details

LO3: Recognizing various types of forces acting on different types of water tanks/swimming pools and its construction techniques

LO4: Understanding various treatments required in the building like – water proofing and termite proofing.

|       | 0  |     |
|-------|--|-----|
| CONT  | FENT & TEACHING UNITS  |     |
| Unit  | Content  | HRS |
| 1     | Understanding Foundation System- types of foundations and factors affecting its        | 12  |
|       | selection. Introduction to Shallow and Deep foundation, underpinning, excavation       |     |
|       | support systems, spread footing, foundation walls, column footing, pile foundation,    |     |
|       | pile foundation, caissons foundation- their types, functions and method of             |     |
|       | construction/ installation etc.  |     |
| 2     | Learning about Site development- Compound wall and Gates- their use and                | 12  |
|       | construction method using different materials  |     |
| 3     | Studying Tensile and Long span structures, Shell structure, folded plate structure,    | 12  |
|       | Suspension Structure, tensile structure, space Frame- purpose, construction techniques |     |
|       | with details and their use   |     |
| 4     | Studying construction of Geodesic dome- purpose, construction technique and erection   | 24  |
| 5     | Understanding underground, overhead/internal storage tanks and swimming pool-          | 24  |
|       | their use, capacity, loads and construction technique                                  |     |
| 6     | Learning about water proofing and termite proofing treatments in a building            | 12  |
| Text  | Books  |     |
| 1     | NA   |     |
| Refer | rence Books  |     |
| 1     | A Toyt Dook of Building Construction C. D. Arors and C. D. Dindra                      |     |
|       | A Text-Book of Building Construction - S. P. Arora and S. P. Bindra                    |     |
| 2     | Building Construction Metric VolI to IV- W.B.Mckay                                     |     |
| 3     | Construction Technology VolI-Chudley   |     |
| 4     | Building Construction Illustrated-Fransis D.K. Ching.                                  |     |
| 5     | Fundamentals of Building Construction – Allen Edward                                   |     |

|               | GANPAT UNIVERSITY   |         |     |   |       |                  |              |     |           |  |  |  |  |
|---------------|---|---------|-----|---|-------|------------------|--------------|-----|-----------|--|--|--|--|
|               | FACULTY OF ARCHITECTURE DESIGN & PLANNING                                 |         |     |   |       |                  |              |     |           |  |  |  |  |
| Programme     | Programme Bachelor of Architecture Branch/Spec. INSTITUTE OF ARCHITECTURE |         |     |   |       |                  |              |     |           |  |  |  |  |
| Semester      |   | V       |     |   |       | Version          | 2.0.0.0      |     |           |  |  |  |  |
| Effective fro | ffective from Academic Year   |         |     | 2021-22 Effective for the batch Admitted in June 2019 |       |                  |              |     | June 2019 |  |  |  |  |
| Subject cod   | le  | 2IVA03H | AOF | Subject Na  | me    | History of Arch  | nitecture-IV |     |           |  |  |  |  |
| Teaching sc   | heme  |         |     |   |       | Examination so   | cheme (Mar   | ks) |           |  |  |  |  |
| (Per week)    | Lectu   | ure(DT) | Pra | ctical(Lab.)  | Total |                  | CE           | SEE | Total     |  |  |  |  |
|               | L TU P TV   |         | TW  |   |       |                  |              |     |           |  |  |  |  |
| Credit        | 2   | -       | -   | -   | 2     | Theory 40 60 100 |              |     |           |  |  |  |  |
| Hours         | 2   | -       | -   | =   | 2     | Practical        | -            | -   | -         |  |  |  |  |

- To Learn the evolution of world architecture took place at different region in different era of time line in a chronological order
- Western: To study and understand cultural, social, geographical aspects which influenced and played vital role in development of the following era's renaissance, baroque, rococo, neoclassical, art Nouveu, art deco.
- To Study various architectural elements, building techniques of specific architectural style.

#### Learning Outcome:

**LO1:** To understand architecture as evolving within specific cultural contexts including aspects of geographical location, politics, society, religion and climate. They have a comprehensive knowledge about the philosophy of Renaissance and how they influenced architecture in England and France.

**LO2:** Understanding of derivation of specific architectural elements construction techniques for local materials availability which became prominent architecture feature of those architectural style.

**LO3**: The development of construction technology in that period, Architectural ornamentation of that period. To establish a connection between religion and architecture and show how the concepts and beliefs have been manifested in a tangible form.

| CONT | ENT & TEACHING UNITS   |     |
|------|--|-----|
| Unit | Content  | HRS |
| Α    | Renaissance, Baroque, Rococo   | 12  |
|      | Renaissance in Florence and the reasons thereof; Counter-reformation; the Baroque          |     |
|      | movement and its impact on Architecture and other Visual Arts. Renaissance and             |     |
|      | Baroque Architecture of Italy and in other parts of Europe.                                |     |
|      | Italian Renaissance - The idea of rebirth and revival of art - Outline of the Architecture |     |
|      | during the early Renaissance, High Renaissance and Baroque Periods - Features of a         |     |
|      | typical Renaissance palace, eg. Palazzo Ricardi. Study of the contribution of the          |     |
|      | following architects: Brunelleschi, Michelangelo, Andrea Palladio, Example - St. Peter     |     |
|      | Rome, Villa capra in Vicenza. Architectural character in the Rococo period - Example -     |     |
|      | Chateau de Chambord, Louvre, Paris -Domestic British architecture- Study of the works      |     |
|      | Sir Christopher Wren, & Inigo Jones, Example - St. Paul's Cathedral, London.               |     |
|      | Banqueting House, Whitehall.   |     |

| В    | Neoclassicism, Eclecticism   | 8    |
|------|--|------|
|      | Palladian Architecture Palladio's architecture; The Palladian window; Early  |      |
|      | Palladianism; Neo-Palladian – English Palladian architecture, Irish Palladianism, North  |      |
|      | American Palladianism, Eastern European Palladianism; Decline of Palladianism.   |      |
|      | Neoclassical Architecture Origins; Characteristics; Regional trends Spain, Polish-   |      |
|      | Lithuanian Commonwealth; Interior design; City Planning; Late phase United States;   |      |
|      | Neoclassical Architecture in Washington D.C and Virginia.  |      |
|      | Key Concepts, History, Ancient Roman Influence Political, Aesthetic, Intellectual;   |      |
|      | Notable Examples; List of other architectural institutions (throughout the United  |      |
| С    | States)  | 12   |
|      | Art Nouveau, Art – deco  | 12   |
|      | Arts & Crafts movement in Europe and America; Art nouveau, and the works of Horta, Guimard, Gaudi and Macintosh; Organic Architecture -Early works of F.L. Wright. |      |
|      | Chicago school; Art deco Architecture in Europe and America.   |      |
| Text | Books  |      |
| 1    | A History of Architecture - Sir Banister Fletcher  |      |
|      | •  |      |
| 2    | A global history of Architecture - Francis D.K. Ching  |      |
| 3    | Classical Architecture for the Twenty-first Century- Jean-Francois Gabriel,  |      |
| Refe | rence Books  |      |
| 1    | Understanding Architecture: Its elements, history and meaning - Leland M Roth  |      |
| 2    | World History of Architecture - Micheal Fazio  |      |
| 3    | The Story of Architecture FROM ANTIQUITY TO THE PRESENT / Jan Gympel / KÖNEMANN  | (Pb) |
| 4    | Space, time and Architecture- Sigfried Giedion   |      |

|               | GANPAT UNIVERSITY   |          |        |         |       |   |         |       |       |  |  |  |  |
|---------------|---|----------|--------|---------|-------|---|---------|-------|-------|--|--|--|--|
|               | FACULTY OF ARCHITECTURE DESIGN & PLANNING                                 |          |        |         |       |   |         |       |       |  |  |  |  |
| Programme     | Programme Bachelor of Architecture Branch/Spec. INSTITUTE OF ARCHITECTURE |          |        |         |       |   |         |       |       |  |  |  |  |
| Semester      |   | ٧        |        |         |       | Version                                       | 2.0.0.0 |       |       |  |  |  |  |
| Effective fro | m Ac  | ademic Y | ear    | 2021-22 |       | Effective for the batch Admitted in June 2019 |         |       |       |  |  |  |  |
| Subject code  | Subject code 2VA04SDS Subject Nam   |          |        |         |       | Structural Design and Systems V               |         |       |       |  |  |  |  |
| Teaching sch  | neme  |          |        |         |       | Examination so                                | heme (M | arks) |       |  |  |  |  |
| (Per week)    | Lect  | ure (DT) | Practi | cal     | Total |   | CE      | SEE   | Total |  |  |  |  |
|               |   |          | (Lab.) |         |       |   |         |       |       |  |  |  |  |
|               | L TU P  |          | TW     |         |       |   |         |       |       |  |  |  |  |
| Credit 2      |   | -        | 2      | Theory  | 40    | 60  | 100     |       |       |  |  |  |  |
| Hours         | 2   | -        | -      | -       | 2     | Practical                                     | -       | -     | -     |  |  |  |  |

# **PRE-REQUISITES:**

Structure design and system – I, II, III, & IV

#### **OBJECTIVE:**

• This subject is applications of structural engineering principles to design basic structural elements using of reinforced concrete as materials. This subject is specifically aim to develop understanding of various design philosophy, Indian codal provisions, design basis used in design of basic elements of framed structures and its detailing requirement.

#### Learning Outcome:

LO1: Behaviours and requirement of various types of foundation and requirement effect of ductile details in structure.

LO2: Select various design philosophies to plan, to draw structural layout and to understand analytical approach to be used in the design of structural elements

LO3: Design & detail RC structures like Retaining Wall.

LO4: Apply the concept of earthquake resistant design in the building.

| CONT | ENT & TEACHING UNITS   |     |
|------|--|-----|
| Unit | Content  | Hrs |
| A    | <b>DESIGN OF FOOTING:</b> Definition, Types of footings based on structural requirements, importance of soil & other factors while recommending type of foundation. Design of Isolated footing Considering only Axial load.  | 06  |
| В    | <b>BUILDING LAYOUT AND DESIGN:</b> Loads as per I.S., distribution & flow of loads, lateral load due to wind and seismic as per latest IS standards, load combinations, guide lines for preparation of structural layout for building. General detailing required in structural drawing as per SP-34, do's details required for general drawing, beam, slab and column as per SP-34. | 08  |
| С    | <b>DESIGN OF RETAINING WALL:</b> Types, behaviour and application of retaining wall, stability criteria, design & detailing of cantilever type retaining wall for various ground conditions  | 06  |
| D    | <b>DESIGN OF WATER TANK:</b> Underground and elevated circular and rectangular water tanks retaining walls.  | 06  |
| E    | <b>SPECIAL TOPICS:</b> Introduction to Earthquake Resistant Features of unreinforced & reinforced masonry Structure, Confined Masonry, Soil liquefaction, Structural controls, Seismic strengthening. Earthquake resistant features: bands and vertical reinforcement IS 4326, IS 13827, IS 13828.   | 06  |

| Text | Books  |
|------|--|
| 1    |  |
| Refe | rence Books  |
| 1    | 1. Junarkar S. B. & Shah H. J; Tata McGraw Hill book Company.                                  |
| 2    | Wang C. K.; Intermediate Structural Analysis; Tata McGraw Hill book Company, New Delhi         |
| 3    | Elements of Civil Engineering (IV Edition) - S. S. Bhavikatti                                  |
| 4    | Shah & Karve; Limit State Theory & Design of Reinforced Concrete; Structure Pub., Pune         |
| 5    | IS: 456 - Code of practice for plain and reinforced concrete.                                  |
| 6    | IS: 875 (Part I to V) - Code of practice for structural safety of Buildings Loading standards. |
| 7    | Reinforcement detailing - SP: 34   |
| 8    | IS: 13920 -Code of Practice for ductile detailing of RC structure subjected to seismic force.  |
| 9    | EQ Tips; IIT Kanpur & BM &TPC New Delhi.   |
| 10   | Structural Engineering for architecture - A.P. Dongre  |

|                             | GANPAT UNIVERSITY                         |        |         |            |       |   |             |             |       |  |  |  |  |
|-----------------------------|---|--------|---------|------------|-------|---|-------------|-------------|-------|--|--|--|--|
|                             | FACULTY OF ARCHITECTURE DESIGN & PLANNING |        |         |            |       |   |             |             |       |  |  |  |  |
| Programme                   |   | Bachel | or of A | Architectu | re    | Branch/Sp                                     | INSTITUTE C | F ARCHITECT | URE   |  |  |  |  |
|                             |   |        |         |            |       | ec.   |             |             |       |  |  |  |  |
| Semester                    | ter V Version 2.0.0.0                     |        |         |            |       |   |             |             |       |  |  |  |  |
| Effective fro               | m Aca                                     | ademic | Year    | 2021-22    |       | Effective for the batch Admitted in June 2019 |             |             |       |  |  |  |  |
| Subject cod                 | le  | 2VA05  | BS      | Subject    | Name  | Building Ser                                  | vices-III   |             |       |  |  |  |  |
| Teaching sc                 | heme                                      |        |         |            |       | Examination                                   | scheme (Ma  | rks)        |       |  |  |  |  |
| (Per week)                  | Lectu                                     | re(DT) | Pract   | ical(Lab.) | Total |   | CE          | SEE         | Total |  |  |  |  |
| L TU P TW                   |   |        |         |            |       |   |             |             |       |  |  |  |  |
| Credit 2 2 Theory 40 60 100 |   |        |         | 100        |       |   |             |             |       |  |  |  |  |
| Hours                       | 2   | -      | -       | -          | 2     | Practical                                     | -           | -           | _     |  |  |  |  |

#### Pre-requisites:

Introduction of all types of main building services into which the building design and working depends.

Introduction of rain water harvesting, details of drainage system, and details of plumbing systems.

# Learning Outcome:

LO1: Understand the networking and supply chain of all services including to understand the working cycle to use the system properly and smoothly.

LO2: Understanding the importance of each service in details with its designing criteria through live case studies and onsite drawings.

LO3: To adapt newer and latest technology and equipment's for modern and fundamental requirement of this services and also High tech applications and services to be implemented for all type of functional areas like residential, commercial, corporate and Industrial.

LO4: The brief understanding and importance of solid waste management through the understanding of drainage system should be provided.

| Theor | ry syllabus   |     |
|-------|---|-----|
| Unit  | Content   | Hrs |
| 1     | Rain water harvesting: Its importance in today's life, design to collect the water, Norms and principle of rain water harvesting, its Advantages and Disadvantages, The rule according to GDCR  | 10  |
| 2     | Drainage system: Concept of drainage system, Understanding of Its importance, How to maintenance the drainage system, its Design, Collection of all sort of Grey water, Waste water, Rain water, Importance and sizes of proper pipes, types of pipes, suing in different drainage systems.   | 10  |
| 3.    | Plumbing system: Concept and its importance of plumbing system, All Trap systems, Importance of Nally trap, Gully trap, Main hole, Inspection chamber., its Maintenance, All thumb rule to provide proper plumbing system etc. Section of Water coming from Main tank to your home, Water coming from overhead water tank to your home. | 12  |

#### Practical content

Site Visits & Case Studies of above topics. Presentations, Movies, Debates & Discussions related to the above syllabus.

| ı | ext | В | 0 | 0 | KS |
|---|-----|---|---|---|----|
|   |     |   |   |   |    |

1

| Refe | Reference Books  |  |  |  |  |  |  |
|------|--|--|--|--|--|--|--|
| 1    | Water Supply and Sanitary Engineering - Birdie,                                    |  |  |  |  |  |  |
| 2    | Water Conservation Techniques in Traditional Human Settlements - Laureano, Pietro, |  |  |  |  |  |  |
| 3    | Plumbing and Mechanical Services: A Textbook - Masterman, A H,                     |  |  |  |  |  |  |
| 4.   | The Home Plumbing Handbook - McConnell   |  |  |  |  |  |  |

| GANPAT UNIVERSITY                         |       |        |         |            |      |  |             |              |       |
|---|-------|--------|---------|------------|------|--|-------------|--------------|-------|
| FACULTY OF ARCHITECTURE DESIGN & PLANNING |       |        |         |            |      |  |             |              |       |
| Programme                                 |       | Bachel | or of A | Architectu | re   | Branch                                 | INSTITUTE ( | OF ARCHITECT | URE   |
| Semester                                  |       | V      |         |            |      | Version 2.0.0.0                        |             |              |       |
| Effective fro                             | m Aca | ademic | Year    | 2021-22    |      | Effective for the batch Admitted in    |             | June 2019    |       |
| Subject cod                               | e     | 2VA06  | BES     | Subject    | Name | Building Estimation and Specifications |             |              |       |
| Teaching sc                               | heme  |        |         |            |      | Examination scheme (Marks)             |             |              |       |
| (Per week)                                | Lect  | ure    | Pract   | ical Tota  |      |  | CE          | SEE          | Total |
|   | (DT)  |        | (Lab.)  |            | 1    |  |             |              |       |
|   | L     | TU     | Р       | TW         |      |  |             |              |       |
| Credit                                    | 2     |        | _       | -          | 2    | Theory                                 | 40          | 60           | 100   |
| Hours                                     | 2     | -      | -       | -          | 2    | Practical                              | -           | -            | -     |

# Pre-requisites:

**Building Construction** 

# Objective:

To develop basic understanding the importance of estimate and designing of specification to achieve the best in terms of cost efficiency and standards.

# Learning Outcome:

- **L01**. After learning the course, the students should be able to: Work out the estimated cost of any proposed civil engineering structure and
- **LO2.** After learning the course, the students should be able to: Work out the value of any old structure

**L03**To understand and prepare SOR for various organizations.

**L04.**To fill up tenders for various construction works.

| Theor | y syllabus   |     |  |  |  |  |
|-------|--|-----|--|--|--|--|
| Unit  | Content  | Hrs |  |  |  |  |
| Α     | INTRODUCTION:  | 04  |  |  |  |  |
|       | Purpose and importance of estimation, role of surveyor works. Types of   |     |  |  |  |  |
|       | estimates approximate estimating techniques for various civil engineering works,   |     |  |  |  |  |
|       | reading of working drawings, ISI code for measurements.  |     |  |  |  |  |
| В     | ESTIMATION OF BUILDINGS:   | 15  |  |  |  |  |
|       | Definition, Units of measurements, types of estimates, Different methods to find the   |     |  |  |  |  |
|       | quantities of civil works. Estimated cost and its importance. Provisions of IS-1200, for   |     |  |  |  |  |
|       | working out quantities and deductions in civil works. Entering the measurements in   |     |  |  |  |  |
|       | quantity sheet and calculation of quantities of various items of civil works of small  |     |  |  |  |  |
|       | residential building (concrete, Steel, Shuttering, brickwork, wooden work), and Small  |     |  |  |  |  |
|       | Industrial Shed with Market rates of material and labour, Introduction to schedule of rates, Entering quantities and rates in abstract sheet, calculation of estimated cost. |     |  |  |  |  |
|       | Estimate of Septic Tank, Soak Pit, Sanitary item — Plumbing, Electrification. Rate   |     |  |  |  |  |
|       | analysis of all major items to be prepared.  |     |  |  |  |  |
| С     | ANALYSIS OF RATES  | 05  |  |  |  |  |
| -     | Definition of rate analysis, Definition of task, Determination of man power and  |     |  |  |  |  |
|       | material requirement for a given quantity of items of civil works, study of present  |     |  |  |  |  |
|       | wages of labour and prices of material in the market. Study of market rents of   |     |  |  |  |  |
|       | different construction equipment, Determination of rate of item of civil work.   | 1   |  |  |  |  |

|       | Working out rates of various items of civil works like 10 m 2 plaster,10 m 3 1:2:4 plain and reinforced concrete, 10m <sup>3</sup> brick work etc.  |       |  |  |  |  |  |
|-------|---|-------|--|--|--|--|--|
| D     | ABSTRACTING AND BILLING: Abstracting methods relevant to ISI standards, preparation of abstract statements, cost analysis and statement.  | 04    |  |  |  |  |  |
| E     | SPECIFICATIONS: - Definition, importance of specification, Types of specification, Care to be taken while drafting specifications, Drafting general specifications, and detailed specifications for various civil work items. |       |  |  |  |  |  |
| Pract | ical content  |       |  |  |  |  |  |
| Study | through practical site visits, presentations, case studies, tutorial, study of BOQ & workshop bas   | ed on |  |  |  |  |  |
| the a | pplication of theory to construction field.   |       |  |  |  |  |  |
| Text  | Books   |       |  |  |  |  |  |
| 1     | NA  |       |  |  |  |  |  |
| Refer | ence Books  |       |  |  |  |  |  |
| 1     | B. N. Dutta, Estimation and Costing in Civil Engineering, Ubs Publishers Distributors, Ltd  |       |  |  |  |  |  |
| 2     | S. C. Rangwala, Estimating and Costing, Charotar Publishing House.  |       |  |  |  |  |  |
| 3     | G. S. Birdi, Textbook of Estimating & Costing, Dhanpat Rai and Sons, Delhi  |       |  |  |  |  |  |
| 4     | M. Chakraborti, Estimating, Costing, Specification and Valuation.   |       |  |  |  |  |  |
| 5     | P.W.D. Handbook and SOR, IS Code – 1200   |       |  |  |  |  |  |
| 6     | A. S. Kotadia, Professional Practice and Valuation, Mahajan Publications.   |       |  |  |  |  |  |
| 7     | S. C. Rangwala, Valuation of Real Properties, Charotar Publication.   |       |  |  |  |  |  |

# **TERM WORK:**

- (1) Work out quantities of various items of civil works from working drawings of residential, industrial and industrial buildings.
- (2) Work out quantities of various items of civil works from drawings.
- (3) To work out rates of items of civil works
- (4) Examples on valuation of buildings.
- (5) Drafting specifications for various items of civil work

| GANPAT UNIVERSITY                         |   |          |     |              |       |   |                 |     |          |
|---|---|----------|-----|--------------|-------|---|-----------------|-----|----------|
| FACULTY OF ARCHITECTURE DESIGN & PLANNING |   |          |     |              |       |   |                 |     |          |
| Programme                                 | Programme Bachelor of Architecture Branch/Spec. INSTITUTE OF ARCHITECTURE |          |     |              |       |   |                 |     | ITECTURE |
| Semester                                  |   | <b>V</b> |     |              |       | Version                                       | Version 2.0.0.0 |     |          |
| Effective from Academic Year 2021-22      |   |          |     |              |       | Effective for the batch Admitted in June 2019 |                 |     |          |
| Subject cod                               | le  | 2VA07D   | MM  | Subject N    | lame  | Disaster Mitigation and Management            |                 |     |          |
| Teaching scl                              | neme  |          |     |              |       | Examination scheme (Marks)                    |                 |     |          |
| (Per week)                                | Lect  | ure(DT)  | Pra | ctical(Lab.) | Total |   | CE              | SEE | Total    |
|   | L   | TU       | Р   | TW           |       |   |                 |     |          |
| Credit                                    | 2   | -        | -   | -            | 2     | Theory  | 40              | 60  | 100      |
| Hours                                     | 2   | -        | -   | -            | 2     | Practical                                     | -               | -   | -        |

- Introduction and Understanding Disasters.
- Types, Trends, Causes, Consequences and Control of Disasters.
- To understand the Disaster Management Cycle and Framework.
- Understanding Disaster Management in India.
- Applications of architecture and urban planning solution for Disaster Management & Mitigation.

#### Learning Outcome:

LO1: Understand disasters, disaster preparedness and mitigation measures

**LO2:** Understand disaster management acts and guidelines along with role of various stack-holders during disasters

| CONT  | ENT & TEACHING UNITS   |     |  |  |  |  |  |  |
|-------|--|-----|--|--|--|--|--|--|
| Unit  | Content  | HRS |  |  |  |  |  |  |
| 1     | Understanding the Concepts and definitions of Disaster, Hazard, Vulnerability, Risk, Capacity –  | 06  |  |  |  |  |  |  |
|       | Disaster and Development, and disaster management  |     |  |  |  |  |  |  |
| 2     | Geological Disasters (earthquakes, landslides, tsunami, mining); Hydro-Meteorological Disasters (floods, cyclones, lightning, thunder-storms, hail storms, avalanches, droughts, cold and heat waves); Biological Disasters (epidemics, pest attacks, forest fire); Technological Disasters (chemical, industrial, radiological, nuclear) and Manmade Disasters (building collapse, rural and urban fire, road and rail accidents, nuclear, radiological, chemicals and biological disasters); Global Disaster Trends – Emerging Risks of Disasters – Climate Change and Urban Disasters   | 06  |  |  |  |  |  |  |
| 3     | Disaster Management Cycle – Paradigm Shift in Disaster Management Pre-Disaster – Risk Assessment and Analysis, Risk Mapping, zonation and Microzonation, Prevention and Mitigation of Disasters, Early Warning System; Preparedness, Capacity Development; Awareness During Disaster – Evacuation – Disaster Communication – Search and Rescue – Emergency Operation Centre – Incident Command System – Relief and Rehabilitation – Post-disaster – Damage and Needs Assessment, Restoration of Critical Infrastructure – Early Recovery – Reconstruction and Redevelopment; IDNDR, Yokohama Strategy, Hyogo Framework of Action | 08  |  |  |  |  |  |  |
| 4     | Disaster Profile of India – Mega Disasters of India and Lessons Learnt Disaster Management Act 2005 – Institutional and Financial Mechanism National Policy on Disaster Management, National Guidelines and Plans on Disaster Management; Role of Government (local, state and national),Non-Government and Inter-Governmental Agencies  | 06  |  |  |  |  |  |  |
| 5     | Disaster Communication System (Early Warning and Its Dissemination), Land Use Planning and Development Regulations, Disaster Safe Designs and Constructions, Structural and Non Structural Mitigation of Disasters   | 06  |  |  |  |  |  |  |
| Refer | ence Books   |     |  |  |  |  |  |  |
| 1     | Nanual on natural disaster management in India, M C Gupta, NIDM, New Delhi   |     |  |  |  |  |  |  |

| 2 | An overview on natural & man-made disasters and their reduction, R K Bhandani, CSIR, New Delhi          |
|---|---|
| 3 | Conservation and Planning, Allan Dobby  |
| 4 | Management of Natural Disasters in developing countries, H.N. Srivastava & G.D. Gupta, Daya Publishers, |
|   | Delhi, 2006,  |
| 5 | National Disaster Management Policy, 2009, Gol  |
| 6 | Disaster Mitigation in Asia & Pacific, Asian Development Bank   |

| GANPAT UNIVERSITY                         |   |          |     |              |         |   |    |     |           |
|---|---|----------|-----|--------------|---------|---|----|-----|-----------|
| FACULTY OF ARCHITECTURE DESIGN & PLANNING |   |          |     |              |         |   |    |     |           |
| Programme                                 | Programme Bachelor of Architecture Branch/Spec. INSTITUTE OF ARCHITECTURE |          |     |              |         |   |    |     |           |
| Semester V                                |   |          |     |              | Version | Version 2.0.0.0                               |    |     |           |
| Effective fro                             | m Ac  | ademic Y | ear | 2021-22      |         | Effective for the batch Admitted in June 2019 |    |     | June 2019 |
| Subject cod                               | le  | 2VA08P   | E   | Subject Name |         | Professional Elective III                     |    |     |           |
| Teaching scl                              | neme  |          |     |              |         | Examination scheme (Marks)                    |    |     |           |
| (Per week)                                | Lect  | ure(DT)  | Pra | ctical(Lab.) | Total   |   | CE | SEE | Total     |
|   | L   | TU       | Р   | TW           |         |   |    |     |           |
| Credit                                    | 2   | _        | -   | -            | 2       | Theory  | -  | -   | -         |
| Hours                                     | 2   | -        | -   | -            | 2       | Practical                                     | 40 | 60  | 100       |

• Understanding the details and grip over the various graphical and 3D software for advance presentation and skills through rendering mediums as well. SketchUp, CorelDRAW, Photoshop, Illustrator, etc.

# Learning Outcome:

**LO1:** Understanding the software and its application as a whole.

LO2: Learning the applications for various off purpose.

**LO3:** Learning the rendering process of the created model.

**LO4:** Overall learning presentation through the dedicated software medium.

#### **CONTENT & TEACHING UNITS**

| Unit  | Content  | HDC |  |  |  |  |  |
|-------|--|-----|--|--|--|--|--|
| Unit  | Content  | HRS |  |  |  |  |  |
| 1     | Introduction to the software-purpose, application, techniques with the whole idea of the         | 06  |  |  |  |  |  |
|       | final output.  |     |  |  |  |  |  |
| 2     | Learning various commands with their specific task and understanding their output for the        | 06  |  |  |  |  |  |
|       | design.  |     |  |  |  |  |  |
| 3     | Combination of the various commands for the task and continuous repetition of the commands       | 06  |  |  |  |  |  |
|       | for the better grip and fluency.   |     |  |  |  |  |  |
| 4     | Introduction to the various rendering software with the application and its application over the | 08  |  |  |  |  |  |
|       | created model with views, Light, shadows as required.  |     |  |  |  |  |  |
| 5     | Final presentation with use of combination or single software.                                   | 06  |  |  |  |  |  |
| Refer | ence Books   |     |  |  |  |  |  |
| 1     | CorelDRAW X8: The Official Guide by Gary David Bouton  |     |  |  |  |  |  |
| 2     | The SketchUp Workflow for Architecture by Michael Brightman                                      |     |  |  |  |  |  |
| 3     | Adobe Photoshop CC Classroom by Andrew Faulkner and Conrad Chavez                                |     |  |  |  |  |  |
| 4     | Adobe Illustrator Classroom in a Book by Brian Wood  |     |  |  |  |  |  |
| 5     | Photographic Rendering with V-Ray for SketchUp by Brian Bradley                                  |     |  |  |  |  |  |

| GANPAT UNIVERSITY   |                               |                     |        |       |            |        |                            |                                 |     |       |
|---|-------------------------------|---------------------|--------|-------|------------|--------|----------------------------|---------------------------------|-----|-------|
| FACULTY OF ARCHITECTURE DESIGN & PLANNING                                 |                               |                     |        |       |            |        |                            |                                 |     |       |
| Programme Bachelor of Architecture Branch/Spec. INSTITUTE OF ARCHITECTURE |                               |                     |        |       |            |        |                            | ITECTURE                        |     |       |
| Semester  |                               | ٧                   |        |       |            |        | Version                    | 2.0.0.0                         |     |       |
| Effective fro   | m Ac                          | ade                 | emic Y | ear   | 2021-22    |        | Effective for the          | the batch Admitted in June 2019 |     |       |
| Subject cod   | le                            | 2VA09RSP Subject Na |        |       | Subject Na | ame    | Related Study Pr           | Related Study Programme II      |     |       |
| Teaching sc   | heme                          |                     |        |       |            |        | Examination scheme (Marks) |                                 |     |       |
| (Per week)  | Lect                          | ure                 | (DT)   | Pract | ical(Lab.) | Total  |                            | CE                              | SEE | Total |
|   | L                             |                     | TU     | Р     | TW         |        |                            |                                 |     |       |
| Credit  | NA                            |                     |        |       |            | Theory |                            |                                 |     |       |
| Hours   | rs 1.5 / 2 Week, Block Course |                     |        |       |            | se     | Practical                  | ATTENDANT/ NOT ATTENDANT        |     |       |
| Objective:  | Objective                     |                     |        |       |            |        |                            |                                 |     |       |

The Related Study Programme (RSP) at the Institute of Architecture is a unique contribution to Architectural education. Initially called measure drawings, it is intended to take the students out into the field to get first-hand experience of traditional built environments. This subject recognizes the value of the traditional architecture as well as the importance of field experiences and travel in the learning of architecture. The students are encouraged to learn about not only the architectural forms also related components of architectural relevance.

#### Learning Outcome:

LO1: The Students will develop the skills & understanding of measure drawing.

LO2: Students will get the understanding of "synthesis of learning from various courses" by observing; registering & mapping of actual built buildings.

LO3: Programme outcome will be extremely valuable in creating knowledge base on architecture field not only in India but of nearby countries as well.

LO4: Production of Accurate and precise drawings of many a monument, institution, settlement in India, which become a basis for future research.

| maia | maid, which become a basis for facult research.  |         |  |  |  |  |  |  |
|------|--|---------|--|--|--|--|--|--|
| CON  | CONTENT  |         |  |  |  |  |  |  |
| Unit | Content  | HRS     |  |  |  |  |  |  |
|      | Student and faculty members stay at the selected Village for 6 to 9 days.  | 6 to 12 |  |  |  |  |  |  |
|      | Students will get comprehensive awareness of that settlement.  | Days    |  |  |  |  |  |  |
|      | <ul> <li>Students will measure the built environment in terms of a small/medium scaled<br/>institutional building inside a campus.</li> </ul>                                  |         |  |  |  |  |  |  |
|      | • Students will also documents the social, cultural, environmental aspects along with the connectivity, access, interactive spaces and Impact of the built form on surrounding |         |  |  |  |  |  |  |
|      | • Students came back at institute and make the final Drawings and report within remaining days.  |         |  |  |  |  |  |  |
| Text | Text Books   |         |  |  |  |  |  |  |
|      | NA   |         |  |  |  |  |  |  |
| Refe | Reference Books  |         |  |  |  |  |  |  |
|      | NA   |         |  |  |  |  |  |  |

# **GANPAT UNIVERSITY**

# **FACULTY OF ARCHITECTURE DESIGN & PLANNING**

# **TEACHING AND EXAMINATION SCHEME**

| Programme | Bachelor of Architecture | Branch/Spec. | ARCHITECTURE |
|-----------|--------------------------|--------------|--------------|
|           |                          |              |              |

Semester V

| Effective from Academic Year |  | 2021-22 Effective for the batch Admitted in |    |                  |   |    |             |                  |    |                  |   |    | June 2019 |               |                            |     |           |       |     |
|------------------------------|--|---|----|------------------|---|----|-------------|------------------|----|------------------|---|----|-----------|---------------|----------------------------|-----|-----------|-------|-----|
|                              | Subject Name                           | Teaching scheme                             |    |                  |   |    |             |                  |    |                  |   |    |           |               | Examination scheme (Marks) |     |           |       |     |
| Subject<br>Code              |  | Credit                                      |    |                  |   |    |             | Hours (per week) |    |                  |   |    |           | Theory        |                            |     | Practical |       |     |
|                              |  | Lecture (DT)                                |    | Practical (Lab.) |   |    | Lecture(DT) |                  |    | Practical (Lab.) |   |    | CE        | SEE           | Total                      | CE  | SEE       | Total |     |
|                              |  | L   | TU | Total            | Р | TW | Total       | L                | TU | Total            | Р | TW | Total     |               |                            |     |           |       |     |
| 2VA01ADD                     | Architectural Design & Detailing V     | 2   | 2  | 4                | 4 | 2  | 6           | 2                | 2  | 4                | 6 | 2  | 8         | -             | -                          | -   | 40        | 60    | 100 |
| 2VA02BMC                     | Building Materials and Construction V  | 2   | -  | 2                | 2 | 2  | 4           | 2                | -  | 2                | 2 | 2  | 4         | -             | -                          | -   | 40        | 60    | 100 |
| 2VA03HOA                     | History of<br>Architecture IV          | 2   | -  | 2                | - | -  | -           | 2                | -  | 2                | - | -  | -         | 40            | 60                         | 100 | -         | -     | -   |
| 2VA04SDS                     | Structural Design and Systems V        | 2   | -  | 2                | - | -  | -           | 2                | -  | 2                | - | -  | -         | 40            | 60                         | 100 | -         | -     | -   |
| 2VA05BS                      | Building Services III                  | 2   | -  | 2                | - | -  | -           | 2                | ı  | 2                | - | -  | -         | 40            | 60                         | 100 | -         | -     | -   |
| 2VA06BES                     | Building Estimation and Specifications | 2   | -  | 2                | - | -  | -           | 2                | -  | 2                | - | -  | -         | 40            | 60                         | 100 | -         | -     | -   |
| 2VA07DMM                     | Disaster Mitigation and Management     | 2   | -  | 2                | - | 1  | -           | 2                | -  | 2                | - | -  | -         | 40            | 60                         | 100 | 1         | -     | -   |
| 2VA08PE                      | Professional Elective-                 | -   | -  | -                | 2 | -  | 2           | -                | -  | -                | 2 | -  | 2         | -             | -                          | -   | 40        | 60    | 100 |
| 2VA09RSP                     | Related Study<br>Programme III         | 1 WEEK TOUR                                 |    |                  |   |    |             | Attendant /      |    |                  |   |    |           | Not Attendant |                            |     |           |       |     |
|                              | 14                                     | 2   | 16 | 8                | 4 | 12 | 14          | 2                | 16 | 10               | 4 | 14 | -         | -             | -                          |     |           |       |     |