

IK Gujral Punjab Technical University Kapurthala

Bachelor's of Architecture (B.Arch): Teaching Scheme 2019 of Constituent Campus

Preamble

The creation of Architecture that endures rather than architecture that surrenders to the latest trends, is a very crucial issue in the education of an architect. The practice of architecture, however, is not a static endeavour that can be easily defined by fixed and precise characteristics. It evades with the ever-changing demands and development of the society. The ability to resist trends yet still respond to the change, it evolves an understanding of the past and present as well as a concern for the future.

Education of an architect must therefore emphasize both continuity and change to prepare the students to meet the demand of the profession as a whole. Given the dynamic & complex nature of architecture, the education of an architect involves not only what constitutes a course of study, but how an architect is educated.

This course curriculum for IKG PTU Main/Constituent campuses is an attempt in this direction. All efforts have been taken to incorporate the guidelines of statutory bodies.

The syllabus is broadly based on choice-based credit system policy. The weightage suggested by the CoA are:

The Weightage in terms of Credits for each of the above in the prescribed curriculum of the institution shall be as follows:

- | | |
|---|--------|
| 1. Professional Core Courses (PC) | : 40% |
| 2. Building Science and Applied Engineering (BS& AE) | : 20 % |
| 3. Elective Courses | |
| (i) Professional Electives (PE) | : 10% |
| (ii) Open Electives (OE) | : 5% |
| 4. Professional Ability Enhancement Courses (PAEC) | |
| (i) Professional Ability Enhancement Compulsory Courses (PAECC) | : 20% |
| (ii) Skill Enhancement Courses (SEC) | : 5% |

Education Objectives

Since architecture is created as synthesis of reason, emotion, and intuition, architectural education should be regarded as the manifestation of the ability to conceptualize, coordinate, and execute the idea of building rooted in human tradition. Architecture is an interdisciplinary field that comprises several major components:

Humanities, social and physical sciences, technology, and the creative arts etc. The basic goal is to develop the architect as a generalist able to resolve potential contradictions between different requirements, giving form to the society's and the individual's environmental needs.

IK Gujral Punjab Technical University Kapurthala
Bachelor's of Architecture (B.Arch): Teaching Scheme 2019
of Constituent Campus

Architecture education involves the acquisition of the following:

- An ability to create architectural designs that satisfy both aesthetics and technical requirements.
- An adequate knowledge of the history and theories of architecture and the related arts, technologies, and human sciences.
- Knowledge of the fine arts as an influence on the quality of architectural design.
- An understanding of the relationship between people and buildings, and between buildings and their environment, and of the need to relate buildings and the spaces between them to human needs and scale.
- An understanding of the profession of architecture and the role of the architect in society, in particular in preparing briefs that take into account social factors.

- An understanding of the methods of investigation and preparation of the brief for a design project.
- An understanding of the structural design, constructional, and engineering problems associated with building design.
- An adequate knowledge of physical problems and technologies and of the function of buildings so as to provide them with internal conditions of comfort and protection against the climate.
- The design skills necessary to meet building user's requirements within the constraints imposed by cost factors and building regulations.
- An adequate knowledge of the industries, organizing, regulations, and procedures involved in translating design concepts into buildings and integrating plans into overall planning.

Architectural students should be made critically aware of the political and financial motivations behind client's briefs and building regulations in order to foster and ethical framework for decision-making within the build environment. Young architects should be encouraged to assume responsibilities as professional within society.

Course Objective

The Bachelor of Architecture degree program prepares students for professional practice in the field of Architecture. Being an undergraduate program, it has bright scope, providing exposure to a variety of interests in this field and assisting students to discover their own directions for future development.

IK Gujral Punjab Technical University Kapurthala
Bachelor's of Architecture (B.Arch): Teaching Scheme 2019
of Constituent Campus

There is increasing recognition today of Architecture as an intellectual discipline, both as art& science and as a profession. Through architectural design, Architects make vital contribution in defining and shaping our environment and future of society with the use of appropriate technologies for a diverse range of situations, both in the rural and urban contexts.

Considering the diverse Indian complexities in terms of social, cultural, geographical, climatic, economic and technical aspects, which are unique and typical of every region in our country, the task for profession of Architecture becomes all the more challenging.

Making provision of most optimum and sustainable solutions/ options ,to address the basic needs of living, working and care of body and soul(three basic human functions) of even the poorest of the poor, to lead a productive and dignified life, demand appropriate skills, understanding, knowledge and a deep commitment to professed ideals. Addressing Architectural Design as a comprehensive creative process, this UG program leading to

B. Architecture is based on the following broad objectives;

- a) To stimulate sensitivity and unveil creative talents.
- b) To reinforce intellectual capabilities and develop proficiency in professional skills to enable graduates to competently pursue alternative careers, within the broad spectrum of architecture.
- c) To provide opportunities to students to try out the role they will eventually play as responsible members of the society, under supervision and interactive guidance.

Keeping in view the above objectives, this program aims at attaining a high level of excellence in Architectural Design with sound knowledge of Construction. To this end, the Architectural Design and Building Construction & Materials is seen as the core of the program with supportive inputs from courses in other streams like Professional, Technological and Humanities to built upon a strong foundation of enabling skills in communications , understanding and analysis.. The emphasis is on the development of faculties of discernment and decision-making with the aid of both objective information and subjective attitudes, based on reason and logic.

IK Gujral Punjab Technical University Kapurthala
Bachelor's of Architecture (B.Arch): Teaching Scheme 2019
of Constituent Campus

Architectural Design, being the core discipline of the course has been dealt in detail and major guidelines have been framed regarding the specific content of these courses. Design tests and group design exercise have been introduced so as to aim for both individual and collective excellence in equal measure. Special emphasis will be laid on the organization of seminars in both compulsory and elective courses in all streams so that students get opportunities in public speaking and become more articulate in direct presentation of their ideas.

Given the complexities of present-day Design projects, the Architect's role is not only that of a team leader but also that of a co-coordinator. He needs to possess a sound knowledge of entire spectrum of technologies which go in the making of state of art built environment, to be able to draw up an integrated framework for activities of the other members of the team, to direct them and to assume overall responsibility for the collective effort. This is manifest in the course in the Technological and professional streams.

CURRICULUM

The curriculum has been structured as five -year, two-stage programme as per the Minimum Standards of Architectural Education Regulations, 1983 issued by the Council of Architecture under the Indian Architects Act, 1972. The **First Stage** would consist of 6 semesters (Three years) of full time study. The **Second Stage** will consist of full-time study for last four semesters (two year).

At the successful completion of the first stage, student shall be eligible for the award of **Bachelor of Building Sciences**, subject to the condition that student scores 50% marks in the aggregate.

B. Arch Degree shall, however, be awarded after completing the entire course spread over ten semesters based on the rules and regulations defined by the university from time to time ,subject to the condition that student scores 50% marks in the aggregate.

The detailed contents of the course are defined below.

IK Gujral Punjab Technical University Kapurthala
Bachelor's of Architecture (B.Arch): Teaching Scheme 2019
of Constituent Campus

First Semester

| Course Type | S. no | Course Code | Course Title | Load Allocations | | | | | Marks % | Credits | Duration of Univ. Exam/ Viva-Voce |
|-------------|-------|-----------------|--------------------------------------|------------------|----------|-------|-----|-------|-----------|---------|-----------------------------------|
| | | | | L | Sem/ Tut | P/F W | Stu | Total | Int : Ext | | |
| PC | 1 | UC/BARCH-101/19 | Architectural Design & Theory-I | 1 | - | - | 5 | 06 | 60:40 | 6 | 06 + External Viva Voce |
| | 2 | UC/BARCH-102/19 | Architectural Drawing-I | 1 | - | - | 3 | 04 | 60:40 | 4 | 04 |
| | 3 | UC/BARCH-103/19 | Architectural Graphics-I | 1 | - | - | 2 | 03 | 60:40 | 3 | 04 |
| | 4 | UC/BARCH-104/19 | History of Architecture - I | 2 | - | - | - | 02 | 40:60 | 2 | 03 |
| BS &AE | 5 | UC/BARCH-105/19 | Building Construction & Materials-I | 1 | - | - | 4 | 05 | 60:40 | 5 | 04 |
| | 6 | UC/BARCH-106/19 | Structure Systems-I | 1 | 1 | - | - | 02 | 100 | 2 | No Exam only Viva-Voce |
| SEC | 7 | UC/BARCH-107/19 | Workshop-I | - | - | 2 | - | 02 | 100 | 1 | No Exam only Viva-Voce |
| | 8 | UC/BTHU-101/18 | Communicative English | 2 | - | - | - | 02 | 40:60 | 2 | 03 |
| | 9 | UC/BTHU-102/18 | Communicative Skill Laboratory | | - | 2 | - | 02 | 100 | 1 | No Exam only Viva-Voce |
| | 10 | UC/HSMC-122/18 | Human Values and Professional Ethics | 2 | - | - | - | 02 | 40:60 | 2 | 03 |
| | | | Total | 11 | 1 | 4 | 14 | 30 | | 28 | |

IK Gujral Punjab Technical University Kapurthala
Bachelor's of Architecture (B.Arch): Teaching Scheme 2019
of Constituent Campus

| Abbreviation Used in the teaching scheme | | | | |
|---|---|--|---------|-----------------------|
| PC | Professional Core | | L | Lecture |
| BS & AE | Building Science & Applied Engineering | | Sem/Tut | Seminar/ Tutorial |
| PE | Professional Electives | | P/FW | Practical/ Field Work |
| OE | Open Elective | | Stu | Studio |
| PAECC | Professional Ability Enhancement Compulsory | | Int | Internal |
| SEC | Skill Enhancement Courses | | Ext | External |

IK Gujral Punjab Technical University Kapurthala
Bachelor's of Architecture (B.Arch): Teaching Scheme 2019
of Constituent Campus

Second Semester

| Course Type | S. no | Course Code | Course Title | Load Allocations | | | | | Marks | Credits | Duration of Univ. Exam/ Viva-Voce |
|-------------|-------|-----------------|--|------------------|-------------|-------|-----|-------|-----------|------------|------------------------------------|
| | | | | L | Sem/ Tut | P/F W | Stu | Total | Int : Ext | | |
| PC | 1 | UC/BARCH-201/19 | Architectural Design -II | 1 | - | - | 5 | 06 | 60:40 | 6 | 06 + External Viva Voce |
| | 2 | UC/BARCH-202/19 | Architectural Drawing-II | 1 | - | - | 3 | 04 | 60:40 | 4 | 04 |
| | 3 | UC/BARCH-203/19 | Architectural Graphics-II | 1 | - | - | 2 | 03 | 60:40 | 3 | 04 |
| | 4 | UC/BARCH-204/19 | History of Architecture-II | 2 | - | - | - | 02 | 60:40 | 2 | 03 |
| BS &AE | 5 | UC/BARCH-205/19 | Building Construction & Materials-II | 1 | - | - | 4 | 05 | 40:60 | 05 | 04 |
| | 6 | UC/BARCH-206/19 | Theory of Structure- I | 2 | 1 | - | - | 03 | 40:60 | 3 | 03 |
| PAECC | 7 | UC/BARCH-209/19 | Theory of Design- I | 2 | - | - | - | 02 | 100 | 2 | 03 |
| SEC | 8 | UC/BARCH-207/19 | Workshop-II | - | - | 2 | - | 02 | 100 | 1 | No Exam |
| | 9 | UC/BARCH-208/19 | Environmental Science | 2 | - | - | - | 02 | 40:60 | 2 | 03 |
| | 10 | UC/BARCH-210/19 | Mentoring & Professional Development- I | - | - | 2 | - | 02 | 100 | Non-Credit | No Exam |
| | 11 | _____ | Educational Tour I/ Summer Training-I/ Vacation Assignment-I | - | - | - | - | - | 100 | - | Evaluation will be done in 3rd sem |
| | | | | Total | 12 | 1 | 4 | 14 | 31 | | 28 |

NOTES: Educational Tour of 1-2 week duration during or after the first year of studies must be undertaken and Summer Training/ Vacation assignment to be given based on UC/BARCH-210/19. The marking of the same will done in the third semester UC/B.ARCH-309/19

IK Gujral Punjab Technical University Kapurthala
Bachelor's of Architecture (B.Arch): Teaching Scheme 2019

Third Semester

| Course Type | Sr. no | Course Code | Course Title | Load Allocations | | | | | Marks | Credits | Duration of Univ. Exam/ Viva-Voce |
|-------------|--------|-----------------|--|------------------|----------|-------|-----|-------|-----------|---------|-----------------------------------|
| | | | | L | Sem/ Tut | P/F W | Stu | Total | Int : Ext | | |
| PC | 1 | UC/BARCH-301/19 | Architectural Design -III | 1 | - | - | 5 | 06 | 60:40 | 6 | 06 + External Viva Voce |
| | 2 | UC/BARCH-302/19 | Architectural Graphics/ Presentation -III | 1 | - | - | 3 | 04 | 60:40 | 4 | 04 |
| BS &AE | 3 | UC/BARCH-303/19 | Building Construction & Materials-III | 1 | - | - | 3 | 04 | 60:40 | 4 | 04 |
| | 4 | UC/BARCH-304/19 | Structure Systems-II | 1 | 1 | - | - | 02 | 100 | 2 | External Viva Voce |
| | 5 | UC/BARCH-305/19 | Structure Design-I | 2 | 2 | - | - | 04 | 40:60 | 4 | 03 |
| | 6 | UC/BARCH-306/19 | Surveying & Leveling | 2 | - | 2 | - | 04 | 40:60 | 3 | 03 |
| PAECC | 7 | UC/BARCH-307/19 | Climate & Architecture-I | 2 | 1 | - | - | 03 | 40:60 | 3 | 03 |
| SEC | 8 | UC/BARCH-308/19 | Computer Application-I | 1 | - | 2 | - | 03 | 100 | 2 | External Viva Voce |
| | 9 | UC/BARCH-309/19 | * Educational Tour I/ Summer Training-I/ Vacation Assignment-I | - | - | - | - | - | 100 | 1 | - |
| | | | Total | 11 | 4 | 4 | 11 | 30 | | 29 | |

Note: * UC/BARCH-309/19 is carried out in the intervening period of 2nd and 3rd semester, the evaluation of report/s to be done in the 3rd semester.

IK Gujral Punjab Technical University Kapurthala
Bachelor's of Architecture (B.Arch): Teaching Scheme 2019

Fourth Semester

| Course Type | Sr. no | Course Code | Course Title | Load Allocations | | | | | Marks | Credits | Duration of Univ. Exam/ Viva-Voce |
|-------------|--------|-----------------|--|------------------|-------------|-------|-----|-------|-----------|------------|--|
| | | | | L | Sem/ Tut | P/F W | Stu | Total | Int : Ext | | |
| PC | 1 | UC/BARCH-401/19 | Architectural Design -IV | 1 | - | - | 5 | 06 | 60:40 | 6 | 06 + External Viva Voce |
| | 2 | UC/BARCH-402/19 | History of Architecture-II | 2 | - | - | - | 02 | 40:60 | 2 | 03 |
| BS &AE | 3 | UC/BARCH-403/19 | Building Construction & Materials-IV | 1 | - | - | 3 | 04 | 60:40 | 4 | 04 |
| | 4 | UC/BARCH-404/19 | Structure Design-II | 2 | 2 | - | - | 04 | 40:60 | 4 | 03 |
| | 5 | UC/BARCH-405/19 | Building Services-I | 2 | 1 | - | - | 03 | 40:60 | 3 | 03 |
| PAECC | 6 | UC/BARCH-406/19 | Climate & Architecture-II | 2 | 1 | - | - | 03 | 40:60 | 3 | 03 |
| SEC | 7 | UC/BARCH-407/19 | Computer Application-II | 1 | - | 2 | - | 03 | 100 | 2 | External Viva Voce |
| | 8 | UC/BARCH-408/19 | Mentoring and Professional Development-II | - | - | 2 | - | 02 | 100 | Non-Credit | No Exam |
| | 9 | UC/BARCH-409/19 | Constitutional Law | 2 | - | - | - | 02 | 40:60 | 2 | 03 |
| | 10 | _____ | Education Tour II / Summer Training II /Vacation Assignment II | - | - | - | - | - | - | - | The evaluation will be done in 5 th sem |
| | | | | Total | 13 | 4 | 4 | 8 | 29 | | 26 |

NOTES: Educational Tour of 1-2 week duration during or after the IInd year of studies (as a measure drawing /Documentation Camp) should be undertaken and Summer Training/ Vacation assignment to be given based on UC/BARCH-408/19.

IK Gujral Punjab Technical University Kapurthala
Bachelor's of Architecture (B.Arch): Teaching Scheme 2019

Fifth Semester

| Course Type | Sr. no | Course Code | Course Title | Load Allocations | | | | | Marks | Credits | Duration of Univ. Exam/ Viva-Voce |
|-------------|--------|----------------------|---|------------------|---------|-------|-----|-------|-----------|---------|-------------------------------------|
| | | | | L | Sem/Tut | P/F W | Stu | Total | Int : Ext | | |
| PC | 1 | UC/BARCH-501/19 | Architectural Design -V | 1 | - | - | 5 | 06 | 60:40 | 6 | 12 (in 2 days) + External Viva Voce |
| BS &AE | 2 | UC/BARCH-502/19 | Building Construction & Materials-V | 1 | - | - | 3 | 04 | 60:40 | 4 | 04 |
| | 3 | UC/BARCH-503/19 | Structure Systems-III | 1 | 1 | - | - | 02 | 100 | 2 | External Viva Voce |
| | 4 | UC/BARCH-504/19 | Structure Design-III | 2 | 2 | - | - | 04 | 40:60 | 4 | 03 |
| | 5 | UC/BARCH-505/19 | Building Services-II | 2 | 1 | - | - | 03 | 40:60 | 3 | 03 |
| PAECC | 6 | UC/BARCH-506/19 | Theory of Design-III | 2 | 1 | - | - | 03 | 40:60 | 3 | 03 |
| | 7 | UC/BARCH-507/19 | Landscape Architecture | 2 | 1 | - | - | 03 | 40:60 | 3 | 03 |
| PE | 8 | UC/BARCH-508-512/19 | Elective- I | 2 | 1 | - | - | 03 | 40:60 | 3 | 03 |
| OE | 9 | UC/BARCH- 513-517/19 | Open Elective- I /Mooc / Swayam | 2 | - | - | - | 02 | 40:60 | 2 | 03 |
| SEC | 10 | UC/BARCH-518/19 | Educational Tour II/ Summer Training-II/ Vacation Assignment-II | - | - | - | - | - | 100 | 1 | No Exam |
| | | | Total | 15 | 7 | | 8 | 30 | | 31 | |

Note: * UC/BARCH-518/19 is carried out in the intervening period of 4th and 5th semester, the evaluation of report to be done in the 5th semester.

IK Gujral Punjab Technical University Kapurthala
Bachelor's of Architecture (B.Arch): Teaching Scheme 2019

Elective- I (Choose any one from the given choices)

| | |
|--------------|---------------------------------------|
| UC/BARCH-508 | Green Buildings & Rating System |
| UC/BARCH-509 | Hill Architecture |
| UC/BARCH-510 | Emerging Technologies in Architecture |
| UC/BARCH-511 | Product Design |
| UC/BARCH-512 | Architecture Acoustics |

Open Elective-I (Choose any one from the given choices)

| | |
|--------------|--|
| UC/BARCH-513 | Sociology for Architects / Fundamentals of Sociology |
| UC/BARCH-514 | Health Education- I |
| UC/BARCH-515 | Music (Vocal, Instrumental), |
| UC/BARCH-516 | Laser/ Printing Technology |
| UC/BARCH-517 | Creative Writing |

Elective- II (Choose any one from the given choices)

| | |
|--------------|--|
| UC/BARCH-609 | Sustainable Cities & Communities |
| UC/BARCH-610 | Vernacular / Rural / Indigenous Architecture/ Mud Arch |
| UC/BARCH-611 | Architecture Conservation/ Restoration and Preservation |
| UC/BARCH-612 | Furniture Design |
| UC/BARCH-613 | Lighting and Illumination/ Lighting Design |

Open Elective-II (Choose any one from the given choices)

| | |
|--------------|---------------------------------|
| UC/BARCH-614 | Psychology for Architects |
| UC/BARCH-615 | Health Education- II |
| UC/BARCH-616 | Dance forms (any form) |
| UC/BARCH-617 | Web designing Management |
| UC/BARCH-618 | Advanced HVAC & Design for Fire |

Seventh Semester

| Course Type | Sr. no | Course Code | Course Title | Duration | Credits | Duration of Univ. Exam/ Viva-Voce |
|--------------------|---------------|--------------------|---------------------|-----------------|----------------|--|
| PAECC | 1 | UC/BARCH- 701/19 | Practical Training | 18 to 22 Weeks | 12 | No Exam/ Only Univ. Viva-Voce |
| | | | Total | | 12 | |

IK Gujral Punjab Technical University Kapurthala

Eighth Semester

Bachelor's of Architecture (B.Arch): Teaching Scheme 2019

| Course Type | Sr. no | Course Code | Course Title | Load Allocations | | | | | Marks | Credits | Duration of Univ. Exam/ Viva-Voce |
|-------------|--------|---------------------|---|------------------|---------|-------|-----|-------|-----------|-------------------|--|
| | | | | L | Sem/Tut | P/F W | Stu | Total | Int : Ext | | |
| PC | 1 | UC/BARCH-801/19 | Architectural Design -VII | 1 | - | - | 6 | 07 | 60:40 | 7 | Portfolio viva voce |
| | 2 | UC/BARCH-802/19 | Comprehensive Smart Village Development-I | 1 | - | - | 3 | 04 | 60:40 | 4 | Portfolio viva voce |
| | 3 | UC/BARCH-803/19 | Urban Design-I | 2 | 1 | - | - | 03 | 40:60 | 3 | 03 |
| | 4 | UC/BARCH-804/19 | Housing- I | 2 | 1 | - | - | 03 | 40:60 | 3 | 03 |
| BS &AE | 5 | UC/BARCH-805/19 | Building Construction & Materials-VII | 1 | - | - | 4 | 05 | 60:40 | 5 | 04 |
| PE | 6 | UC/BARCH-806-810/19 | Elective-III | 2 | 1 | - | - | 03 | 40:60 | 3 | 03 |
| | 7 | UC/BARCH-811-815/19 | Elective- IV | 2 | 1 | - | - | 03 | 40:60 | 3 | 03 |
| OE | 8 | UC/BARCH-816-820/19 | Open Elective- III/Mooc / Swayam | 2 | - | - | - | 02 | 40:60 | 2 | 03 |
| | 9 | _____ | Education Tour III / Summer Training III/ Vacation Assignment III | - | - | - | - | - | - | Non-Credit | The evaluation will be done in 9 th sem |
| | | | Total | 13 | 4 | - | 13 | 30 | 40:60 | 30 | |

NOTE: Educational Tour (of 10-15 days) or Vacation Assignment during or after the year of studies should be undertaken, the evaluation for the same will be done in the 9th Semester

IK Gujral Punjab Technical University Kapurthala

Bachelor's of Architecture (B.Arch): Teaching Scheme 2019

| Elective- III (Choose any one from the given choices) | | Elective- IV (Choose any one from the given choices) | | Open Elective-III (Choose any one from the given choices) | |
|---|--|--|--|---|---|
| UC/BARCH-806 | GIS/ Remote sensation/ Geospatial Technologies/Geomatics Techniques for Architects | UC/BARCH-811 | Ekistics | UC/BARCH-816 | Client psychology |
| UC/BARCH-807 | Indian Architecture/ Vastu Shastra | UC/BARCH-812 | Art Appreciation | UC/BARCH-817 | Society's perception for architects & Architecture |
| UC/BARCH-808 | Advance Building Materials | UC/BARCH-813 | Industrial / Prefab Technologies | UC/BARCH-818 | Generic Skills & Entrepreneurship development |
| UC/BARCH-809 | Retail Design | UC/BARCH-814 | Interior Design | UC/BARCH-819 | Cyber laws & Ethics |
| UC/BARCH-810 | Advance Structure Systems | UC/BARCH-815 | Building Information Modelling (BIM)/ Advance Computer Softwares | UC/BARCH-820 | Human resources development & Organization behavior |

IK Gujral Punjab Technical University Kapurthala

Bachelor's of Architecture (B.Arch): Teaching Scheme 2019

Ninth Semester

| Course Type | S. no | Course Code | Course Title | Load Allocations | | | | | Marks | Credits | Duration of Univ. Exam/ Viva-Voce |
|-------------|-------|----------------------|--|------------------|-------------|-------|-----|-------|-----------|---------|--|
| | | | | L | Sem/ Tut | P/F W | Stu | Total | Int : Ext | | |
| PC | 1 | UC/BARCH- 901/19 | Architectural Design - VIII | 1 | - | - | 6 | 07 | 60:40 | 7 | External Viva Voce |
| PAECC | 2 | UC/BARCH -902/19 | Research Methodology & Dissertation | 2 | - | - | 3 | 05 | 60:40 | 5 | 03 Hours Theory exams. The dissertation to be marked by taking viva voce |
| | 3 | UC/BARCH- 903/19 | Construction Management | 2 | 1 | - | - | 03 | 40:60 | 3 | 03 |
| BS &AE | 4 | UC/BARCH-904/19 | Building Construction & Materials-VIII | 1 | - | - | 4 | 05 | 60:40 | 5 | 04 |
| PE | 5 | UC/BARCH- 905-909/19 | Elective-V | 2 | 1 | - | - | 03 | 40:60 | 3 | 03 |
| | 6 | UC/BARCH- 910-914/19 | Elective- VI | 2 | 1 | - | - | 03 | 40:60 | 3 | 03 |
| OE | 7 | UC/BARCH- 915-919/19 | Open Elective - IV/ MooC / Swayam | 2 | - | - | - | 02 | 40:60 | 2 | 03 |
| SEC | 8 | UC/BARCH- 920/19 | Educational Tour III/ Vacation Assignment-III | - | - | - | - | - | 100 | 1 | |
| | | | Total | 12 | 3 | | 13 | 28 | | 29 | |

Note: * UC/BARCH-920/19 is carried out in the intervening period of 8th and 9th semester, the evaluation of report to be done in the 9th semester.

IK Gujral Punjab Technical University Kapurthala
Bachelor's of Architecture (B.Arch): Teaching Scheme 2019

| Elective- V (Choose any one from the given choices) | | Elective- VI (Choose any one from the given choices) | | Open Elective-IV (Choose any one from the given choices) | |
|---|---------------------------------|--|--|--|---------------------|
| UC/BARCH-905 | Town & Country Planning | UC/BARCH-910 | Traffic & Transportation | UC/BARCH-915 | French |
| UC/BARCH-906 | Art & Architecture | UC/BARCH-911 | Contemporary Indian Architecture (Modern Trends) | UC/BARCH-916 | German |
| UC/BARCH-907 | Building Maintenance | UC/BARCH-912 | Building System Integration & Management | UC/BARCH-917 | Spanish |
| UC/BARCH-908 | Graphics & Communication Design | UC/BARCH-913 | Cost effective Construction | UC/BARCH-918 | Chinese |
| UC/BARCH-909 | Advance Digital Architecture | UC/BARCH-914 | Building Industry | UC/BARCH-919 | Any Indian Language |

IK Gujral Punjab Technical University Kapurthala
Bachelor's of Architecture (B.Arch): Teaching Scheme 2019

Tenth Semester

| Course Type | Sr. no | Course Code | Course Title | Load Allocations | | | | | Marks | Credits | Duration of Univ. Exam/ Viva-Voce |
|-------------|--------|-----------------------|---|------------------|---------|-------|-----|-------|-------|---------|--------------------------------------|
| | | | | L | Sem/Tut | P/F W | Stu | Total | | | |
| PC | 1 | UC/BARCH-1001/19 | Architectural Design (Thesis Project) -IX | - | - | - | 18 | 18 | 60:40 | 18 | External Jury Viva Voce |
| PAECC | 2 | UC/BARCH-1002/19 | Professional Practice | 2 | 1 | - | - | 3 | 40:60 | 3 | 3 |
| | 3 | UC/BARCH-1003/19 | Disaster Management | 2 | 1 | - | - | 3 | 40:60 | 3 | 3 |
| PE | 4 | UC/BARCH-1004-1008/19 | Elective- VII | 2 | 1 | - | - | 3 | 40:60 | 3 | 3 |
| | | | Total | 6 | 3 | | 18 | 27 | | 27 | |

Elective- VII (Choose any one from the given choices)

| | |
|---------------|---|
| UC/BARCH-1004 | Building Economics |
| UC/BARCH-1005 | Modern World Architecture |
| UC/BARCH-1006 | Architecture Design With Steel and Glass/ High Rise Buildings, |
| UC/BARCH-1007 | Architecture Journalism & Photography |
| UC/BARCH-1008 | Futuristic Architecture |

IK Gujral Punjab Technical University Kapurthala
Bachelors of Architecture (B. Arch): Teaching Scheme 2018

1st Semester

IK Gujral Punjab Technical University
Bachelors of Architecture
(Constituent Campus)

IK Gujral Punjab Technical University Kapurthala

Bachelor of Architecture (B. Arch.) Teaching Scheme 2010

IK Gujral Punjab Technical University
Bachelor of Architecture (B. Arch. 1st Semester)

| Course Code | Course Name | L, S/T, P/FW, ST | Credits | Duration of Exam |
|----------------|-----------------------------------|------------------|---------|------------------|
| UC-BARCH101-19 | Architectural Design & Theory – 1 | 1-L, 5- ST | 6 | 06 Hours |

Course Objective

The main objective of the course is to get the students interested in and to familiarize them with the basic concepts of Design. To enhance and promote visualization, expressional skills and sensitivity to surrounding environment and to develop the ability to translate principle of design into architecture solution.

Course Outcomes: At the end of the course, the students will able to -

1. Understand & will gain a fundamental knowledge of architecture design and its basic principles.
2. To apply visual and formal analysis of architecture in the minds of students, they will be able to appreciate well-designed buildings.
3. Understand the skill required to interpret a work of architecture and to evaluate, identify and analyse artistic expression of architectural forms.
4. Understand the relationship between human activities of Space.

Detailed Syllabus:-

UNIT-I (Theory)

- Introduction to Basic Design, Objectives of Design, Elements of Design, Principles of Design, Scale and proportion in Architecture, Anthropometrics study of different postures and activities (including norms for physically challenged persons), Human functions and their interactions for space requirements, Minimum and optimum areas for various human activities & functions, Furniture layout, circulation as anthropometric/Activity pattern

UNIT-II (Design Exercise & Application)

- 2D compositions with basic geometric shapes, colour, texture and pattern.
- Floor tile design paving patterns, Sky line of city/village
- Experience in 3D Design, compositions with forms like cube, cuboids, cylinder, cone, prism etc.
- Compositions with 3-D Solids.

Note - Stress is given to 2D, 3D exercise (Black & white and colours.)

UNIT-III

- Security check post, Rain shelter, Bus stop, Kiosk, Entrance gates, Triumphal arch Park layout, Drinking water fountains, Installations for Circulation etc.

CORE REFERENCES:

- “Time saver standards for Architects Design Data” by John Hanock.
- “ Architecture Graphics Standards” by Ramsay and Sleeper
- Paul Laseau, Graphic Thinking For Architects and Designers, John Wiley & Sons, New York, 2001.
- Neuferts' Architect's Data

IK Gujral Punjab Technical University Kapurthala
Bachelor of Architecture (B. Arch): Teaching Scheme 2010

Evaluation Criteria for Exam/ Question Paper Setting:-

The examiner will set five questions from Unit- I and one compulsory question from Unit-III & students are required to attempt any three questions from Unit-I and the compulsory one from Unit-III during the six hour examination. No question to be set from Unit- II it is meant for studio assignments.

Important Note - The evaluation is to be done through Viva - voce conducted at the institute level by Internal / External jury members appointed in consultation with the university from the approved panel list of examiners.

The answer sheet shall be retained at the institute after the exam for the viva voce.

Instructions for the Faculty – Design faculty should encourage and motivate the students for live projects of their immediate surrounding. (Identifying need, Framing requirements and solution for the same.)

IK Gujral Punjab Technical University Kapurthala

Bachelor of Architecture (B. Arch.) Teaching Scheme 2019

IK Gujral Punjab Technical University
Bachelor of Architecture (B. Arch. 1st Semester)

| Course Code | Course Name | L, S/T, P/FW, ST | Credits | Duration of Exam |
|-----------------|--------------------------|---------------------|---------|------------------|
| UC/BARCH-102/19 | Architectural Drawing -1 | 1 - L, 3 - ST | 4 | 04 Hours |

Course Objective

To familiarize the students with basic knowledge of good drafting and lettering techniques and architectural representation of 3D & 2D drawings i.e. orthographic projections of simple geometric forms, its section & interpretation, development of surfaces.

Course Outcomes: At the end of the course, the students will be able to –

1. Upon completion of the course, the student shall have a comprehensive understanding of technical drawing techniques and architectural presentation.
2. Understand the fundamental techniques of technical drawing.
3. Develop the necessary skills to graphically represent objects in a plane.

Detailed Syllabus:-

UNIT- I

- Drafting Technique & Principles of Drafting,
- Dimensioning and types of Lines
- Lettering (free hand & block lettering)
- Scales & its Use in the Architectural Drawing.

UNIT- II

- Orthographic Projections of the Point, Lines, Planes and Solid in various positions in the First Quadrant.

UNIT- III

- Section of Solids e.g. Cube, Cuboid, Cone, Cylinder, Pyramid, Prism etc.

UNIT- IV

- Development of Surfaces: Simple Geometrical Solids e.g. Cube, Cuboid, Cone, Cylinder, Pyramid, Prism etc.
- Interpenetration of Solids

IK Gujral Punjab Technical University Kapurthala

Bachelor's of Architecture (B. Arch): Teaching Scheme 2010

CORE REFERENCES:

- “Engineering Drawing”, By ND Bhatt
- “Geometrical Drawings for Arts Students” by IH Morris.
- ”Engineering Drawing” by Dhawan.
- “Architecture Graphics” by Francis D.K Ching.

Evaluation Criteria for Exam Question Paper Setting:-

Total eight questions are to be set two from each unit & students are required to attempt total four questions i.e. one from each unit.

**IK Gujral Punjab Technical University
Bachelor of Architecture (B. Arch. 1st Semester)**

| Course Code | Course Name | L, S/T, P/FW, ST | Credits | Duration of Exam |
|-----------------|---------------------------|------------------|---------|------------------|
| UC/BARCH-103/19 | Architectural Graphics -1 | 1 - L, 2 - ST | 3 | 04 Hours |

Course Objective

The objective is to make the students familiar with visual arts and basic principles and of using the potential of Pencil and Colour as a powerful tool of Graphic Communication.

Course Outcomes: At the end of the course, the students will be able to –

1. Gain a fundamental knowledge of architecture Graphics and its principles.
2. Achieved a comprehensive understanding of architectural presentation techniques.

Detailed Syllabus:-

UNIT- 1 (Pencil as an effective presentation tool.)

- Free hand line work with different strokes/grades in pencil.
- Effect of light and shade on simple geometrical solids.
- Textures of different building materials in pencil through shading.
- Freehand sketching of human figures, home interior trees and vehicles, street furniture on an appropriate scale.

UNIT-II (Live Sketching)

- Outdoor sketching of simple building forms.
- Sketches of scenes and activities from memory involving public spaces, markets, festivals, recreational spaces etc.

UNIT-III (Colours as an effective presentation tool and its use in architecture design)

- Colour theory
- Colour Wheel showing Primary, Secondary and Tertiary colours.
- Understanding colour value and intensity

- Colour Schemes & Charts showing Tints and Shades of various colours.
- Effect of colours in relief compositions.

UNIT-IV (Graphic Representation)

- Exercises involving Logo Design , Collage and Calligraphy

CORE REFERENCES:

- Robert W. Gill, Thames & Hudson London, 2008, Rendering with Pen & Ink
- Cooper Douglas, 'Drawing and Perceiving', Van Nostrand Reinhold, 1992
- Jaccueline, Design Press, Graphic Illustrations in Black and White New York, 1991
- Francis D.K Ching, 'Drawing, Space, Form, Expression'.
- J.H.Bustano, by 'Principles of Colour and Colour Mixing'.

Evaluation Criteria for Exam Question Paper Setting:-

Total eight questions are to be set two from each unit & students are required to attempt total four questions i.e. one from each unit.

IK Gujral Punjab Technical University Kapurthala

Bachelor of Architecture (B. Arch): Teaching Scheme 2018

**IK Gujral Punjab Technical University
Bachelor of Architecture (B. Arch. 1st Semester)**

| Course Code | Course Name | L, S/T, P/FW, ST | Credits | Duration of Exam |
|-----------------------|-----------------------------------|-------------------------|----------------|-------------------------|
| UC-BARCH104-19 | History of Architecture– 1 | 2 – L | 2 | 03 Hours |

Course Objective

To understand the role of Geo-physical, societal, political, cultural and technological factors in the evolution of architectural and urban forms, to develop a holistic approach to architecture as an integral part of manmade environment.

Course Outcomes: At the end of the course, the students will be able to –

- 1 Develop an understanding of architecture as an outcome of various social, political and economic influences and as a response to the cultural and climate conditions.
- 2 To develop an understanding of the physical experience of buildings in order to appreciate the complexity of the physical and metaphysical influences bearing on architecture.

UNIT-I

- Introduction and importance of studying History of Architecture,
- A brief introduction to Primitive/ Prehistoric Architecture.

UNIT-II

- Egyptian Civilization and its Architecture in terms of various building typologies like Mastabas, Pyramids, Temples, Palaces, Public Buildings etc.
- Early Mesopotamian and Assyrian Architecture-Religious & Public Buildings—Citadels, Ziggurats, Hanging Gardens etc.

UNIT-III

- Greek Architecture—including Religious/ Civic Buildings/Market Place (Acropolis) of importance. Stress should be laid on understanding the basic Principles of Architecture including Proportions and Theory of Orders

UNIT-IV

- Roman Architecture- concept of Monumentality , material and construction systems, Roman orders, Building typologies like- Colosseum, Pantheon, Thermae, Basilicas, Aqueducts, The Roman Villa etc.

Note:- For each of the topic given in the syllabus stress is to be laid on architectural characteristics as an overall outcome of various factors and one-two most representative examples to be selected to highlight those elements/ features.

CORE REFERENCES:

- Fletcher Banister; A History of Architecture
- Coplestone, T. and Lloyd, S. (1971). World Architecture: An Illustrated History. London : Verona Printed.
- Hamlin, T. F. 1953. Architecture through the Ages. New York : Putnam Adult. 11. Harris, M. C. (1977).
- Illustrated Dictionary of Historic Architecture. New York : M. Courier Dover Publications .

- 12. Ingersoll, R. and Kostof, S. (2013). World architecture: a cross-cultural history. Oxford: Oxford University Press.
- A Global History of Architecture by - Ching, Jarzombek, Prakash, *Bachelor of Architecture (B Arch): Teaching Scheme 2010*

Evaluation Criteria for Exam Question Paper Setting:-

The examiner is required to set eight questions with minimum two from each unit. Students are required to attempt five questions with minimum one from each unit.

IK Gujral Punjab Technical University Kapurthala

Bachelor of Architecture (B. Arch.) Teaching Scheme 2019

IK Gujral Punjab Technical University
Bachelor of Architecture (B. Arch. 1st Semester)

| Course Code | Course Name | L, S/T, P/FW, ST | Credits | Duration of Exam |
|-----------------|--|------------------|---------|------------------|
| UC/BARCH-105/19 | Building Construction & Materials - 1 | 1 - L, 4 - ST | 5 | 04 Hours |

Course Objective

The main objective of the course is to introduce the elementary building materials and their applications.

Course Outcomes: At the end of the course, the students will able to –

1. Understand the properties, types, uses and application of various building materials i.e. brick, lime, cement, mortar, sand, stones etc,...
2. Have fundamental knowledge of building Construction especially brick and stone masonry, arch and Lintels.

Detailed Syllabus:-

UNIT-I (Elementary Building Materials)

- The study of constituents, properties, types, available market forms and uses of Bricks, Stones, Cement, Lime and Sand, Manufacturing & Visit to Brick
- The study of constituents, properties and uses of Mortar, Lime Mortar, Cement Mortar, Surkhi and Mud Mortar.

UNIT – II (Brick Masonry)

- Terminology used in Brick masonry,
- Tools used in Brick masonry.
- Bonds in Brick work. L-junctions, T-Junctions, cross junction in brick masonry (4-1/2", 9", 13-1/2" thick brick walls)
- Attached & detached Piers in Brick.
- Brick jallies

UNIT – III (Arches & Lintels)

- Arches-Flat, Segmental and Semi-circular Arch in Brick masonry.
- Lintels, sills, coping and threshold details.

UNIT – IV (Stone Masonry)

- Stone masonry of various types
- Random & rubble masonry etc...

IK Gujral Punjab Technical University Kapurthala

Bachelor's of Architecture (B. Arch): Teaching Scheme 2010

CORE REFERENCES:

- “Building construction “ by W. B Mackay.
- “Construction of Buildings” by Barry
- H Leslie Simmons, ‘Construction – Principles, Material & Methods’, 7th edition, John Wiley & Sons Inc., New York, 2001.
- P.C. Varghese, ‘Building Materials’, Prentice hall of India Pvt Ltd, New Delhi, 2005
- Relevant BIS codes.

Evaluation Criteria for Exam Question Paper Setting:-

Total eight questions are to be set two from each unit & students are required to attempt total four questions i.e. one from each unit.

Instructions for the Faculty- Faculty should encourage the students to visit the construction site with respect to the topic covered in the class.

IK Gujral Punjab Technical University Kapurthala

Bachelor of Architecture (B. Arch): Teaching Scheme 2019

IK Gujral Punjab Technical University
Bachelor of Architecture (B. Arch. 1st Semester)

| Course Code | Course Name | L, S/T, P/FW, ST | Credits | Duration of Exam |
|-----------------|---------------------------|------------------|---------|-------------------------|
| UC/BARCH-105/19 | Structure System & Design | 1-L, 1-T | 1.5 | No exam, only Viva-Voce |

Course Objective

The main objective of the course is to get the students interested in and to familiarize them with the Structure Systems in Architecture. To inculcate in the student an awareness of basic structural principles used in cellular & Bulk active structural system

Course Outcomes: At the end of the course, the students will able to –

1. Realize the fundamental principles of Cellular & Bulk Active structures

Detailed Syllabus:-

UNIT-I (CELLULAR SYSTEM)

- Cell as a natural unit of space.
- Cell transformation.
- Polygonal Cellular Systems leading to evolution of Geodesic Domes
- Applications of Cellular System in Building

UNIT-II (BULK ACTIVE STRUCTURE SYSTEM)

Structure acting mainly through material bulk and continuity i.e.. Bulk active structure system / structure systems in bending involving:

- Slabs (One way & Two way)
- Beams (Simply supported, Cantilever, Continuous, Vierendale Girders)
- Grid (Skew & Square Grid)
- Columns

CORE REFERENCES:

- **Order in Space** By Keith Critchlow
- **Three Dimensional Design** By Richard K.Thomas
- **Structure System by Eagles.**

IK Gujral Punjab Technical University Kapurthala
Bachelor of Architecture (B. Arch): Teaching Scheme 2010

Evaluation Criteria for Exam Question Paper Setting:-

One objective type compulsory question to be set covering the entire syllabus in addition to eight others (two from each unit). The students are required attempting total 05 questions i.e. compulsory question and one from other from each unit.

IK Gujral Punjab Technical University Kapurthala

Bachelor of Architecture (B. Arch.) Teaching Scheme 2019

IK Gujral Punjab Technical University
Bachelor of Architecture (B. Arch. 1st Semester)

| Course Code | Course Name | L, S/T, P/FW, ST | Credits | Duration of Exam |
|-----------------|--------------|------------------|---------|-------------------------|
| UC/BARCH-107/19 | Workshop – 1 | 2 - P | 1 | No exam, only Viva-Voce |

Course Objective

The student will gain basic hands on experience and fundamental knowledge in carpentry, brick masonry and model making.

Course Outcomes: At the end of the course, the students will able to –

1. Understands basics of carpentry especially its joints.
2. Understand the basics of brick masonry and model making.
3. Acquire skills in different types of architectural model making using various materials.

Detailed Syllabus:-

UNIT-I

- **Carpentry** – Introduction to the use of different types of Tools used in Carpentry.
- **Joints** – Different types of Joints, Joinery details commonly used in Timber construction and interiors.

UNIT-II

- **Model**-- Preparation of wooden base for model making.
- **Form Work** - Use of Clay, Brick and Soap for creating three dimensional forms in space.

UNIT-III

- **Brick Masonry** – Small brick masonry construction models for understanding of various bonds, jallies etc.
Application of the unit shall be incorporated in Architecture Design.

UNIT-IV

- **Block Making**- Three dimensional building blocks and forms using different materials.
Application of the unit shall be incorporated in Architecture Design.

IK Gujral Punjab Technical University Kapurthala

Bachelor of Architecture (B. Arch.) Teaching Scheme 2010

IK Gujral Punjab Technical University
Bachelor of Architecture (B. Arch. 1st Semester)

| Course Code | Course Name | L, S/T, P/FW, ST | Credits | Duration of Exam |
|-----------------|-----------------------|------------------|---------|------------------|
| UC/ BTHU-101-18 | Communicative English | 2 - L | 2 | 03 Hours |

Course Objective

The student will gain basic hands on experience and fundamental knowledge English and become the independent users of English Language.

Course Outcomes: At the end of the course, the students will able to –

1. Have proficiency in reading & listening, comprehension, writing and speaking skills.
2. Understand spoken and written English language, particularly the language of their chosen technical field.
3. Converse fluently.
4. Produce clear and coherent texts on their own.

Detailed Syllabus:-

UNIT-I Vocabulary Building & Basic Writing Skills

- The concept of Word Formation
- Root words from foreign languages and their use in English
- Acquaintance with prefixes and suffixes from foreign languages in English to form derivatives.
- Synonyms, antonyms, and standard abbreviations.
- Sentence Structures
- Use of phrases and clauses in sentences
- Importance of proper punctuation
- Creating coherence
- Organizing principles of paragraphs in documents
- Techniques for writing precisely

UNIT-II Identifying Common Errors in Writing

- Subject-verb agreement
- Noun-pronoun agreement
- Misplaced modifiers
- Articles

- Prepositions
- Redundancies
- Clichés

IK Gujral Punjab Technical University Kapurthala
Bachelor of Architecture (B. Arch): Teaching Scheme 2010

UNIT-III Mechanics of Writing

- Writing introduction and conclusion
- Describing
- Defining
- Classifying
- Providing examples or evidence

UNIT-IV Writing Practices

- Comprehension
- Précis Writing
- Essay Writing
- Business Writing-Business letters, Business Emails, Report Writing, Resume/CV

CORE REFERENCES:

- Michael Swan. OUP. 1995.
- Remedial English Grammar. F.T. Wood. Macmillan.2007
- On Writing Well. William Zinsser. Harper Resource Book. 2001
- Study Writing. Liz Hamp-Lyons and Ben Heasley. Cambridge University Press. 2006.
- Communication Skills. Sanjay Kumar and Pushp Lata. Oxford University Press. 2011.
- Exercises in Spoken English. Parts. I-III. CIEFL, Hyderabad. Oxford University

Evaluation Criteria for Exam Question Paper Setting:-

One objective type compulsory question to be set covering the entire syllabus in addition to eight others (two from each unit). The students are required attempting total 05 questions i.e. compulsory question and one from other from each unit.

IK Gujral Punjab Technical University Kapurthala

Bachelor of Architecture (B. Arch.) Teaching Scheme 2010

IK Gujral Punjab Technical University
Bachelor of Architecture (B. Arch. 1st Semester)

| Course Code | Course Name | L, S/T, P/FW, ST | Credits | Duration of Exam |
|-----------------|--------------------------------|------------------|---------|------------------|
| UC/ BTHU-102-18 | Communicative Skill Laboratory | 2 - P | 1 | Viva- Voce |

Course Objective

The objective of the course is to help the students become the independent users of English language.

Course Outcomes: At the end of the course, the students will able to –

1. Students will acquire basic proficiency in listening and speaking skills.
2. Students will be able to understand spoken English language, particularly the language of their chosen technical field.
3. They will be able to converse fluently
4. They will be able to produce on their own clear and coherent texts.

Detailed Syllabus:-

Interactive practice sessions in Language Lab on Oral Communication

- Listening Comprehension
- Self-Introduction, Group Discussion and Role Play
- Common Everyday Situations: Conversations and Dialogues
- Communication at Workplace
- Interviews
- Formal Presentations

CORE REFERENCES:

- Practical English Usage. Michael Swan. OUP. 1995.
- Communication Skills. Sanjay Kumar and Pushp Lata. Oxford University Press. 2011.
- Exercises in Spoken English. Parts. I-III. CIEFL, Hyderabad. Oxford

IK Gujral Punjab Technical University Kapurthala

Bachelor of Architecture (B. Arch): Teaching Scheme 2010

IK Gujral Punjab Technical University
Bachelor of Architecture (B. Arch. 1st Semester)

| Course Code | Course Name | L/S, T, P | Credits | Duration of Exam |
|-----------------------|---------------------|------------------|----------------|-------------------------|
| UC/ HSMC122-18 | Human Values | 2 - L | 1.5 | 03 Hours |

Course Outcomes: At the end of the course, the students will able to –

By the end of the course, students are expected to become more aware of themselves, and their surroundings (family, society, nature); they would become more responsible in life, and in handling problems with sustainable solutions, while keeping human relationships and human nature in mind. They would have better critical ability. They would also become sensitive to their commitment towards what they have understood (human values, human relationship and human society). It is hoped that they would be able to apply what they have learnt to their own self in different day-to-day settings in real life, at least a beginning would be made in this direction.

innate

Course code: HSMC122-18

The course has 28 lectures and 14 practice sessions in 5 modules:

Module 1: Course Introduction - Need, Basic Guidelines, Content and Process for Value Education

1. Purpose and motivation for the course, recapitulation from Universal Human Values-I

2. Self-Exploration—what is it? - Its content and process
Experiential Validation- as the process for self-exploration.
3. Continuous Happiness and Prosperity- A look at basic Human Aspirations
4. Right understanding, Relationship and Physical Facility- the basic requirements for fulfilment of aspirations of every human being with their correct priority
5. Understanding Happiness and Prosperity correctly- A critical appraisal of the current scenario.
6. Method to fulfil the above human aspirations: understanding and living in harmony at various levels.

Include practice sessions to discuss natural acceptance in human being as the acceptance for living with responsibility (living in relationship, harmony and co-existence) rather than as arbitrariness in choice based on liking-disliking.

Module 2: Understanding Harmony in the Human Being - Harmony in Myself!

7. Understanding human being as a co-existence of the sentient 'I' and the material 'Body'
8. Understanding the needs of Self ('I') and 'Body' - happiness and physical facility
9. Understanding the Body as an instrument of 'I' (I being the doer, seer and enjoyer)
10. Understanding the characteristics and activities of 'I' and harmony in 'I'
11. Understanding the harmony of I with the Body: Sanyam and Health; correct appraisal of Physical needs, meaning of Prosperity in detail
12. Programs to ensure Sanyam and Health.

Include practice sessions to discuss the role others have played in making material goods available to me. Identifying from one's own life. Differentiate between prosperity and accumulation. Discuss program for ensuring health vs dealing with disease.

Module 3: Understanding Harmony in the Family and Society- Harmony in Human-Human Relationship

13. Understanding values in human-human relationship; meaning of Justice (nine universal values in relationships) and program for its fulfilment to ensure mutual happiness; Trust and Respect as the foundational values of relationship.
 14. Understanding the meaning of Trust; Difference between intention and competence
 15. Understanding the meaning of Respect, Difference between respect and differentiation; the other salient values in relationship.
 16. Understanding the harmony in the society (society being an extension of family): Resolution, Prosperity, fearlessness (trust) and co-existence as comprehensive Human Goals.
17. Visualizing a universal harmonious order in society- Undivided Society,

Universal Order- from family to world family.

IK Gujral Punjab Technical University Kapurthala

Include practice sessions to reflect on relationships in family, hostel and institute as extended family, real life examples, teacher-student relationship, goal of education etc. Gratitude as a universal value in relationships. Discuss with scenarios. Elicit examples from students' lives.

Module 4: Understanding Harmony in the Nature and Existence - Whole existence as Coexistence

18. Understanding the harmony in the Nature
 19. Interconnectedness and mutual fulfilment among the four orders of nature - recyclability and self-regulation in nature
 20. Understanding Existence as Co-existence of mutually interacting units in all-pervasive space
 21. Holistic perception of harmony at all levels of existence.
- Include practice sessions to discuss human being as cause of imbalance in nature (film "Home" can be used), pollution, depletion of resources and role of technology etc.

Module 5: Implications of the above Holistic Understanding of Harmony on Professional Ethics

22. Natural acceptance of human values
23. Definitiveness of Ethical Human Conduct
24. Basis for Humanistic Education, Humanistic Constitution and Humanistic

Universal Order

25. Competence in professional ethics: a. Ability to utilize the professional competence for augmenting universal human order b. Ability to identify the scope and characteristics of peoplefriendly and eco -friendly production systems, c. Ability to identify and develop appropriate technologies and management patterns for above production systems.
26. Case studies of typical holistic technologies, management models and production systems.
27. Strategy for transition from the present state to Universal Human Order: a. At the level of individual: as socially and ecologically responsible engineers, technologists and managers b. At the level of society: as mutually enriching institutions and organizations.
28. Sum up.
- Include practice Exercises and Case Studies will be taken up in Practice (tutorial) Sessions eg. to discuss the conduct as an engineer or scientist etc.

3. READINGS:

Text Books

1. Human Values and Professional Ethics by R R Gaur, R Sangal, G P Bagaria, Excel Books, New Delhi, 2010.

3.2 Reference Books

1. Jeevan Vidya: EkParichaya, A. Nagaraj, Jeevan VidyaPrakashan, Amarkantak, 1999.

IK Gujral Punjab Technical University Kapurthala

Bachelor's of Architecture (B. Arch): Teaching Scheme 2010

6. Slow is Beautiful - Cecile Andrews
7. Economy of Permanence - J CKumarappa
8. Bharat Mein Angreji Raj -PanditSunderlal
9. Rediscovering India - by Dharampal
10. Hind Swaraj or Indian Home Rule - by Mohandas K. Gandhi
11. India Wins Freedom - Maulana Abdul Kalam Azad

Evaluation Criteria for Exam Question Paper Setting:-

One objective type compulsory question to be set covering the entire syllabus in addition to eight others (two from each unit). The students are required attempting total 05 questions i.e. compulsory question and one from other from each unit.

IK Gujral Punjab Technical University Kapurthala

Bachelors of Architecture (B. Arch): Teaching Scheme 2010

2nd Semester

IK Gujral Punjab Technical University
Bachelors of Architecture
(Constituent Campus)

IK Gujral Punjab Technical University Kapurthala

Bachelor of Architecture (B. Arch.) Teaching Scheme 2010

IK Gujral Punjab Technical University
Bachelor of Architecture (B. Arch. 2nd Semester)

| Course Code | Course Name | L, S/T, P/FW, ST | Credits | Duration of Exam |
|----------------|---------------------------|------------------|---------|------------------|
| UC-BARCH201-19 | Architectural Design - II | 1-L, 5 – ST | 6 | 06 Hours |

Course Objective

Understand the Architectural design of a small building with reference to function, form and structures.

Course Outcomes: At the end of the course, the students will be able to –

- 1 Develop a basic understanding of Function, form, structure in the design of small structure.
- 2 A comprehensive understanding of Design techniques and architectural presentation.
- 3 Understand & will gain a fundamental knowledge of architecture design process and its principles

Detailed Syllabus:-

UNIT - I

- Understanding building placements and site realisation
- Design of small buildings involving circulation, form and structure, and function. Building typologies like: Milk booths, Cafes, Canopy etc.
- Understanding measured drawing of an existing small unit.

UNIT - II

- Architect's Office, Artist house, Doctor's Clinic, Lawyer office / residence & such similar projects.
- Cycle stand, E- Rickshaw stand , Taxi stand & Parking layouts, etc.

Minimum 2 -5 exercises to be taken. (01 major, 02 minor and 02 as time problem)

All buildings should have accessibility to the physically challenged persons.

Design Teaching Methodology:

The Basic methodology of teaching should be based on

- Library study to understand the basic functions of building and anthropometric.
- Case Study to understand the similar buildings in similar context.
- The emphasis of design should be on the space organisation and built form.

IK Gujral Punjab Technical University Kapurthala

- Stress should be given to new thoughts/ innovations in design.

Instructions for the Faculty – Design faculty should encourage and motivate the students for live projects of their immediate surrounding. (Identifying need, Framing requirements and solution for the same) This exercise should be part of internal assesment.

CORE REFERENCES:

- “Time saver standards for Architects Design Data” by John Hanock.
- “Architecture Graphics Standards” by Ramsay and Sleeper.
- Geoffrey Broadbent `Design in Architecture` John Wiley and Sons, 1973.
- Neuferts' Architect's Data

Evaluation Criteria for Exam Question Paper Setting:-

One compulsory question is to be set from unit-II; students are required to attend.

Important Note - The evaluation is to be done through Viva - voce conducted at the institute level by Internal / External jury members appointed in consultation with the university from the approved panel list of examiners.

The answer sheet shall be retained at the institute after the exam for the viva voce.

IK Gujral Punjab Technical University Kapurthala
Bachelor of Architecture (B. Arch.) Teaching Scheme 2019

IK Gujral Punjab Technical University
Bachelor of Architecture (B. Arch. 2nd Semester)

| Course Code | Course Name | L, S/T, P/FW, ST | Credits | Duration of Exam |
|-----------------------------|-----------------------------------|-------------------------|----------------|-------------------------|
| UC/BARCH- 202/19 | Architectural Drawing - II | 1 – L, 3 - ST | 4 | 04 Hours |

Course Objective

To make students learn the techniques to represent different objects through 3D geometry and developing skill for visualization of 3-D geometric forms for use in Architectural designing.

Course Outcomes: At the end of the course, the students will be able to

1. Understand 3-dimensional drawings of the building and perspective views.
2. Understand the fundamental techniques of technical drawing.
3. Analyse the 3-dimensional drawings of the building with Sociography.
4. Developed the necessary skills to graphically represent objects in a plane.

Detailed Syllabus:-

UNIT-I (Isometric/ Axonometric projections)

- Principle of Isometric projection, Isometric grid and Scale.
- Isometric /Axonometric of simple forms.

UNIT – II (Perspective Drawing)

JK Gujral Punjab Technical University Kapurthala

- Introduction to theory of Geometrical Perspective Drawing. (Axonometric Projection Scheme 2010)
- Perspective by Side Elevation Method.
- Angular (Two Point Perspective) and Parallel (One Point Perspective)
- Perspective of different Solids and Building elements
- Perspectives having more than 2 Vanishing Points.
- Perspective by Grid Point method and Measuring Line method.

UNIT- III (Sociography)

- Fundamentals of Sociography i.e point, line, plane, solids
- Sociography in Plans and Elevations
- Sociography in Axonometric Projection
- Sociography in Perspectives (both one point & two point perspectives)

CORE REFERENCES:

- “Engineering Drawing” by ND Bhat
- “Geometrical Drawings for arts students” by IH Morris
- “Engineering Drawing Vol I and II” by KR Gopalkrishan
- “Perspective” by SH Mullik

JK Gujral Punjab Technical University Kapurthala
Bachelor of Architecture (B. Arch): Teaching Scheme 2010

Evaluation Criteria for Exam Question Paper Setting:-

Total eight questions are to be set two from each unit & students are required to attempt total four questions i.e. one from each unit.

IK Gujral Punjab Technical University Kapurthala

Bachelor of Architecture (B. Arch.) Teaching Scheme 2010

IK Gujral Punjab Technical University
Bachelor of Architecture (B. Arch. 2nd Semester)

| Course Code | Course Name | L, S/T, P/FW, ST | Credits | Duration of Exam |
|-----------------|-----------------------------|------------------|---------|------------------|
| UC/BARCH-203/19 | Architectural Graphics - II | 1 -L, 2 – ST | 3 | 04 Hours |

Course Objective

The objective of the course in Architectural Graphics is to make the students familiar with the basic potential of Pencil and colour as a powerful tool of Graphic Communication.

Course Outcomes: At the end of the course, the students will be able to –

1. Gain a fundamental knowledge of architecture Graphics and its principles
2. A comprehensive understanding of drawing techniques and architectural presentation using crayon, oil pastels, water colour etc.

Detailed Syllabus:-

UNIT- I (Pencil Crayons and Oil Pastels as presentation medium)

- Rendering of various surfaces such as brick, stone, grass, timber etc.
- Trees, Human figures, Automobiles, Lamp Posts, Street furniture in Plan,

UNIT- II

- Elevation and Perspective.
- Rendering of View / Perspective in Crayons and Oil Pastels.

UNIT-III (Water Color Rendering as presentation medium)

- Outdoor free hand sketching and Colour rendering of Trees, Shrubs, Vegetation, Buildings, Automobiles etc.
- Colour Rendering of various scenes such as Garden Scene, Street Scene, Lake Scene, Village Scene, etc.

UNIT- IV

- Sketching of Furniture pieces, parts of Building in relation with Human Scale and Proportions.

CORE REFERENCES:

- Crowe Philip; Architectural Rendering
- Albert & Habe ; Architectural Rendering
- Jaxtheim ; How to Paint & Draw

IK Gujral Punjab Technical University Kapurthala
Bachelor of Architecture (B. Arch): Teaching Scheme 2010

Evaluation Criteria for Exam Question Paper Setting:-

Total eight questions are to be set two from each unit & students are required to attempt total four questions i.e. one from each unit.

IK Gujral Punjab Technical University Kapurthala

Bachelor of Architecture (B. Arch.) Teaching Scheme 2019

**IK Gujral Punjab Technical University
Bachelor of Architecture (B. Arch. 2nd Semester)**

| Course Code | Course Name | L, S/T, P/FW, ST | Credits | Duration of Exam |
|-----------------------------|-------------------------------------|-------------------------|----------------|-------------------------|
| UC/BARCH- 205/19 | History of Architecture - II | 2 – L | 2 | 03 Hours |

Course Objective

To appreciate the constraints in the Architectural design of an ancient building with reference to function, form and structures.

Course Outcomes: At the end of the course, the students will be able to –

- 3 Develop an understanding of architecture as an outcome of various social, political and economic influences and as a response to the cultural and climate conditions.
- 4 To develop an understanding of the physical experience of buildings in order to appreciate the complexity of the physical and metaphysical influences bearing on architecture.

Detailed Syllabus:-

Unit - 1

- Christian Architecture
- Byzantine Architecture
- Romanesque Architecture

Unit - II

- Indus valley civilization and its architecture

Unit - III

IK Gujral Punjab Technical University Kapurthala

Bachelor of Architecture (B.Arch): Teaching Scheme 2010

Buddhist Architecture - Stupas, Viharas, Chaitya halls etc..

Unit - IV

- Chulkyan and Ashoka period of Hindu Architecture
- Dravidian Architecture
- Indo - Aryan Architecture - Orissa, Gujarat, Khajuraho

Core References:

Fletcher Banister; A History of Architecture

Brown Percy; History of Architecture, Buddhist and Indian Architecture

Grover Satish; History of Architecture- Hindu & Buddhist Period Fergusson James; History of Eastern Architecture

Brown, P. (2010) Indian Architecture: Buddhist and Hindu period. Mumbai: D.B. Taraporevala Sons and Co

Babbar, D. K. (2005). The Spirit of Indian Architecture. New Delhi: Rupa & Co.

Copplestone, T. and Lloyd, S. (1971). World Architecture: An Illustrated History. London: Verona Printed.

Evaluation Criteria for Exam Question Paper Setting:-

The examiner is required to set eight questions with minimum two from each unit. Students are required to attempt five questions with minimum one from each unit.

IK Gujral Punjab Technical University Kapurthala

Bachelor of Architecture (B. Arch.) Teaching Scheme 2019

**IK Gujral Punjab Technical University
Bachelor of Architecture (B. Arch. 2nd Semester)**

| Course Code | Course Name | L, S/T, P/FW, ST | Credits | Duration of Exam |
|------------------------|--|-----------------------------|----------------|-------------------------|
| UC/BARCH-206/19 | Building Constructions & Materials - II | 1 – L, 4 - ST | 5 | 04 Hours |

Course Objective

- The main objective of the course is to introduce the elementary building materials and their applications.
- To study various construction methods in co-ordination with the building materials and science related to them.
- To understand prevailing BIS specifications

Course Outcomes: At the end of the course, the students will be able to –

- 1 Understand & will gain a fundamental knowledge of materials and building Constructions.
- 2 Comprehend timber, Iron, steel as a building material and its application in building components
- 3 Gain knowledge on Door, window, roof etc... as a building material and its varieties and uses.

Detailed Syllabus:-

UNIT-I (Materials)

- Timber: Types, Seasoning , Defects and Decay and Uses of Timber in building construction.
- Iron and Steel –Study of composition of Cast iron, Steel, mild steel, stainless steel and Wrought Iron with properties and uses in buildings
- Water proofing:- Water proofing materials(liquid, semi liquid and solid) – Composition, Properties , Applications.

IK Gujral Punjab Technical University Kapurthala

Bachelor of Architecture (B.Arch): Teaching Scheme 2018

- Surface finishes:-White wash, Distemper, Paints and Varnishes- Types, Applications, Suitability, Advantages and Disadvantages.

UNIT – II (Foundation & D.P.C)

- Foundation and Damp proof course
- Types of Foundations and its typical details.
- Application of Damp proof course, its material and laying. Detailing of Horizontal and Vertical D.P.C.

UNIT – III (Doors & Windows)

- Introduction to Joints in Carpentry.(Different Types of Joints, Joinery details(practice them in the workshop class)
- Doors, Types of Doors
- Design and construction details of Framed ,Ledged, Braced & Battened Door, Flush Door, Wire mesh Door, Panelled Door etc...
- Windows, Types of Windows in timber, Design and Construction details of Casement, Bay, Clearstory, Corner window etc.

UNIT – IV (Roof)

- Construction of roof
- R.C.C, R.B.C. Roof & Jack Arch Roof, Tiled and Battened Roof, I- Channel Roof.
- Concepts of water proofing & Thermal Insulation of Roofs.
- Section through Single Story of load bearing structure and Frame structure.

CORE REFERENCES:

- Mckay W.B.; Building Construction . Vol. 1 to 4
- Barry R.; Construction of Buildings.- Vol. 1 to 4
- Chudley; Construction Technology- Vol. 1 to 4
- Ching Francis D.K; Building Construction illustrated Michell ; Elementary Building Construction- Rangwala ; Engineering Materials
- National Building Code- 2015

Evaluation Criteria for Exam Question Paper Setting:-Total eight questions are to be set two from each unit & students are required to attempt total four questions i.e. one from each unit.

IK Gujral Punjab Technical University Kapurthala

Bachelor of Architecture (B. Arch.) Teaching Scheme 2019

**IK Gujral Punjab Technical University
Bachelor of Architecture (B. Arch. 1st Semester)**

| Course Code | Course Name | L, S/T, P/FW, ST | Credits | Duration of Exam |
|------------------------|-------------------------------|-------------------------|----------------|-------------------------|
| UC/BARCH-207/19 | Theory of Structures-I | 3 - L | 2.5 | 03 Hours |

Course Objective

Give introduction of basic principles governing structural systems. Make students understand basic properties of solids and sections which influence their behaviour under the effect of various types of forces.

Course Outcomes: At the end of the course, the students will able to –

1. Develop techniques for analysing forces in statically determinate structures.
2. Apply basic knowledge of Maths and Physics to solve real life problems related to structures.
3. Apply basic knowledge of Maths and Physics to solve real life problems
4. Describe Hooke's law relationships and perform calculations

Detailed Syllabus:

UNIT I

- Various types of Gravitational and Lateral Loads (I.S. 875) such as Dead, Live, Wind, Earthquake etc.
- Type of Forces, Cause- Effect, Concurrent Forces, Coplanar Forces and Parallel Forces. Triangle Law of Forces, Parallelogram Law of Forces, Equilibrium of Forces, Concept of Resultant, Conditions of Equilibrium.
- Centre of Gravity, Definition, Centroid, Centre of Gravity of Plane Figures, Moment of Inertia; Radius of Gyration of simple cross-section of beams and columns , Theorem of Parallel and Perpendicular Areas.

IK Gujral Punjab Technical University Kapurthala

Bachelor of Architecture (B Arch): Teaching Scheme 2010

UNIT II

- Classification of Frames, Type of stresses and strains, Analysis of determinate trusses by Method of Joints, Design examples.

UNIT III

- Moment of Resistance, Theory of Bending, Bending Stresses, Sectional Modulus of Rectangular and Circular Sections , bending and shear stress distribution across a section.

UNIT IV

- Types of Stresses & Strains, Hooke's law, Young Modulus, Shear Modulus, Bulk Modulus.

CORE REFERENCES:

- Theory of Structure -Arya. A. S
- Structure Mechanics -Khurmi
- Engineering Mechanics - R.K Bansal & Sanjay Bansal
- Theory of Structure - Harbhajan Singh
- Strength of Materials - Rajput

Evaluation Criteria for Exam Question Paper Setting:-

The examiner is required to set eight questions with minimum two from each unit. Students are required to attempt five questions with minimum one from each unit.

IK Gujral Punjab Technical University Kapurthala

Bachelor of Architecture (B. Arch.) Teaching Scheme 2010

**IK Gujral Punjab Technical University
Bachelor of Architecture (B. Arch. 2nd Semester)**

| Course Code | Course Name | L, S/T, P/FW, ST | Credits | Duration of Exam |
|--------------------|--------------------|-------------------------|----------------|-------------------------|
| UC/BARCH-208/19 | Workshop - II | 2 - P | 1 | No Exam, only Viva-voce |

Course Objective

The student will gain basic hands on experience and fundamental knowledge in model making, sculpture and clay modelling.

Course Outcomes: At the end of the course, the students will able to

- 1 Acquire skills in different types of architectural model making using various materials.
- 2 Acquire skill in sculpture making in various medium
- 3 Proficiency in handling clay as a material.

Detailed Syllabus:-

UNIT-I

- Design & Model Making of Furniture, Lamp shades and other Interior & Exterior Elements

UNIT- II

- Sculptures in Plaster of Paris, Wires, Scrap, Wood, Soap etc.

UNIT- III

IK Gujral Punjab Technical University Kapurthala

Bachelor of Architecture (B. Arch): Teaching Scheme 2010

- Clay Modelling
- Pinching
- Coiling Techniques Slab Techniques

UNIT- IV

- Model Making
- Making of Study Model of one of Design Project done during the Semester.

or of a Small Building using any chosen material.

Evaluation Criteria for Exam Question Paper Setting:-

The examiner is required to set eight questions with minimum two from each unit. Students are required to attempt five questions with minimum one from each unit.

IK Gujral Punjab Technical University Kapurthala

Bachelor of Architecture (B. Arch.) Teaching Scheme 2010

IK Gujral Punjab Technical University
Bachelor of Architecture (B. Arch. 2nd Semester)

| Course Code | Course Name | L, S/T, P/FW, ST | Credits | Duration of Exam |
|----------------|-----------------------|---------------------|---------|------------------|
| UC/EVSC 101/19 | Environmental Science | 2 - L | 2 | 03 Hours |

Course Objective

Upon successful completion of the course, students should be able to Measure environmental variables and interpret results. Evaluate local, regional and global environmental topics related to resource use and management

Course Outcomes: At the end of the course, the students will able to

- 1 Propose solutions to environmental problems related to resource use and management
- 2 Interpret the results of scientific studies of environmental problems
- 3 Describe threats to global biodiversity, their implications and potential solutions

Detailed Syllabus:-

UNIT- I (Natural Resources)

- Introduction: Definition and scope and importance of multidisciplinary nature of environment. Need for public awareness.
- Natural Resources: Natural Resources and associated problems, use and over exploitation, case studies of forest resources and water resources.

IK Gujral Punjab Technical University Kapurthala

- Ecosystems: Concept of Ecosystem, Structure, interrelationship, producers, consumers and decomposers, ecological pyramids-biodiversity and importance. Hot spots of biodiversity

UNIT- II (Environmental Pollution)

- Environmental Pollution: Definition, Causes, effects and control measures of air pollution, Water pollution, Soil pollution, Marine pollution, Noise pollution, Thermal pollution, Nuclear hazards.
- Solid waste Management: Causes, effects and control measure of urban and industrial wastes. Role of an individual in prevention of pollution. Pollution case studies.
- Disaster Management : Floods, earthquake, cyclone and landslides.

UNIT- III (Social Issues)

- Social Issues and the Environment From Unsustainable to Sustainable development, Urban problems related to energy, Water conservation, rain water harvesting, watershed management. Resettlement and rehabilitation of people; its problems and concerns. Case studies.
- Wasteland reclamation. Consumerism and waste products. Environment Protection Act. Air (Prevention and Control of Pollution) Act. Water (Prevention and control of pollution) Act. Wildlife Protection Act, Forest Conservation Act, Issues involved in enforcement of environmental legislation Public awareness

UNIT- IV (Human Pollution)

- Human Population and the Environment, Population growth, variation among nations. Population explosion – Family Welfare Programme. Environment and human health, Human Rights, Value Education, HIV/AIDS. Women and child Welfare. Role of Information Technology in Environment and human health. Case studies

CORE REFERENCES:

- Agarwal, K. C. 2001 Environment Biology, Nidi Publ. Ltd. Bikaner.
- Jadhav, H & Bhosale, V.M. 1995. Environment Protection and Laws. Himalaya Pub House, Delhi 284p.
- Rao M. N. & Datta A.K. 1987. Waste Water Treatment. Oxford & IBH Publ. Co. Pvt. Ltd. 345 p.
- Principle of Environment Science by Cunningham, W.P.

IK Gujral Punjab Technical University Kapurthala

- Essentials of Environment Science by Joseph
- Environment Pollution Control Engineering by Rao, C.S.
- Perspectives in Environmental Studies by Kaushik, A.
- Elements of Environment Science & Engineering by Meenakshi.
- Elements of Environment Engineering by Duggal.

Evaluation Criteria for Exam Question Paper Setting:-

The examiner is required to set eight questions with minimum two from each unit. Students are required to attempt five questions with minimum one from each unit.

IK Gujral Punjab Technical University Kapurthala
Bachelor of Architecture (B. Arch.) Teaching Scheme 2019

IK Gujral Punjab Technical University
Bachelor of Architecture (B. Arch. 2nd Semester)

| Course Code | Course Name | L, S/T, P/FW, ST | Credits | Duration of Exam |
|------------------------|-----------------------------|-------------------------|----------------|-------------------------|
| UC/BARCH-204/19 | Theory of Design - 1 | 2 - L | 2 | 03 Hours |

Course Objective

To establish the Role and Importance of Theory of Design as a broad, comprehensive activity to help students to formulate a responsible opinion and a well-reasoned judgement by looking at the design in depth and in a critical way .

Course Outcomes: At the end of the course, the students will able to-

1. Develop a basic understanding of spatial organisation
2. To learn to apply principles of design to create architecture forms.

Detailed Syllabus:-

UNIT-I

Formal Collision of Geometry. Articulation of Forms.

UNIT-II

Organization of Form and Space, Spatial Organization.

Circulation Elements including Approach, Entrance, Configuration of the Path, Path- Space Relation, Form of the Circulation Space.

IK Gujral Punjab Technical University Kapurthala
Bachelor of Architecture (B. Arch): Teaching Scheme 2018

UNIT - III

Form defining Space with Horizontal Elements and Vertical Elements.

UNIT - IV

Quality of Architectural Space.

stress to be given on case studies.

CORE REFERENCES:

- Form, Space and order- D.K.Ching.
- Design strategies in Architecture- Geoffery H. Baker (An approach to the analysis of Form)
- Theory of Design-Parmar

Evaluation Criteria for Exam Question Paper Setting:-

The examiner is required to set eight questions with minimum two from each unit. Students are required to attempt five questions with minimum one from each unit.

4th Semester 2019

**IK Gujral Punjab Technical University
Bachelors of Architecture
(Constituent Campus)**

Joti
P. Singh
21.1.21

IK Gujral Punjab Technical University
Bachelor of Architecture (B. Arch. 4th Semester)

| Course Code | Course Name | L, S/T, P/FW, ST | Credits - 6 | Duration of Exam |
|-----------------|--------------------------|------------------|-----------------|-------------------------|
| UC/BARCH-401/19 | Architectural Design -IV | 1 L, 5 ST | Int : Ext 60:40 | 06 + External Viva Voce |

Course Objective:

To make students appreciate the elements of vernacular/rural Architecture of a particular region of the state of Punjab and understand the role of vernacular/traditional in relative thermal comfort.

Course Outcomes: At the end of the course, the students will able to Study Social and Physical environment and methods of construction in Vernacular/Rural Architecture, emerging out of the traditional way of life of the people in a given place with special reference to Punjab and understand the principles of design in vernacular/ traditional architecture w.r.t to thermal comfort, climate, and topography.

Detailed Syllabus:-

- Study of Rural, Vernacular, Historical Settlements/buildings of distinct Architectural characteristics including detailing with physical planning and other related systems.

BUILDINGS

- Community Buildings
- Panchayat Ghar, Rural Dispensary or hostel
- Farmer's House, Village Dairy Farmhouses, Rural School, etc.

NOTE:-All buildings should have accessibility to specially-abled persons.

Evaluation Criteria for Exam / Question Paper Setting:-

One compulsory question is to be set from the entire syllabus. The evaluation is to be done through Viva-voce conducted at the institute level by Internal / External jury members appointed in consultation with the university from the approved panelist of examiners. The answer sheet shall be retained at the institute after the exam for the viva voce.

Instructions for the Faculty –

Design faculty should encourage and motivate the students for live projects of their immediate surroundings. (Identifying need, Framing requirements, and solution for the same, and it should be evaluated as one of the assignments and marked accordingly.)

Minimum two projects/assignments should be handled by students during the semester including a detailed study of a representative village & historical site. The study shall be done in groups to bring out the existing settlement pattern, socio-economic conditions, the pattern of life, building typology, materials/building technology used, and important architectural features. The end product shall be a well-documented report and drawings. Library/case study shall be made an integral part of every assignment.

Note – Design brief should be designed in such a way that incorporated the Agro-related infrastructure part in the design

Core References:

The assigned Faculty is required to provide updated references/E-resources related to the content of the subject by ensuring the availability of the same in the department library, on web portals/online i.e. E-learning. The Faculty is also advised to keep on updating the reference list and submit the latest one in the Library & Academic department of the Campus.

Johi
P. Singh

IK Gujral Punjab Technical University
Bachelor of Architecture (B. Arch. 4th Semester)

| Course Code | Course Name | L, S/T, P/FW, ST | Credits - 2 | Duration of Exam |
|-----------------|-----------------------------|------------------|-------------------|------------------|
| UC/BARCH-402/19 | History of Architecture-III | 2 L | Int : Ext - 40:60 | 03 |

Course Objective: To make students understand how different architectural solutions were evolved (in successive historical periods) within the constraints/limitations imposed by prevalent social and religious costumes, available building materials, prevailing climate, topography, complex structural problems, and building technology available at the time.

Course Outcomes: At the end of the course, the students will able to approach the architectural structures provided by their ancestors and co-relate them with the contemporary scenario.

Detailed Syllabus:- Study of world Architecture from the early stage to the Early Roman period besides the early era of Indian Architecture and Buddhist Architecture.

UNIT- I

Roman Architecture, Christian Architecture

UNIT- II

Byzantine Architecture, Romanesque Architecture

UNIT- III

Chulkyan and Ashoka period of Hindu Architecture, Dravidian Architecture

UNIT-IV

Indo Aryan Architecture, Orissa, Gujrat, Khajuraho

Evaluation Criteria for Exam Question Paper Setting:-

The examiner is required to set eight questions with a minimum of two from each unit. Students are required to attempt five questions with a minimum of one from each unit.

The question bank will be submitted to the university within one month of the commencement of the semester.

Instructions for the Faculty –

For each period given in the syllabus, stress is to be laid on the Architectural character and elements of Architecture with one or two representative examples to highlight those features. Emphasis should be laid on understating the evolution of buildings and form. The continuous evaluation shall be made of students' work based on class models, assignments and sketches and seminars, etc.

Core References:

The assigned Faculty is required to provide updated references/E-resources related to the content of the subject by ensuring the availability of the same in the department library, on web portals/online i.e. E-learning. The Faculty is also advised to keep on updating the reference list and submit the latest one in the Library & Academic department of the Campus.

Jyoti
Rachna

IK Gujral Punjab Technical University
Bachelor of Architecture (B. Arch. 4th Semester)

| Course Code | Course Name | L, S/T, P/FW, ST | Credits - 4 | Duration of Exam |
|-----------------|--------------------------------------|------------------|--------------------|------------------|
| UC/BARCH-403/19 | Building Construction & Materials-IV | 1, -, -, 3, | Int : Ext 60:40 | 03 |

Course Objective: To make students understand and appreciate, various methods of building construction in coordination with the building materials and science related to them. Students will gain knowledge on the various applications of the roof and floor coverings in building construction.

Course Outcomes: At the end of the course student will be able to become aware of the roof and floor coverings. Understand details for trusses, staircases, sliding doors, sliding folding doors, partitions, paneling, work out and apply appropriate details for building construction of the same.

This subject consists of two parts

PART - I Building Materials (with emphasis on the learning of material).

PART - II Building Construction (with emphasis on construction drawings by pencil only).

Detailed Syllabus:-

PART – A BUILDING MATERIALS

UNIT-I

- (A) **Roof-Coverings** - Constituents, Properties, Uses, Process of Laying of Roof Covering Materials e.g. G.I. Sheets, Asbestos Cement Sheets (Plain & Corrugated) with accessories, Clay Tiles - Country, Allahabad & Mangalore Tiles, etc.

UNIT-II

- (B) **Floor Coverings-** Constituents, Properties, Uses and Process of Laying of Floor Covering Materials e.g. Linoleum, Cork Sheet, Parquette, Rubber (Tiles and Sheets) and Types of Stone and tile Flooring.

PART – B BUILDING CONSTRUCTION

UNIT-III

Roofs and Trusses (Timber)

- Introduction to different types of Roofs
- Principles of Construction and Details of King Post and Queen Post Trusses with Gutters, Eaves, and Ridge Details with/without Soffit and Roof Covering.
- Timber Built-up Trusses of various Spans.

UNIT-IV

- Doors & Windows - Design and Details of special-purpose door
- Timber partition, glass block partition, timber paneling
- Timber Staircase-Design and Details, Dhajji Wall Construction

Jyoti
Rashmi

Evaluation Criteria for Exam / Question Paper Setting:-

Total eight questions are to be set two from each unit & students are required to attempt a total of four questions i.e. one from each unit. The distribution of marks for **Part A** (Unit I&II): **Part B** (Unit III&IV) is 12: 28 marks.

Instructions for the Faculty –

All efforts must be directed to make the learning an enriching experience.

Market Survey to study the complete range of products available in the market under different trade names with their manufacturing details, specifications, and performance. Field visit to study the complete process of laying of reinforcement and concreting. Preparing Construction sheets on the above topics. Emphasis shall be laid on understating of complete construction details of Double Storeyed structure.

Core References:

The assigned Faculty is required to provide updated references/E-resources related to the content of the subject by ensuring the availability of the same in the department library, on web portals/online i.e. E-learning. The Faculty is also advised to keep on updating the reference list and submit the latest one in the Library & Academic department of the Campus.

Jyoti

Rashmi

IK Gujral Punjab Technical University
Bachelor of Architecture (B. Arch. 4th Semester)

| Course Code | Course Name | L, S/T, P/FW, ST | Credits - 4 | Duration of Exam |
|-----------------|----------------------|------------------|----------------------|------------------|
| UC/BARCH-404/19 | Structure Design -II | 2 L, 2 Tut | Int : Ext - 40:60 | 03 |

Course Objective: The aim and objective of the course on structure design-II are to get introduced to the design of reinforced concrete structures and to make the building structurally safe.

Course Outcomes: At the end of the course, the students will able to – design RCC Beams, Slabs, Columns, and footings with different loads for one-story simple buildings.

Detailed Syllabus: -

UNIT- I

Beam

Design of Single Reinforced Beams, Doubly Reinforced Beams, Depth/ Thickness of Section Area of reinforcement, Shear Check, Shear Reinforcement, Introduction to Cantilever beam, T- Beams and L- Beams

UNIT- II

Slab

Design of One-Way Slab, Depth/Thickness of Section Area of Reinforcement, Shear Check, I S 456 Code-provisions, Introduction to Two Way Slab, I_y / I_x ratio

UNIT- III

Column

Design of Columns, Long /Short Columns, Basic Equation of Design, IS 456 Code Provisions, Section of Column, Longitudinal and Lateral Reinforcement

UNIT-IV

Footing

Design of Isolated Square Footings, Consideration of Bending Moment, One Way Shear, and Two-Way Shear, Area of reinforcement

Evaluation Criteria for Exam/ Question Paper Setting: -

The examiner is required to set eight questions with a minimum of two from each unit. Students are required to attempt five questions with a minimum of one from each unit.

The question bank will be submitted to the university within one month of the commencement of the semester.

Instructions for the Faculty - The students of architecture must be made clear about the design concepts and tutorials be made an integral part of learning. The faculty also should encourage the students to read the code IS 456-2000.

Core References:

The assigned Faculty is required to provide updated references/E-resources related to the content of the subject by ensuring the availability of the same in the department library, on web portals/online i.e. E-learning. The Faculty is also advised to keep on updating the reference list and submit the latest one in the Library & Academic department of the Campus.

Jyoti

Rudolph

IK Gujral Punjab Technical University
Bachelor of Architecture (B. Arch. 4th Semester)

| Course Code | Course Name | L, S/T, P/FW, ST | Credits - 3 | Duration of Exam |
|-----------------|---------------------|------------------|----------------------|------------------|
| UC/BARCH-405/19 | Building Services-I | 2 L, 1 T | Int : Ext - 40:60 | 03 |

Course Objective: To make students learn and understand the requirements of Building Services and their application to buildings with a focus on Water Supply, Drainage, and Sanitation.

Course Outcomes: At the end of the course, the students will able to:

- Understand the terminology and basic principles of water supply, stormwater drainage, and sanitation.
- Understand water requirements in various types of buildings, types of water storage and distribution systems, sanitary & drainage system requirements, and their integration in architectural design.
- Understand the functions of various sanitary fittings and fixtures and be aware of the different types of materials and specifications of the same.
- Develop design skills for water supply and drainage systems in buildings and prepare architectural drainage layouts.

Detailed Syllabus:-

UNIT- I

WATER SUPPLY

Water- Role & Importance, Sources, Quality, Impurities, Water Supply- Introduction, Basic Principles, Systems of Water Supply, Water Storage – Systems, Capacity and Location, Calculation of Water consumption, Domestic, hot and cold water supply systems, Pipes materials- Size and their jointing details, Fittings- sanitary fittings like Ferrule, Stopcock, Bibcock, etc, Metering- Various kinds of Water Meters and connections.

UNIT- II

SANITATION

Sanitation- Role, Importance, Basic principles of disposal of waste from buildings, Dry and Wet Carriage Systems, Sanitary Fittings-- Washbasins, WC's, Bath Tubs, Sink, Urinals, Bidets, Flushing Cistern, Traps, etc.

Various types of joints, Pipes materials- Size and their jointing details, Septic Tanks, Treatment Plants, Manholes, Chambers- Purpose, Location, Structure and Ventilation, Drainage Systems- Types, Advantages/Disadvantages -- separate, combined and partially combined systems, Stack system--One pipe and two pipe systems, Testing of Drains, Gradients-- Purpose and Principle for laying Drains and Sewers. Self -cleansing and non-scouring velocities, Size of Drain Pipes, and Materials used.

UNIT- III

STORMWATER DISPOSAL

Types of Roads-WBM (water-bound macadam) Road-Tar, Bitumen, Asphalt and RCC roads, Description and Suitability of Roads for Storm Water Drainage with Comparative Cost Analysis, Pavements- Types (Soil stabilized, Brick and Stone paving, interlock tiles), Use, Advantages/Disadvantages, Drainage- Sub- drains, Culverts, Ditches, Gutters, Drop inlets and Catch Basins, Rain Water Disposal for individual buildings. Rain Water Harvesting

[Handwritten signatures]

UNIT-IV

Preparation of the drawings/ layouts of the building services in the design project of 3 and 4 semesters by the student. Kitchen and bathroom partition be highlighted.

Evaluation Criteria for Exam Question Paper Setting:-

The examiner is required to set eight questions with a minimum of two from each unit. Students are required to attempt five questions with a minimum of one from each unit.

The question bank will be submitted to the university within one month of the commencement of the semester.

Instructions for the Faculty –

Market survey to study materials available. The subject shall be taught through the combination of Guest Lectures, Field visits, Visits to the Project Sites, the actual display of Fittings, Pipes, Joints used, and by carrying out exercises in the layout of simple drainage systems for Small buildings, Planning of Bathrooms and Lavatory Blocks in Domestic and Multi-storied buildings

Exercises shall be clubbed with Design Studio Project

Core References:

The assigned Faculty is required to provide updated references/E-resources related to the content of the subject by ensuring the availability of the same in the department library, on web portals/online i.e. E-learning. The Faculty is also advised to keep on updating the reference list and submit the latest one in the Library & Academic department of the Campus.

Joh

P. S. S. S.

IK Gujral Punjab Technical University
Bachelor of Architecture (B. Arch. 4th Semester)

| Course Code | Course Name | L, S/T, P/FW, ST | Credits - 3 | Duration of Exam |
|-----------------|---------------------------|------------------|----------------------|------------------|
| UC/BARCH-406/19 | Climate & Architecture-II | 2L, 1 T | Int : Ext - 40:60 | 03 |

Course Objective: To acquaint the students and make them aware of the concept of climate as a significant determinant of built forms and to familiarize them with various climate control devices.

Course Outcomes: At the end of the course, the students will be able to understand advanced climatology and ventilation as an important consideration.

Detailed Syllabus:-

UNIT- I

Ventilation in Buildings:- Ventilation - Introduction and its mechanism, Wind Movement, Air movement within and around buildings, the effect of surrounding elements and pattern of wind flow, Guidelines for designing well-ventilated buildings. Optimum Orientation of Building—Importance, Form, and Placement of Building

UNIT- II

Solar Radiations:- Introduction to basic Thermal Units, Theory of Heat Flow, Heat Transmission, etc, Thermal Properties of various Building Materials, Solar Radiations- Movement of Sun, Method of Recording, Radiation Gains by various Materials, Study of various Landscape Elements and Solar Passive Devices for Climatic Control within Buildings

UNIT- III

Introduction to Green Building Rating systems

Sustainable development - Concept, Definition, Importance and Scope, Introduction to Energy Demand and Consumptions, Energy Saving Technique in Buildings, Alternate Energy Sources in India, and various Green Building Rating systems in India

UNIT-IV

Introduction to Codes for Energy Conservation of Building

Role of NBC sustainability and ECBC Codes in the design of buildings, Introduction to software which student can use for design as per these codes.

Evaluation Criteria for Exam Question Paper Setting:-

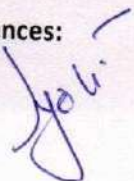
The examiner is required to set eight questions with a minimum of two from each unit. Students are required to attempt five questions with a minimum of one from each unit.

The question bank will be submitted to the university within one month of the commencement of the semester.

Instructions for the Faculty –

Teaching in the subject shall be made a combination of guest lectures by experts, visits to the existing Green Buildings, attending seminars organized by the Professional Bodies/ others, and preparing Models/ Charts to make students familiar with the use of natural elements as an essential input to design sustainable buildings.

Core References:



The assigned Faculty is required to provide updated references/E-resources related to the content of the subject by ensuring the availability of the same in the department library, on web portals/online i.e. E-learning. The Faculty is also advised to keep on updating the reference list and submit the latest one in the Library & Academic department of the Campus.

Jyoti
P. Singh

IK Gujral Punjab Technical University
Bachelor of Architecture (B. Arch. 4th Semester)

| Course Code | Course Name | L, S/T, P/FW, ST | Credits - 2 | Duration of Exam |
|-----------------|--------------------------|------------------|-------------------|------------------|
| UC/BARCH-407/19 | Computer Application -II | 1L, 2 FW | Int : Ext - 40:60 | Ext Viva Voce |

Course Objective: To make students aware of the role and importance of Computers in the field of Architecture. To develop 3D skills in the students by familiarizing them with different software.

Course Outcomes: At the end of the course, the students will be able to :

1. Develop skills required for using Computers as a tool for design, 3D modeling, and rendering.
2. Familiarize themselves with 3D model design and rendering techniques using different software for building visualization/design representation.
3. Produce 3D models and renderings of simple and complex buildings using CAD and other software programs.

Detailed Syllabus:- Being an advanced learning course, students will be introduced to 3D- and rendering techniques of the buildings.

UNIT- I

- 3-D Modelling on Auto cad of Single Story and Multi-Story Buildings,
- 3-D Modelling of Multiple Building in a Single Site, Camera View of the Buildings,
- 3-D Modelling on 3-D Max.
- View on Google Sketch Up

UNIT- II

- Rendering of the View on any of the following Software
 - 3D- Max,
 - Photoshop,
 - V-ray and
 - Any other Software.

UNIT- III

- Basics of Animation on Google Sketch-up /3D-Max

Evaluation Criteria for Exam / Question Paper Setting:-

Evaluation is through Internal Viva Voce of the work done by the student during the semester.

Instructions for the Faculty –

Emphasis should be laid on developing the skill of 3-D on the Software's

Core References:

The assigned Faculty is required to provide updated references/E-resources related to the content of the subject by ensuring the availability of the same in the department library, on web portals/online i.e. E-learning. The Faculty is also advised to keep on updating the reference list and submit the latest one in the Library & Academic department of the Campus.

Jyoti

Pradeep

IK Gujral Punjab Technical University
Bachelor of Architecture (B. Arch. 4th Semester)

| Course Code | Course Name | L, S/T, P/FW, ST | Credits – No Credit | Duration of Exam |
|-----------------|---|------------------|---------------------|------------------|
| UC/BARCH-408/19 | Mentoring and Professional Development-II | -, -, 2, -, | Int : Ext – 100:00 | No Exam |

The objective of mentoring will be the development of:

- Overall Personality
- Aptitude (Technical and General)
- General Awareness (Current Affairs and GK)
- Communication Skills
- Presentation Skills

The course shall be split into two sections i.e. outdoor activities and class activities. For achieving the above, suggestive list of activities to be conducted are:

UNIT – II (Class Activities)

1. Expert and video lectures
2. Aptitude Test
3. Group Discussion
4. Quiz (General/Technical)
5. Presentations by the students
6. Teambuilding Exercises

UNIT – II (Outdoor Activities)

1. Sports/NSS/NCC
2. Society Activities of various students chapter i.e. ISTE, SCIE, SAE, CSI, Cultural Club, etc.

The evaluation shall be based on rubrics for Part – A & B Mentors/Faculty in charges shall maintain proper record student wise of each activity conducted and the same shall be submitted to the department.

Jyoti
P. Ashish

IK Gujral Punjab Technical University
Bachelor of Architecture (B. Arch. 4th Semester)

| Course Code | Course Name | L, S/T, P/FW, ST | Credits - 2 | Duration of Exam |
|-----------------|--------------------|------------------|-------------------|------------------|
| UC/BARCH-409/19 | Constitutional Law | 2L | Int : Ext - 40:60 | 03 |

Course Objective

The objective of the course is to familiarize students (Prospective engineers) with an elementary knowledge of laws that would be of utility in their profession. The syllabus covers the Constitution of India and new areas of law like IPR, ADR, Human Rights, Right to Information, Corporate law, Law relating to Elections, and Gender Studies. To be supplemented by the historical development of laws wherever required.

Course Outcomes: At the end of the course, the students will able to get the basic knowledge of law and constitution.

Detailed Syllabus:-

UNIT- I :

Constitutional Law covering the Preamble; Fundamental Rights, Judicial Activism including Equality and Social Justice, Life and Personal Liberty and Secularism and Religious freedoms; Directive Principles of State policy; Fundamental Duties; Emergency provisions – kinds, legal requirements and legal effects; (5 Lectures)

UNIT- I A:

Human Rights and Public International Law covering Human Rights in International Law-Theoretical foundation, human rights, and international law; Historical development of human rights; Human Rights in Indian tradition and Western tradition; Covenant on Civil & Political Rights 1966 including Optional Protocol – I (Individual Complaint Mechanism) & Optional Protocol – II (Abolition of Death Penalty); Covenant on Economic, Social and Cultural Rights 1966 including Optional Protocol – I (2002); UN Mechanism and specialized agencies, (UNICEF, UNESCO, WHO, ILO, FAO, etc.); International NGOs – Amnesty International, Human Rights Watch, Greenpeace Foundation; Enforcement of Human Rights in India including Supreme Court, High Courts, Statutory Commissions – NHRC, NCW, NCM, NC-SCST, etc. Public International Law, covering Introduction, Customs, Treaties, State territories including Recognition of States and Governments, Law & Practice of Treaties and Law of Sea; (5 Lectures)

UNIT- II :

General Principles of Contract under Indian Contract Act, 1872 covering General principles of contract – Sec. 1 to 75 of Indian Contract Act and including Government. as a contracting party, Kinds of government contracts and dispute settlement, Standard form contracts; nature, advantages, unilateral character, principles of protection against the possibility of exploitation, judicial approach to such contracts, exemption clauses, the clash between two standard form contracts; (4 Lectures)

UNIT- II-A:

Arbitration, Conciliation and ADR system covering Arbitration – meaning, scope and types – the distinction between the law of 1940 and 1996; UNCITRAL model law – Arbitration and expert determination; Extent of judicial intervention; International commercial arbitration; Arbitration agreements – essential and kinds, validity, reference and interim measures by the court; Arbitration tribunal – appointment, challenge, the jurisdiction of the arbitral tribunal, powers, ground of challenge, procedure and court assistance; Award including Form and content, Grounds for setting aside an award, Enforcement, Appeal, and Revision; Enforcement of foreign awards

Y. G. G. *Pradeep*

– New York Convention Awards and Geneva Convention 24 Awards; Distinction between conciliation, negotiation, mediation and arbitration, confidentiality, resort to judicial proceedings, costs; (5 Lectures)

UNIT- III :

Law relating to Intellectual property covering Introduction – meaning of intellectual property, main forms of IP, Copyright, Trademarks, Patents and Designs, Secrets; Other new forms such as plant varieties and geographical indications; International instruments on IP – Berne convention, Rome convention, TRIPS, Paris convention and international organizations relating IPRs, WIPO, WTO etc; Law relating to Copyright in India including Historical evolution of Copy Rights Act, 1957, Meaning of copyright – literary, dramatics and musical works, sound records and cinematographic films, computer programs, Ownership of copyrights and assignment, Criteria of infringement, Piracy in Internet – Remedies and procedures in India; Law relating to Trademarks under Trademark Act, 1999 including Rationale of protection of trademarks as Commercial aspect and Consumer rights, Trademarks, registration, procedures, Distinction between trademark and property mark, Doctrine of deceptive similarity, Passing off an infringement and remedies; Law relating to Patents under Patents Act, 1970 including Concept and historical perspective of patents law in India, Patentable inventions with special reference to biotechnology products, Patent protection for computer programs, Process of obtaining patent – application, examination, opposition and sealing of patents, Patent cooperation treaty and grounds for opposition, Rights and obligations of patentee, Duration of patents – law and policy considerations, Infringement and related remedies; (8 Lectures)

UNIT- III-A:

Right to Information Act, 2005 covering, Evolution and concept; Practice and procedures; Official Secret Act, 1923; Indian Evidence Act, 1872; Information Technology – legislation and procedures, Cybercrimes – issues and investigations; (3 Lectures). Labour Laws, covering Industrial Disputes Act, 1947; Collective bargaining; Industrial Employment (Standing Orders) Act, 1946; Workmen's Compensation Act, 1923; (3 Lectures). Corporate Law, covering Meaning of corporation; Law relating to companies, public and private (Companies Act, 1956) general provisions; Law and multinational companies – International norms for control, FEMA 1999, collaboration agreements for technology transfer; Corporate liability, civil and criminal; (4 Lectures)

UNIT- IV :

Election provisions under Indian Constitution (Art.324–329), covering Representation of Peoples Act and Prevention of Corruption Act, 1988; Superintendence, directions and control of elections to be vested in Election Commission; Prohibition as to ineligibility for inclusion in electoral roll on ground of religion, race, caste or sex; Election to the house of people and to the legislative assemblies of States to be on the basis of adult suffrage; Power of parliament to make provisions with respect to elections to legislatures; Power of legislature of State to make provisions with respect to elections to such legislature; Bar to interference by courts in electoral matters; Offences relating to elections under IPC 1860 (Sec.171-A to 171-I), Definition – candidate electoral rights, Bribery, undue influence and impersonation at elections and punishments, False statement in connection with election, Illegal payment in connection with election, Failure to keep election accounts; (4 Lectures)

UNIT- IV A:

Gender Studies, covering Meaning of gender, international perspective and national perspective; Laws relating women in India; Judicial approach and responses- 25 Vishaka V/s State of Rajasthan 1997 SC; Rights enforcement mechanism in India; Landmark judicial decisions of Supreme Court relating to women; (4 Lectures)

Evaluation Criteria for Exam / Question Paper Setting:-

The examiner is required to set eight questions with minimum two from each unit. Students are required to attempt five questions with minimum one from each unit.

The question bank will be submitted to university within one month of commencement of semester.

Instructions for the Faculty –

Emphasis should be laid on developing the knowledge for the law and constitution.

Jyoti *Rudra*

Core References:

The assigned Faculty is required to provide updated references/E-resources related to the content of the subject by ensuring the availability of the same in the department library, on web portals/online i.e. E-learning. The Faculty is also advised to keep on updating the reference list and submit the latest one in the Library & Academic department of the Campus.

Jyoti

Anand Singh

5th Semester 2019

IK Gujral Punjab Technical University
Bachelors of Architecture
(Constituent Campus)

Jyoti
Prashant
21-1-21

IK Gujral Punjab Technical University
Bachelor of Architecture (B. Arch. 5th Semester)

| Course Code | Course Name | L, S/T, P/FW, ST | Credits - 6 | Duration of Exam |
|-----------------|-------------------------|------------------|------------------|--|
| UC/BARCH-501/19 | Architectural Design -V | 1L, 5 Studio | Int : Ext -60:40 | 12 (in 2 days) + External Viva Voce |

Course Objective: To make students understand and appreciate the constraints in the designing of buildings regarding function, form, and structure. To create awareness about the Role and Importance of physical factors in Architectural Design on flat or contour site.

Course Outcomes: At the end of the course, the students will be able to understand the nuances of commercial and public buildings. They will also be well versed with various physical factors of architecture design and equipped with the norms of barrier-free design and design of building with respect to site topography.

Detailed Syllabus:-

Design of structures of simple and normal complexity and detailing of buildings. All buildings should have accessibility to specially-abled persons.

UNIT-I Commercial Buildings

Hotels, Motels, Restaurants, Hostels, Club Houses, etc.

UNIT-II Public buildings

Institution and Public Buildings- Museum, Libraries, and Court Houses, etc.

Evaluation Criteria for Exam / Question Paper Setting:-

One compulsory question is to be set from the entire syllabus. The answer sheet shall be retained at the institute after the exam for the conduct of the viva voce which will be conducted at the institute level by Internal / External jury members appointed in consultation with the university from the approved panelist of examiners. . The answer sheet shall be retained at the institute after the exam for the conduct of viva voce.

Instructions for the Faculty –

Design faculty are required to take a well prepared well-researched lecture on the building topology and should encourage and motivate the students for taking up live projects of their immediate surroundings (Identifying need, Framing requirements and solution for the same, and it should be evaluated as one of the assignment)It is recommended that 2-3 projects to be handled by students from the topic given above. Library and prototype studies should be carried out for the remaining projects. Model and perspective should be made an integral part of project presentation.

One project should be on a contoured side preferably.

Core References:

The assigned Faculty is required to provide updated references/E-resources related to the content of the subject by ensuring the availability of the same in the department library, on web portals/online i.e. E-learning. The Faculty is also advised to keep on updating the reference list and submit the latest one in the Library & Academic department of the Campus.

Joshi
Prakash

IK Gujral Punjab Technical University
Bachelor of Architecture (B. Arch. 5th Semester)

| Course Code | Course Name | L, S/T, P/FW, ST | Credits - 4 | Duration of Exam |
|-----------------|-------------------------------------|---------------------|------------------|------------------|
| UC/BARCH-502/19 | Building Construction & Materials-V | 1, 3 | Int : Ext -60:40 | 03 |

Course Objective: To make students understand and appreciate, various methods of building construction in coordination with the building materials and science related to them. Students will gain knowledge on the various applications of materials i.e. Iron/ Steel? Aluminium in buildings.

Course Outcomes: At the end of the course student will able to Become aware of the different types roofing systems and trusses. Understand details for trusses, staircases, sliding doors, partitions work out and apply appropriate details for building construction of the same.

Detailed Syllabus:-

PART – A BUILDING MATERIALS

UNIT-I

The study of manufacturing process, casting, characteristics, form and uses of Cast Iron, Wrought Iron, Steel, Stainless Steel, Aluminium, copper as building materials.

UNIT-II

Properties and applications of copper, titanium and carbon fibre in buildings.
 Various structural members, Sections and Joinery in Steel, Aluminium and PVC.

PART – B BUILDING CONSTRUCTION

UNIT-III

a) Steel, Aluminium, and PVC

- Doors and windows
- Frames
- Sliding door

b) Aluminum, and PVC

- Partition Walls
- Aluminium composite panelling details
- Curtail wall details.

UNIT-IV

c) Steel Trusses

- Steel Trusses types, 12m. howe trusses
- Constructional details of Simple Truss, North Light Truss

- d) Constructional details of Steel flooring, Steel, beams, Column (stanchions), Grillage Foundation & Staircase details.**

Jyoti
Rushabh

Evaluation Criteria for Exam / Question Paper Setting:-

Total eight questions are to be set two from each unit & students are required to attempt total four questions i.e. one from each unit. The distribution of marks for **Part A** (Unit I&II): **Part B** (Unit III&IV) is 12: 28 marks.

Instructions for the Faculty –

All efforts must be directed to make the learning an enriching experience.

Market Survey to study complete range of products available in the market under different trade names with their manufacturing details, specifications and performance. Preparing Construction sheets on above topics.

Core References:

The assigned Faculty is required to provide updated references/E-resources related to the content of the subject by ensuring the availability of the same in the department library, on web portals/online i.e. E-learning. The Faculty is also advised to keep on updating the reference list and submit the latest one in the Library & Academic department of the Campus

Jyoti
Prakash

IK Gujral Punjab Technical University
Bachelor of Architecture (B. Arch. 5th Semester)

| Course Code | Course Name | L, S/T, P/FW, ST | Credits - 2 | Duration of Exam |
|-----------------|-----------------------|------------------|-----------------|------------------|
| UC/BARCH-503/19 | Structure Systems-III | 1, 1, -, - | Int : Ext 60:40 | Ext Viva Voce |

Course Objectives: At the end of the course, the students will be able to understand the concept of High rise, Long span, shell, flat slabs, tensile and pneumatic structures and the structural and construction issues involved with each type of structure.

Course Outcome: After completing this course, the student will be able to: Understand the basic principles of structures. Realize the fundamental requirements of long span structures Understand the architectural features and necessity of shells and plate structures Comprehend the design principles and applications of pneumatic and tensile structures

Detailed Syllabus:-

UNIT-I

Recapitulation of what has been done in previous semester.

UNIT-II

Form Active Structural System or Structural System in Simple Stress Conditions:

- Cable Structures (Roofs, Bridges etc.)
- Tents Structures

UNIT-III

Surface active Structure System:

- Shells.
- Folded Plates.

UNIT-IV

Vertical Structure System for High Rise Buildings.

Evaluation Criteria for Exam / Question Paper Setting:-

Evaluation is through External Viva Voce of the work done by the student during the semester

Instructions for the Faculty –

Emphasis must be given on learning by doing i.e. preparing the models of the structure system covered. Students be encourage to present a PPT on the topics assigned and submit its report for external evaluation.

Core References:

The assigned Faculty is required to provide updated references/E-resources related to the content of the subject by ensuring the availability of the same In the department library, on web portals/online i.e. E-learning. The Faculty is also advised to keep on updating the reference list and submit the latest one in the Library & Academic department of the Campus.

Jyoti Prakash

IK Gujral Punjab Technical University
Bachelor of Architecture (B. Arch. 5th Semester)

| Course Code | Course Name | L, S/T, P/FW, ST | Credits - 4 | Duration of Exam |
|-----------------|----------------------|------------------|------------------|------------------|
| UC/BARCH-504/19 | Structure Design-III | 2L, 2 Tut | Int : Ext -40:60 | 03 |

Course Objective

The aim and objective of the course on Structure Design- III is to make students aware about the design methodology adopted and principals involved in designing the structural elements used in the built environment with focus on steel.

Course Outcomes: At the end of the course, the students will able to –

Design Beams, Compression members, trusses for different conditions by applying code provisions along with the knowledge of Riveted and welded joints

Detailed Syllabus:

UNIT I

COMPRESSION MEMBER

Design of Compression members subjected to axial loading involving: Effective length, Radius of gyration, Slenderness ratio, Permissible Stresses

UNIT II

STEEL BEAM

Design of Steel Beams and Sections on the basis of: Bending Stress, Shear Check

UNIT III

STEEL TRUSS

Design of Steel Truss Members for Given Loading, Compressive and Tensile Forces

UNIT IV

RIVETED/WELDED JOINTS

Riveted Connections: Different types of Rivets, Type of Riveted Joints, Failure of Riveted Joints, Efficiency of Riveted Joint

Welded Connections: Different types of Welds, Advantages/Disadvantage of Welded/ Riveted connections

Evaluation Criteria for Exam / Question Paper Setting:-

The examiner is required to set eight questions with minimum two from each unit. Students are required to attempt five questions with minimum one from each unit.

The question bank will be submitted to university within one month of commencement of semester.

Instructions for the Faculty –

Focus on the live study and application of the subject into the architecture design.

Core References:

The assigned Faculty is required to provide updated references/E-resources related to the content of the subject by ensuring the availability of the same in the department library, on web portals/online i.e. E-learning. The Faculty is also advised to keep on updating the reference list and submit the latest one in the Library & Academic department of the Campus.

Handwritten signatures

IK Gujral Punjab Technical University
Bachelor of Architecture (B. Arch. 5th Semester)

| Course Code | Course Name | L, S/T, P/FW, ST | Credits - 3 | Duration of Exam |
|-----------------|----------------------|------------------|------------------|------------------|
| UC/BARCH-505/19 | Building Services-II | 2, 1, -, - | Int : Ext -40:60 | 03 |

Course Objective: To make students learn and understand the requirements of Building Services and their application to buildings with focus on Electrical, lighting, fire and mechanical circulation.

Course Outcomes: At the end of the course, the students will able to:

- Understand the terminology and basic principles MEP Services
- Develop design skills for MEP layouts in architecture design

Detailed Syllabus:-

UNIT-I

ELECTRICAL SERVICES

- Electricity- Ohm's , Kirchoff's Laws and basic Principles.
- Electric Circuits-- Series and Parallel.
- Domestic installations- Water heater, Radiator etc.
- Wires- Specifications /Carrying capacity , Electrical loads.
- Types of Switches, Sockets and Fixtures.
- Distribution Boards, Circuit Breakers, Fuses, Electrical Meters and their layout.
- Design considerations for Electrical Installations from generation to distribution(Energy Flow Diagram).
- Protection against Overload, Short circuit, Earth fault, Lightning and other safety measures for buildings.
- Wiring systems- Materials, Types/Methods of wiring

UNIT-II

ILLUMINATION

- Light - Propagation, Reflection, Radiation, Transmission and Absorption.
- Illumination –Laws, Measurement, Luminous Intensity, Brightness, Luminance Flux, Glare and their effect. Etc.
- Illumination Schemes- Types and their design considerations.
- Light Flux method for calculation of number of lamps for illumination.
- Lamps-Incandescent, Sodium Vapour, Mercury Vapour, Fluorescent and Neon lamps etc.
- Types of Luminaries for interior and exterior lighting.
- Residential, commercial, industry, flood and street lighting.
- Testing before commissioning of electrical services.

UNIT-III: FIRE SAFETY

- Fire—Causes, Spread, Combustibility of Materials and Safety Norms.
- Fire Detection/Warning- Equipment including Smoke Detectors, Monitoring Devices, Alarm Systems. Etc.
- Fire Fighting— Planning, Designing, Installations, Equipment, Operation and Maintenance.
- Design Criteria for Fire Exit and Escapes in High Rise Buildings.

John Brachy

UNIT-IV- MECHANICAL CIRCULATION

- Lifts-Types, Control and Operation, Carrying Capacity, Rated Load, Rated Speed,
- Lift - Sections, Machine Room, Components, Lift Well and Lift Pit.
- Design Standards - Lifts Lobby, Lift Cars etc
- Escalators and Conveyors- Installation and Planning Requirements

Evaluation Criteria for Exam / Question Paper Setting:-

The examiner is required to set eight questions with minimum two from each unit. Students are required to attempt five questions with minimum one from each unit.

The question bank will be submitted to university within one month of commencement of semester.

Instructions for the Faculty –

Market survey to study and products available. Subject shall be taught through the combination of Guest Lectures, Field visits, Visits to the Project Sites.

Exercises shall be clubbed with Design Studio Project

Core References:

The assigned Faculty is required to provide updated references/E-resources related to the content of the subject by ensuring the availability of the same in the department library, on web portals/online i.e. E-learning. The Faculty is also advised to keep on updating the reference list and submit the latest one in the Library & Academic department of the Campus.

Jyoti
Rashmi

IK Gujral Punjab Technical University
Bachelor of Architecture (B. Arch. 5th Semester)

| Course Code | Course Name | L, S/T, P/FW, ST | Credits - 3 | Duration of Exam |
|-----------------|----------------------|------------------|------------------|------------------|
| UC/BARCH-506/19 | Theory of Design-III | 2, 1, -, -, | Int : Ext -40:60 | 03 |

Course Objective: To make students learn and understand the To make students drive deeper into the Architecture problems and look for directive principles guiding the philosophy of design used by masters of modern Architecture and to assess their contribution by their own criteria.

Course Outcomes: At the end of the course, the students will able to understand, appreciate and learn the design principles, philosophy of design used by masters of modern architects.

Detailed Syllabus:-

UNIT- I

FOREIGN ARCHITECTS

- 1.Louis I.Kahn
- 2.Eero Saarinen
- 3.Philip Johnson

UNIT- II

- 4.Paul Rudolph
- 5.John Utzon
- 6.Kenzo Tange
7. Laurie Baker

UNIT- III

INDIAN ARCHITECTS

- A.P.Kanvinde
C.M. Correa
B.V.Doshi

UNIT- IV

- J.A.Stein
U.C.Jain
Raj Rewal

Evaluation Criteria for Exam / Question Paper Setting:-

The examiner is required to set eight questions with minimum two from each unit. Students are required to attempt five questions with minimum one from each unit.

The question bank will be submitted to university within one month of commencement of semester.

Instructions for the Faculty –

Focus on the study and application of the subject into the architecture design. The faculty must also try to cover the emerging contemporary architects to strengthen the students knowledge base.

Core References:

The assigned Faculty is required to provide updated references/E-resources related to the content of the subject by ensuring the availability of the same in the department library, on web portals/online i.e. E-learning. The Faculty is also advised to keep on updating the reference list and submit the latest one in the Library & Academic department of the Campus.

IK Gujral Punjab Technical University
Bachelor of Architecture (B. Arch. 5th Semester)

| Course Code | Course Name | L, S/T, P/FW, ST | Credits - 3 | Duration of Exam |
|-----------------|------------------------|------------------|------------------|------------------|
| UC/BARCH-507/19 | Landscape Architecture | 2, 1, -, -, | Int : Ext -40:60 | 03 |

Course Objective: To make students understand the elements of Landscape Design and its application in Architectural Design solutions.

Course Outcomes: At the end of the course, the students will be able to understand and appreciate the elements, principle and need of design and apply the same in landscape design solutions.

Detailed Syllabus:-

UNIT- I

- Introduction to Landscape Architecture.
- Elements of Landscape design and its relation to the built environment
- Plant characteristics, plant propagation and impact of climate, soil and manure.

UNIT- II

- Structure, Colour, Form, Foliage of various types of Trees, Shrubs, Cacti Bushes and Creepers etc.
- Identification and study of a few Indian plants and trees.

UNIT- III

Study on comparative basis of development of landscape design through history:

- Indian Gardens
- Persian Gardens
- Mogul Gardens
- Japanese Gardens

UNIT- IV

- Italian Gardens
- French Gardens
- English Gardens

Evaluation Criteria for Exam / Question Paper Setting:-

The examiner is required to set eight questions with minimum two from each unit. Students are required to attempt five questions with minimum one from each unit.

The question bank will be submitted to university within one month of commencement of semester.

Instructions for the Faculty –

Faculty may introduce a landscape design problem as a part of assignment. Focus on the live study and application of the subject into the architecture design. Faculty must also touch upon the garden/ landscapes of other countries/ region of the world.

Core References:

The assigned Faculty is required to provide updated references/E-resources related to the content of the subject by ensuring the availability of the same in the department library, on web portals/online i.e. E-learning. The Faculty is also advised to keep on updating the reference list and submit the latest one in the Library & Academic department of the Campus.

John Pradyth

IK Gujral Punjab Technical University
Bachelor of Architecture (B. Arch. 5th Semester)

| Course Code | Course Name | L, S/T, P/FW, ST | Credits - 3 | Duration of Exam |
|---------------------|--|------------------|------------------|------------------|
| UC/BARCH/ (A)/19 | /508 Green Buildings & Rating System | 2, 1, -, - | Int : Ext -40:60 | 03 |

Course Objective: To acquaint the students and make them aware of the concept of green buildings and rating systems as a significant determinant of built forms and to familiarize them with aspects.

Course Outcomes: At the end of the course, the students will be able to Understand Green buildings and their rating systems.

Detailed Syllabus:-

UNIT- I

- Understand energy, sources of energy and reserves of the conventional and non-conventional energy resources.
- Energy conservation and related Acts prevailing in the country, Energy star rating of the buildings and Equipment.
- Building as consumer of energy – definitions, need, importance of green buildings, difference between green and conventional buildings.
- Introduction to building rating system in India LEED, BEE, GRIHA, IGBC, ECBC

UNIT- II

- Study of ECBC rating system w.r.t passive design techniques, orientation, form shading, cool roofs, fenestration day lighting etc.
- Artificial lighting/ energy consumptions in buildings energy management system.

UNIT- III

- Various rating systems around the world.
- Case study of National and International Examples of rated buildings

UNIT- IV

- Application of learning in Architecture design studio.

Evaluation Criteria for Exam / Question Paper Setting:-

The examiner is required to set eight questions with minimum two from each unit. Students are required to attempt five questions with minimum one from each unit.

The question bank will be submitted to university within one month of commencement of semester.

Instructions for the Faculty –

Focus on the live study and application of the subject into the architecture design.

Core References:

The assigned Faculty is required to provide updated references/E-resources related to the content of the subject by ensuring the availability of the same in the department library, on web portals/online i.e. E-learning. The Faculty is also advised to keep on updating the reference list and submit the latest one in the Library & Academic department of the Campus.

(Handwritten Signature)

IK Gujral Punjab Technical University
Bachelor of Architecture (B. Arch. 5th Semester)

| Course Code | Course Name | L, S/T, P/FW, ST | Credits - 3 | Duration of Exam |
|-----------------------|-------------------|------------------|------------------|------------------|
| UC/BARCH/ /508 (B)/19 | Hill Architecture | 2, 1, -, -, | Int : Ext -40:60 | 03 |

Course Objective: To make students aware and understand the specific requirements of art and science of designing buildings in hill areas based on climate, topography, local materials, social factors etc.

Course Outcomes: At the end of the course, the students will able to design on a hill and on contour site.

Detailed Syllabus:-

UNIT- I

- Hill Architecture- Introduction, historical perspective, specific attributes/unique features etc.
- Traditional Hill Architecture of Medieval Europe- overview , specific features, building materials, building technologies

UNIT- II

- Hill Settlements-Approach, overview ,specific features of planning and designing in different climatic regions of the world
- Disasters in Hill Areas: - Issues and Options.

UNIT- III

- Hill Architecture in India- Growth, Development, Character and unique features
- Building Typologies- Study of various types of traditional buildings in different Hill Regions of India with their unique features
- Factors effecting design of buildings in Hill Areas- Topography, Climate, Vegetation, Materials, Technology, Sustainability Social factors etc- their role and importance

UNIT- IV

- Building Technologies- Study of different technologies for construction of Foundations, Walls. Floors, Roof etc in Hill Regions of India
- Study of Traditional Hill Settlements in India with their planning features
- Hill Architecture in Post- independence Period- Approach, Pattern, Typical features, Materials, Technologies etc and their impact on ecology, environment and Sustainability of Hill Areas

Evaluation Criteria for Exam / Question Paper Setting:-

The examiner is required to set eight questions with minimum two from each unit. Students are required to attempt five questions with minimum one from each unit.

The question bank will be submitted to university within one month of commencement of semester.

Instructions for the Faculty –

Jyoti Prakash

Instructions To Faculty

Focus on the live study and application of the subject into the architecture design. Faculty may introduce a small design problem separately as hill architecture assignment.

Core References:

The assigned Faculty is required to provide updated references/E-resources related to the content of the subject by ensuring the availability of the same in the department library, on web portals/online i.e. E-learning. The Faculty is also advised to keep on updating the reference list and submit the latest one in the Library & Academic department of the Campus.

Jyoti
Prakash

IK Gujral Punjab Technical University
Bachelor of Architecture (B. Arch. 5th Semester)

| Course Code | Course Name | L, S/T, P/FW, ST | Credits - 3 | Duration of Exam |
|--------------------------|--|---------------------|------------------|------------------|
| UC/BARCH/ /508 (C)/19 | Emerging Technologies in Architecture | 2, 1, -, -, | Int : Ext -40:60 | 03 |

Course Objective: To make students aware of the latest emerging trends and technologies and their application to different aspects of architecture such as design, construction, building services and material selection and application.

Course Outcomes: At the end of the course, the students will able to:

- Understand use of various emerging technologies and their application in Architectural Design and Construction.
- Know about technical advances and advantages of computational technologies through the use of computer modelling, rendering and digital fabrication, with focus on the exploration of space and place making through the use of computer modelling and design construction.
- Have an understanding of Building Automation for building types and their applicability to different building services

Detailed Syllabus:-

UNIT- I (DIGITAL ARCHITECTURE)

Basic introduction to the use of computer applications in the field of Architecture and Building Design and construction, concepts of visualization, like 3D modelling, parametric modelling, animation and digital fabrication. Use of building performance simulation modelling for designing energy efficient buildings through use of different softwares such as ecotect etc. Introduction to Design-data management tools such as Revit, ArchiCAD etc and parametric design tools such as Rhino and Grasshopper etc.

UNIT- II (SERVICES & CONTROL TECHNOLOGIES)

Detail study of Building Automation for building types like residential complexes, commercial & public buildings, specialized buildings etc.

Applicability of systems and specialized devices for/in HVAC, Emergency services, Water supply, Security, Day today applications and Building maintenance

Introduction to Automation software tools, such as Energy plus, E-quest etc

UNIT- III (INFORMATION SYSTEMS)

Introduction of Geographic Information Systems and various tools available, uses of GIS in different fields, etc. Mapping and Geographic Information Systems tools, such as ArcView Management Information Systems: Introduction of MIS and its uses in the building industry, for example in construction management, data management, etc. Management Information Systems tools, such as MS projects, MS VISIO

UNIT- IV (MATERIALS TECHNOLOGY)

Wood: Structure and properties of Renewability issues hardwoods and softwoods Bending and laminating wood Manufactured boards Processing - shaping, forming and joining Protecting and finishing wood Metals: Standard sizes and sections Protecting and finishing metals Plastics: Types, properties and characteristics Molecular structure in plastics Shaping, joining and finishing Pigmentation of plastics Durability and cost Ceramics: Design principles for Environmental issues associated moulding concrete with the manufacture and disposal of materials Composite Materials: Types, properties and applications

Jyoti Prakash

Evaluation Criteria for Exam / Question Paper Setting:-

The examiner is required to set eight questions with minimum two from each unit. Students are required to attempt five questions with minimum one from each unit. The question bank will be submitted to university within one month of commencement of semester.

Instructions for the Faculty –

Market survey to study materials available. Subject shall be taught through the combination of Guest Lectures, Field visits, Visits to the Project Sites
Exercises shall be clubbed with Design Studio Project

Core References:

The assigned Faculty is required to provide updated references/E-resources related to the content of the subject by ensuring the availability of the same in the department library, on web portals/online i.e. E-learning. The Faculty is also advised to keep on updating the reference list and submit the latest one in the Library & Academic department of the Campus.

Justi
Pradyumn

IK Gujral Punjab Technical University
Bachelor of Architecture (B. Arch. 5th Semester)

| Course Code | Course Name | L, S/T, P/FW, ST | Credits - 3 | Duration of Exam |
|-----------------------|----------------|------------------|------------------|------------------|
| UC/BARCH/ /508 (D)/19 | Product Design | 2, 1, -, -, | Int : Ext -40:60 | 03 |

Course Objective: To expose the students to the requirements of designing for the human comfort in accordance with anthropometry. The students will have knowledge of ergonomics and its applications in Product design including designing for the physically challenged and the elderly

Course Outcomes: At the end of the course, the students will able to gain knowledge of product design.

Detailed Syllabus:-

UNIT- I

INTRODUCTION - Human being in the manmade world and importance of ergonomics, Gross human anatomy, Ergonomics for children and old people, Definitions related to Ergonomics and Product design, Historical development in the concept of ergonomics and product design, Role of Product designer.

UNIT- II

ERGONOMICS AND DESIGN - Application of human factors data. Human activities, their nature and effects, Man-machine interaction and physical environment - Environmental Condition including, thermal, illumination and noise. Applied anthropometry – Human response to climate, Human performance and system reliability, designer's priorities.

UNIT- III

ASPECTS OF PRODUCT DESIGN - Visual, Auditory, Tactual, Olfactory human mechanisms, Physical space and arrangement. Product display, process of seeing, visual discrimination, quantitative and qualitative visual display, Alphanumeric and related displays, Visual codes and symbols. Processes of product designing, manufacturing and testing Form, Colour, Symbols, User specific criteria, Material selections, Technology and recyclability, Packaging. Multiple Utility oriented approach to Product Design.

UNIT- IV

UNIVERSAL DESIGN - Design of special elements in buildings for physically challenged and old aged - Design of Household elements, tools and devices. - Design of furniture. - Design of Industrial Product – Automobiles and Electrical - Element design for differently abled, old and children.

Evaluation Criteria for Exam / Question Paper Setting:-

The examiner is required to set eight questions with minimum two from each unit. Students are required to attempt five questions with minimum one from each unit.

The question bank will be submitted to university within one month of commencement of semester.

Instructions for the Faculty –

Teaching in the subject shall be made a combination of guest lectures by Experts, seminars. Focus on the live study and application of the subject into the architecture design.

Core References:

The assigned Faculty is required to provide updated references/E-resources related to the content of the subject by ensuring the availability of the same in the department library, on web portals/online i.e. E-learning. The Faculty is also advised to keep on updating the reference list and submit the latest one in the Library & Academic department of the Campus.

Jyoti
R. Singh

IK Gujral Punjab Technical University
Bachelor of Architecture (B. Arch. 5th Semester)

| Course Code | Course Name | L, S/T, P/FW, ST. | Credits - 3 | Duration of Exam |
|-----------------------|------------------------|-------------------|----------------------|------------------|
| UC/BARCH/ /508 (E)/19 | Architecture Acoustics | 2, 1, -, -, | Int : Ext - 40:60 | 03 |

Course Objective: To understand the behaviour of sound in an enclosed space and remedial measures for controlling unwanted noise, towards creating the most favourable conditions for indoor and outdoor acoustic environment.

Course Outcomes: At the end of the course, the students will able to understand the concept on architecture acoustics.

Detailed Syllabus:-

UNIT- I

-Nature of Sound: Sound Waves, Sound Levels- Power, Intensity and Pressure, Auditory Range - thresholds of hearing & pain, Decibel scale, Sound Effects on Human; Incidence of Sound-reflection, absorption & transmission; Noise, Sound in Open Air effects of wind flow & temperature gradients, acoustic shadow ; Sound in Enclosed Space-air-borne & structure borne (impact) sound, direct & reverberant components, reverberation time using Sabine's formula (dead & live room), echo, resonance.

UNIT- II

Environmental Acoustics: Various Noise Sources, Planning Against Noise-zoning, distancing & screening, green belts & landscaping, noise barriers, Outdoor Noise Regulations in India, Open-air Auditorium.

UNIT- III

General Building Acoustics: Acceptable Indoor Noise Levels, Transmission Loss and insulation against air-borne sound, Various Sound Absorbents, Reduction of Noise, Noise isolators in Construction-hollow & composite wall, resilient surface materials, floating floor construction for concrete & wooden floors, suspended ceiling, Acoustic treatment of skirting, windows & ventilators.

UNIT- IV

Residential Buildings: Sources of Noise and Recommendations- site planning, internal planning, sound insulation.

Educational Buildings: Sources of Noise and Recommendations- site planning, internal planning, noise reduction within rooms, sound insulation.

Auditoria and Theatres: Sources of Noise- outdoor and indoor, Recommendations- geometry & shape, seating arrangement, design criteria for different purposes; Electro-acoustic installations

Evaluation Criteria for Exam / Question Paper Setting:-

The examiner is required to set eight questions with minimum two from each unit. Students are required to attempt five questions with minimum one from each unit.

The question bank will be submitted to university within one month of commencement of semester.

Instructions for the Faculty –

Market survey to study materials available. Subject shall be taught through the combination of Guest Lectures, Field visits, Visits to the Project Sites

Jyoti Prakash

Exercises shall be clubbed with Design Studio Project

Core References:

The assigned Faculty is required to provide updated references/E-resources related to the content of the subject by ensuring the availability of the same in the department library, on web portals/online i.e. E-learning. The Faculty is also advised to keep on updating the reference list and submit the latest one in the Library & Academic department of the Campus.

John

P. Singh,

IK Gujral Punjab Technical University
Bachelor of Architecture (B. Arch. 5th Semester)

| Course Code | Course Name | L, S/T, P/FW, ST | Credits - 2 | Duration of Exam |
|--------------------------|---|---------------------|------------------|------------------|
| UC/BARCH/ /509 (A)/19 | Sociology for Architects / Fundamentals of Sociology | 2L, | Int : Ext -40:60 | 03 |

Course Objective: To make students learn and understand the To make students drive deeper into the Architecture problems and look for directive principles guiding the philosophy of design used by masters of modern Architecture and to assess their contribution by their own criteria.

Course Outcomes: At the end of the course, the students will able to the aspects of sociology for architects and its fundamentals.

Detailed Syllabus:-

UNIT- I

Sociology: Definition and Subject matter, Nature and Scope, Emergence of Sociology, Sociology and its relationship with Anthropology, Political Science, Economics, and History

UNIT- II

Basic Concepts: Society, Culture, Community, Institutions, Association, Social Structure, Status and Role, Norms and Values, Folkways and Mores

UNIT- III

Individual and Society : Individual and society, Socialization, Stages and agencies of Socialization, Development of Self – contributions of George Herbert Mead, C.H. Cooley's Looking Glass Self The Concept of Group : Types of Groups – Primary and Secondary groups, In-Group and Out-group, Reference Group

UNIT- IV

Social Stratification: Caste, Class, Power, Gender and Race. Theories of Stratification – Functionalist, Marxist, Weberian. Social mobility and its determinants.

Evaluation Criteria for Exam / Question Paper Setting:-

The examiner is required to set eight questions with minimum two from each unit. Students are required to attempt five questions with minimum one from each unit.

The question bank will be submitted to university within one month of commencement of semester.

Instructions for the Faculty –

Focus on the live study and application of the subject into the architecture design.

Core References:

The assigned Faculty is required to provide updated references/E-resources related to the content of the subject by ensuring the availability of the same in the department library, on web portals/online i.e. E-learning. The Faculty is also advised to keep on updating the reference list and submit the latest one in the Library & Academic department of the Campus.

Jyoti
P. Singh

IK Gujral Punjab Technical University
Bachelor of Architecture (B. Arch. 5th Semester)

| Course Code | Course Name | L, S/T, P/FW, ST | Credits - 2 | Duration of Exam |
|--------------------------|---------------------|------------------|------------------|------------------|
| UC/BARCH/ /509 (B)/19 | Health Education- I | 2L | Int : Ext -40:60 | 03 |

Course Objective: Health Education provides every student an opportunity to gain new and useful information related to daily living, self-esteem, family and community living. The course is divided into two major segments. The first segment is a general overview of mental and social health. The second segment covers a variety of topics including anatomy, problems of aging, environmental and political issues in health, sex education, AIDS education, alcohol, tobacco and other drugs (ATOD), diseases, first aid, and nutrition.

Course Outcomes: At the end of the course, the students will be able to understand the importance of health education.

Detailed Syllabus:-

UNIT- I - Mental and Social Health

- Making healthy decisions
- Personality, self-esteem, and emotions
- Managing stress
- Mental disorders and suicide
- Family relationships
- Preventing violence

UNIT- II - Alcohol, Tobacco, and Other Drugs (ATOD)

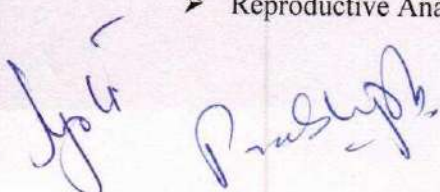
- Alcohol's effects on the body
- Long-term risks of alcohol
- Teens and tobacco
- Risks of tobacco use
- Legal and illegal drugs
- Preventing drug abuse

UNIT- III – Nutrition

- Food and nutrition
- Guidelines for healthy eating
- Making healthy food choices
- Safely managing your weight
- Nutrition for individual needs
- Keeping your digestive system healthy

UNIT- IV - Family Life and Human Sexuality

- Reproductive Anatomy



- HIV, STDs, and Pregnancy
- Contraception
- Negotiation and Refusal Skills
- Healthy Relationships

Evaluation Criteria for Exam / Question Paper Setting:-

The examiner is required to set eight questions with minimum two from each unit. Students are required to attempt five questions with minimum one from each unit.

The question bank will be submitted to university within one month of commencement of semester.

Instructions for the Faculty –

Subject shall be taught through the combination of Guest Lectures, expert lectures or seminars. Exercises shall be clubbed with Design Studio Project

Core References:

The assigned Faculty is required to provide updated references/E-resources related to the content of the subject by ensuring the availability of the same in the department library, on web portals/online i.e. E-learning. The Faculty is also advised to keep on updating the reference list and submit the latest one in the Library & Academic department of the Campus.

Joti
Prashant

IK Gujral Punjab Technical University
Bachelor of Architecture (B. Arch. 5th Semester)

| Course Code | Course Name | L, S/T, P/FW, ST | Credits - 2 | Duration of Exam |
|--------------------------|-------------------------------|---------------------|------------------|------------------|
| UC/BARCH/ /509 (C)/19 | Music (Vocal, Instrumental), | 2L | Int : Ext -40:60 | 03 |

Course Objective: To make students learn and understand the music.

Course Outcomes: At the end of the course, the students will able to relate music with architecture and distinguish between good not so good music.

Detailed Syllabus:-

UNIT- I

Study of following Rāgas: 1.Durga 2.Jaunpuri 3.Bihag 4.Desh

UNIT- II

Vocal Music 4 Drut Khyāl in all Rāgas. 5.Swarmallika in any one Rāgas 6.Lakshangeet in any One Raga

UNIT- III

Instrumental Music 7.Different bols patterns in Rāgas. 8.Razakhani gat in Raga Kedar/Bihag/Jaunpuri. 9..Basic technique of Jhala Playing.

UNIT- IV

10.Ability to recite the following Thekas with Tali & Kali a) Chartaal b) Ektaal 11.Basic knowledge of Playing alankaar in Harmonium Vocal - Playing of Tanpura is compulsory

Evaluation Criteria for Exam / Question Paper Setting:-

The examiner is required to set eight questions with minimum two from each unit. Students are required to attempt five questions with minimum one from each unit.

The question bank will be submitted to university within one month of commencement of semester.

Instructions for the Faculty –

Subject shall be taught through the combination of Guest Lectures, expert lectures or seminars.

Exercises shall be clubbed with Design Studio Project

Core References:

The assigned Faculty is required to provide updated references/E-resources related to the content of the subject by ensuring the availability of the same in the department library, on web portals/online i.e. E-learning. The Faculty is also advised to keep on updating the reference list and submit the latest one in the Library & Academic department of the Campus.

Jyoti Prakash

IK Gujral Punjab Technical University
Bachelor of Architecture (B. Arch. 5th Semester)

| Course Code | Course Name | L, S/T, P/FW, ST | Credits - 2 | Duration of Exam |
|--------------------------|----------------------------------|------------------|------------------|------------------|
| UC/BARCH/ /509 (D)/19 | Laser/ Printing Technology | 2L | Int : Ext -40:60 | 3 |

Course Objective: The objective of this course is to impart the basis knowledge of different printing processes along with their role, importance and applications.

Course Outcomes: The learning outcome of this course is expected that after completion of this course the students will be having the detail knowledge of various printing processes and the recent development in this industry and they will implement their knowledge for print production operations.

Detailed Syllabus:-

UNIT- I

Historical development in Printing Technology. Recent trends in the field of printing and allied technologies.

Pre-Press, Press and Post press operations

UNIT- II

Letterpress Printing Process; Characteristics, role, importance and applications.

Offset Printing Process; Characteristics, role, importance and applications.

UNIT- III

Flexography Printing Process; Characteristics, role, importance and applications.

Gravure Printing Process; Characteristics, role, importance and applications.

UNIT- IV

Screen Printing Process; Characteristics, role, importance and applications.

Digital Printing Process; Characteristics, role, importance and applications.

Evaluation Criteria for Exam / Question Paper Setting:-

The examiner is required to set eight questions with minimum two from each unit. Students are required to attempt five questions with minimum one from each unit.

The question bank will be submitted to university within one month of commencement of semester.

Instructions for the Faculty –

Subject shall be taught through the combination of Guest Lectures, expert lectures or seminars.

Exercises shall be clubbed with Design Studio Project

Core References:

The assigned Faculty is required to provide updated references/E-resources related to the content of the subject by ensuring the availability of the same in the department library, on web portals/online i.e. E-learning. The Faculty is also advised to keep on updating the reference list and submit the latest one in the Library & Academic department of the Campus.

Jyoti Prakash

IK Gujral Punjab Technical University
Bachelor of Architecture (B. Arch. 5th Semester)

| Course Code | Course Name | L, S/T, P/FW, ST | Credits - 2 | Duration of Exam |
|--------------------------|------------------|------------------|------------------|------------------|
| UC/BARCH/ /509 (E)/19 | Creative Writing | 2L | Int : Ext -40:60 | 3 |

Course Objective: This course will focus on expressive writing in many different forms. Students will have the opportunity to explore several different types of poetry and prose styles, as well as responding to literature, art mediums, quotes, and music. Originality and writing that shows thought will be emphasized. Strategies to avoid writer's block and new ways to uncover ideas for writing will be studied.

Course Outcomes: in Creative Writing will write poems, short stories, plays, news stories, comic strips, children's books, an autobiography and other types of writing that express creativity. Students will also study writing samples from professional writers

Detailed Syllabus:-

UNIT- I

Characteristics of Good Writing prose & Poetry Figurative Language Imagery Sensory Details Point of View Rhyme Repetition Parallelism Short Story Theme

UNIT- II

Word Choice Precise language Poetic Forms Adventure Story Character, Setting, Plot Style Playwriting

UNIT- III

Humor Using Structure to Reflect Theme Art, Music as Inspiration for Poetry Descriptive Writing Persuasive Writing—Commercial News Story Memoir—Reflective Writing Methodology

UNIT- IV

Autobiography Children's Books Action in Story Writing Paint-Write Project Anthology Fable Fairy Tale review writing, precis, summary, abstract and paper writing

Evaluation Criteria for Exam / Question Paper Setting:-

The examiner is required to set eight questions with minimum two from each unit. Students are required to attempt five questions with minimum one from each unit.

The question bank will be submitted to university within one month of commencement of semester.

Instructions for the Faculty –

All offsets must be directed towards narrative writing. Students should be encouraged irrespective of the genre, topic, style. Focus on enhancement of creative and artistic expression should be there.

Core References:

The assigned Faculty is required to provide updated references/E-resources related to the content of the subject by ensuring the availability of the same in the department library, on web portals/online i.e. E-learning. The Faculty is also advised to keep on updating the reference list and submit the latest one in the Library & Academic department of the Campus.

Jyoti Prakash

IK Gujral Punjab Technical University
Bachelor of Architecture (B. Arch. 5th Semester)

| Course Code | Course Name | L, S/T, P/FW, ST | Credits | Duration of Exam |
|-----------------|--|------------------|---------|------------------|
| UC/BARCH-510/19 | Educational Tour II/ Summer Training-II/Vacation Assignment-II | | 1 | |

The education tour to one day to one or two week duration be encouraged to be undertaken by the students under faculty supervision . During or after the semester the term report shall be submitted to the class coordinator for assessment.

The students be encourage to undertake approx. 04 week summer training in a design / construction office. alternatively student should also be encouraged to do any online course of similar duration during the summer vacation.

Vacation assignment are be assign by the HoD in consultation with class coordinator before the commencement of the vacation and submitted in the following semester to the class coordinator for assessment.

Jyoti
P. Singh

6th Semester 2019

IK Gujral Punjab Technical University
Bachelors of Architecture
(Constituent Campus)

Jyoti

P. Singh
21.1.21

IK Gujral Punjab Technical University
Bachelor of Architecture (B. Arch. 6th Semester)

| Course Code | Course Name | L, S/T, P/FW, ST | Credits - 6 | Duration of Exam |
|-----------------|--------------------------|------------------|-------------------|--|
| UC/BARCH-601/19 | Architectural Design -VI | 1, -, -, 5 | Int : Ext - 60:40 | 12 (in 2 days) + External Viva Voce |

Course Objective: To make students understand and appreciate the constraints in the designing of a building, the principles and approach to the designing of complexes in the context of urban design, environmental components and urban services.

Course Outcomes: At the end of the course, nature of urban complexes, scale and other elements of urban design to be incorporated. They will also be well versed with various physical factors of architecture design and equipped with the norms of barrier free design & large span Column free structures.

Detailed Syllabus:-

UNIT-I

Auditorium, Cinemas, Theatres, Multiplex.

UNIT-II

Specialized Housing EWS, LIG, MIG and HIG

Study of an urban complex as a prototype so as to have a basic knowledge of various aspects in planning with focus on urban activity, services and construction methods along with social aspects, growth and change.

Evaluation Criteria for Exam / Question Paper Setting:-

One compulsory question is to be set from the entire syllabus. The answer sheet shall be retained at the institute after the exam for conduct of the viva voce which will be conducted at the institute level by Internal / External jury members appointed in consultation with the university from the approved panel list of examiners. The answer sheet shall be retained at the institute after the exam for the conduct of viva voce.

Instructions for the Faculty –

Design faculty is required to take a well prepared well researched lecture on the building topology and should encourage and motivate the students for taking up live projects of their immediate surroundings (Identifying need, Framing requirements and solution for the same, and it should be evaluated as one of the assignment)It is recommended that 2-3 projects to be handled by students from the topic given above. Library and prototype studies should be carried out for remaining projects. Model and perspective should be made essential part of project presentation.

Core References:

The assigned Faculty is required to provide updated references/E-resources related to the content of the subject by ensuring the availability of the same In the department library, on web portals/online i.e. E-learning. The Faculty is also advised to keep on updating the reference list and submit the latest one in the Library & Academic department of the Campus.

[Handwritten signatures]

IK Gujral Punjab Technical University
Bachelor of Architecture (B. Arch. 6th Semester)

| Course Code | Course Name | L, S/T, P/FW, ST | Credits - 2 | Duration of Exam |
|-----------------|----------------------------|------------------|----------------------|------------------|
| UC/BARCH-602/19 | History of Architecture-IV | 2L | Int : Ext - 40:60 | 03 |

Course Objective

To appreciate the constraints in the Architectural design of an ancient building with reference to its function, form and structures. To make student understand how different Architectural solutions were evolved (in successive historic periods) within the limitation imposed by prevalent social and religious customs, available building materials, climate of region/topography, complex structural problems and the limited technology available at that time period.

Course Outcomes: At the end of the course, the students will be able to –

- Develop a holistic approach to architecture as an integral component of the built environment.
- Develop an understanding of architecture as an outcome of various social, political and economic influences and as a response to the cultural and climate conditions.
- Understand the physical experience of buildings in order to appreciate the complexity of the physical and metaphysical influences bearing on architecture

UNIT-I

- Gothic Architecture
- Renaissance Architecture- Origin, growth and development in Europe

UNIT-II

- Mannerism - Basic contents and its impact on the development of Architecture
- Baroque & Rococo style.

UNIT-III

- Architecture of Imperial or Delhi style under various rulers.
- Architecture of Provincial Styles

UNIT-IV

- Architecture of Mogul period
- Mughal Architecture buildings

Evaluation Criteria for Exam / Question Paper Setting:-

The examiner is required to set eight questions with minimum two from each unit. Students are required to attempt five questions with minimum one from each unit.

The question bank will be submitted to university within one month of commencement of semester.

Instructions for the Faculty –

All efforts must be directed to make the learning an enriching experience. Subject shall be taught through the combination of Guest Lectures, Field visits, Visits to the Project Sites. Focus on the live study and application of the subject into the architecture design.

Core References:

The assigned Faculty is required to provide updated references/E-resources related to the content of the subject by ensuring the availability of the same in the department library, on web portals/online i.e. E-learning. The Faculty is also advised to keep on updating the reference list and submit the latest one in the Library & Academic department of the Campus.

Joti Prashy

IK Gujral Punjab Technical University
Bachelor of Architecture (B. Arch. 6th Semester)

| Course Code | Course Name | L, S/T, P/FW, ST | Credits - 3 | Duration of Exam |
|-----------------|--|------------------|-------------------|------------------|
| UC/BARCH-603/19 | Estimating Costing & Specifications- I | 2, 1, -, -, | Int : Ext - 40:60 | 03 |

Course Objective: To make students understand the factors affecting cost of buildings and methods of preparing estimates of architectural projects.

Course Outcomes: At the end of the course, the students will able to prepare detailed estimates and cost of two-storeyed residential buildings in masonry and reinforced cement concrete.

Detailed Syllabus: -

UNIT- I

- Estimate & Types of Estimate.
- Methods of Estimates--Approximate & detailed methods of Estimate including Plinth area method, Carpet/Floor Area method, Cubic Content method.

UNIT- II

- Preparing estimates of quantities of materials for various items of work e.g. earthwork, brickwork, flooring, roofing etc- units of measurements and payments.
- Analysis of rates of material and labour required for various items of work.
- Bill of Quantities-Methods of taking out the quantities of R.C.C. construction.

UNIT- III

- Case study/practical exercise in preparing a detailed estimate of a two storeyed residential building with respect to the quantities of material and labour required as well as analysis of rates for material and labour.
- Introduction, importance, Role, Functions and Types of Specifications
- Detailed Specifications for various basic building materials

UNIT- IV

- Writing specifications for civil works as:-
 - Damp Proof Course
 - Brick Masonry
 - Concreting
 - Flooring
 - Plastering & Pointing
 - Timber Doors & Windows
 - Steel Doors & Windows
 - Painting and Varnishing
 - Services, Sanitary Fixtures & Electric Wiring

Evaluation Criteria for Exam / Question Paper Setting:-

The examiner is required to set eight questions with minimum two from each unit. Students are required to attempt five questions with minimum one from each unit.

The question bank will be submitted to university within one month of commencement of semester.

Joshi *Rashidh*

Instructions for the Faculty –

All efforts must be directed to make the learning an enriching experience. Subject shall be taught through the combination of Guest Lectures, Field visits, Visits to the Project Sites. Focus on the live study and application of the subject into the architecture design.

Core References:

The assigned Faculty is required to provide updated references/E-resources related to the content of the subject by ensuring the availability of the same in the department library, on web portals/online i.e. E-learning. The Faculty is also advised to keep on updating the reference list and submit the latest one in the Library & Academic department of the Campus.

Jyoti Prakashyath.

IK Gujral Punjab Technical University
Bachelor of Architecture (B. Arch. 6th Semester)

| Course Code | Course Name | L, S/T, P/FW, ST | Credits - 2 | Duration of Exam |
|-----------------|------------------------------|------------------|-------------------|------------------|
| UC/BARCH-604/19 | Architecture Legislation - I | 2L | Int : Ext - 40:60 | 03 |

Course Objective: To make students understand students familiar with the role and importance of Legal Framework in Designing the Built Environment and Promoting orderly growth of Human Settlements

Course Outcomes: At the end of the course, the students will able to understand need for building byelaws, importance of legislation in building industries ana NBC norms.

Detailed Syllabus:-

UNIT- I

- Need, Role and Importance of Legislation in the Building Industry
- Building Bye- laws-- Contents and Scope
- Study of Building Bye- laws Chandigarh- Intent and Contents
- Study of Building Bye- laws ,PUDA- Intent and Contents

UNIT- II

- Study of Municipal Building Bye- laws - Intent and Contents
- Architectural Controls- Need, Typology, Contents and Applicability
- Introduction to various Acts- Periphery Control, Property Regulation Act, Regional and Town Planning Act, Chandigarh Capital Act, Heritage Conservation Act.

UNIT- III

- Requirements of Submission of Documents/ Drawings for approval of Building Plans in Chandigarh, PUDA, Local Bodies
- Completion/ Occupation Certificate for Buildings- Need and Procedure
- Preservation and Conservation of Heritage Buildings, Heritage Regulations

UNIT- IV

- National Building Code, - Study of Important Definitions , Types of Buildings,
- Protection of Industrial/ Multi-Storeyed Buildings against Fire etc w.r.t. National Building Code
- Disability Act

Evaluation Criteria for Exam / Question Paper Setting:-

The examiner is required to set eight questions with minimum two from each unit. Students are required to attempt five questions with minimum one from each unit.

The question bank will be submitted to university within one month of commencement of semester.

Instructions for the Faculty –

Focus on the live study and application of the subject into the architecture design.

Core References:

The assigned Faculty is required to provide updated references/E-resources related to the content of the subject by ensuring the availability of the same in the department library, on web portals/online i.e. E-learning. The Faculty is also advised to keep on updating the reference list and submit the latest one in the Library & Academic department of the Campus.

John
Pradyumn

IK Gujral Punjab Technical University
Bachelor of Architecture (B. Arch. 6th Semester)

| Course Code | Course Name | L, S/T, P/FW, ST | Credits - 4 | Duration of Exam |
|-----------------|--------------------------------------|------------------|----------------------|------------------|
| UC/BARCH-605/19 | Building Construction & Materials-VI | 1, 3Studio | Int : Ext - 60:40 | 03 |

Course Objective: To make students understand and appreciate, various methods of building construction in coordination with the building materials and science related to them. Students will gain knowledge on the various applications of materials in Interior project and its detailing.

Course Outcomes: At the end of the course student will able to Become aware overall intent is to make students understand construction/detailing of work associated with interior finishes and works.

Detailed Syllabus:-

UNIT-I

Complete working drawings of a residential building including Site plan, Floor plans, Elevations, Sections, and Services showing-

- Constructional details of Kitchen
- Constructional details of Toilets
- Built in Furniture (Cup boards etc.)
- Staircase
- Joinery details

UNIT-II

Temporary construction work

- Shoring
- Underpinning
- Scaffolding

Evaluation Criteria for Exam / Question Paper Setting:-

- Two questions are to be set from each Unit.
- Students are required to attempt Three Questions with One question from each Unit.

Instructions for the Faculty –

All efforts must be directed to make the learning an enriching experience.

Market Survey to study complete range of products available in the market under different trade names with their manufacturing details, specifications and performance. Field visit to study the complete process of lying of reinforcement and concreting. Preparing Construction sheets on above topics. Emphasis shall be laid on understating of complete construction details of Double Storeyed structure.

Core References:

The assigned Faculty is required to provide updated references/E-resources related to the content of the subject by ensuring the availability of the same in the department library, on web portals/online i.e. E-learning. The Faculty is also advised to keep on updating the reference list and submit the latest one in the Library & Academic department of the Campus

Jyoti
P. Singh

IK Gujral Punjab Technical University
Bachelor of Architecture (B. Arch. 6th Semester)

| Course Code | Course Name | L, S/T, P/FW, ST | Credits - 4 | Duration of Exam |
|-----------------|--------------------------------|------------------|-------------------|------------------|
| UC/BARCH-606/19 | Structure Design (Project) -IV | 1, 3, -, -, | Int : Ext - 40:60 | 03 |

Course Objective: To create skill among students to apply the knowledge gained regarding structural design in an applied project and to make buildings safe against natural/ manmade disasters

Course Outcomes: At the end of the course student will able to Become aware overall intent is to make students understand construction/detailing of work associated with interior finishes and works.

Detailed Syllabus:-

UNIT-I

Detailed Structural Design & Drawings of a Public /Residential Building, (R.C.C. frame structure) with emphasis laid on practical design considerations.

UNIT-II

Earth quake Resistant Design.
Introduction to Codal provision, IS- 4326 and IS- 1893 for Earth quake Resistant Design of Buildings.

UNIT-III

Earth quake Resistant provisions for Brick Masonry& R.C.C. Buildings.

UNIT-IV

Project based on pervious Unit

Evaluation Criteria for Exam / Question Paper Setting:-

The examiner is required to set eight questions with minimum two from each unit. Students are required to attempt five questions with minimum one from each unit.

The question bank will be submitted to university within one month of commencement of semester.

Instructions for the Faculty –

Focus on the live study and application of the subject into the architecture design.

Core References:

The assigned Faculty is required to provide updated references/E-resources related to the content of the subject by ensuring the availability of the same in the department library, on web portals/online i.e. E-learning. The Faculty is also advised to keep on updating the reference list and submit the latest one in the Library & Academic department of the Campus.

Jyoti Prakash

IK Gujral Punjab Technical University
Bachelor of Architecture (B. Arch. 6th Semester)

| Course Code | Course Name | L, S/T, P/FW, ST | Credits - 2 | Duration of Exam |
|-----------------|-----------------------|------------------|-------------------|------------------|
| UC/BARCH-607/19 | Building Services-III | 2L | Int : Ext - 40:60 | 03 |

Course Objective: To make students learn and understand basic principles governing design/provision of HVAC, Building Management System and Acoustics within the buildings

Course Outcomes: At the end of the course, the students will able to :

1. Know about the working principles of the building.
2. Understand the role of services and would be able to design appropriate space, location for it.
3. Know about the acoustics materials where, how and why we are using these materials.
4. Understand the importance of intelligent buildings.

Detailed Syllabus:-

UNIT- I

AIR CONDITIONING

- Air conditioning--Role, Importance and Principles governing Air conditioning
- Refrigeration Cycle, Air cycle, Cooling Load
- Methods of Cooling and Heating-Evaporative Cooling etc
- Types of Air Conditioning Systems-Unit and Central
- Standards and location of various parts- Plant, Ductwork, Fan ,Filters, Outlets, Dampers etc
- Natural and Artificial Ventilation

UNIT- II

ACOUSTICS

- Acoustics- Introduction, Role, Importance, Concept, Basic Principles of Design,
- Sound- Basic principles governing transmission, reverberation, absorption, reflection etc.
- Acoustics-Materials- application, advantages and disadvantages
- Acoustics in Buildings- Design considerations for various buildings including Class Room, Studio, Lecture Theatre, Auditorium, OAT etc

UNIT- III

BUILDING AUTOMATION/BUILDING MANAGEMENT SYSTEM

- Building Automation-Introduction, Relevance, Scope and Importance
- Building Management System- Functions, Applicability to different services
- Building Management System- Limitations, Advantages, Disadvantages components and integration in buildings

Jyoti
P. Singh

UNIT- IV

INTELLIGENT BUILDINGS

- Intelligent Buildings- Concept, applicability and limitations

Evaluation Criteria for Exam / Question Paper Setting:-

The examiner is required to set eight questions with minimum two from each unit. Students are required to attempt five questions with minimum one from each unit.

The question bank will be submitted to university within one month of commencement of semester.

Instructions for the Faculty –

Subject shall be taught through the combination of Guest Lectures, Field visits, Visits to the Project Sites. Focus on the live study and application of the subject into the architecture design.

Core References:

The assigned Faculty is required to provide updated references/E-resources related to the content of the subject by ensuring the availability of the same in the department library, on web portals/online i.e. E-learning. The Faculty is also advised to keep on updating the reference list and submit the latest one in the Library & Academic department of the Campus.

Jyoti Prakash

IK Gujral Punjab Technical University
Bachelor of Architecture (B. Arch. 6th Semester)

| Course Code | Course Name | L, S/T, P/FW, ST | Credits - 2 | Duration of Exam |
|-----------------|--|------------------|-------------------|------------------|
| UC/BARCH-608/19 | Climate & Architecture (Sustainable Design) -III | 2L | Int : Ext - 40:60 | 03 |

Course Objective: To educate and make students aware about sustainability issues, need and importance of promoting sustainable Architecture.

Course Outcomes: At the end of the course student will able to Become aware overall intent is to make students aware of sustainable development , need and principle.

Detailed Syllabus:-

UNIT-I

- **Sustainable Development-** Introduction, definitions, objectives and scope
- **Man and Environment-** Introduction, issues and options
- **Human Settlements-** Planning, Growth, Development, Problems
- **Global warming –** Introduction, Causes, Effects and Remedies, Carbon Credits.
- **Architect-Role in Sustainable Development.**

UNIT-II

- **Energy - Role, Importance in buildings**
- **Sources of Energy- Non- renewable and renewable – Role and Importance**
- **Sustainable Materials –** Production and use
- **Quality of indoor/outdoor environment**

UNIT-III

- **Sustainable Design –** Concept, Objectives, Principles, Approach to Sustainable design
 - **Built Environment-** Sustainable Construction, Ecological Buildings, Green Building

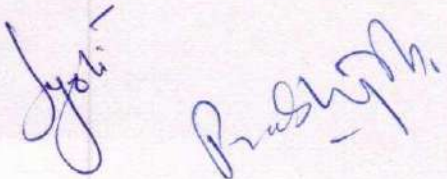
UNIT-IV

- **Building Rating System**
- **ECBC Code**
- **Sustainability Assessment -** LEED, Life Cycle Assessment, GRIHA
- **Climate responsive and Solar Passive Strategies in Indian Climates**
- **Recycling/Reuse**
- **India's approach to sustainable Development.**

Evaluation Criteria for Exam / Question Paper Setting:-

The examiner is required to set eight questions with minimum two from each unit. Students are required to attempt five questions with minimum one from each unit.

The question bank will be submitted to university within one month of commencement of semester.



Instructions for the Faculty –

Subject shall be taught through the combination of Guest Lectures, Field visits, Visits to the Project Sites. Focus on the live study and application of the subject into the architecture design.

Core References:

The assigned Faculty is required to provide updated references/E-resources related to the content of the subject by ensuring the availability of the same in the department library, on web portals/online i.e. E-learning. The Faculty is also advised to keep on updating the reference list and submit the latest one in the Library & Academic department of the Campus.

*Jyoti
P. Singh*

IK Gujral Punjab Technical University
Bachelor of Architecture (B. Arch. 6th Semester)

| Course Code | Course Name | L, S/T, P/FW, ST | Credits - 3 | Duration of Exam |
|------------------------|----------------------------------|------------------|--------------------|------------------|
| UC/BARCH-609 (A)/19 | Sustainable Cities & Communities | 2L, 1T | Int : Ext 40:60 | 03 |

Course Objective: To educate and make students aware about sustainability issues, need and importance of promoting sustainable Architecture. This course looks at pragmatic action in the face of three huge global trends

Course Outcomes: At the end of the course student will able to Become aware overall intent is to make students understand The course also takes a "built environment" approach. This is not the only way to understand cities! But it is useful since it looks at components of cities: the physical structures like roads, transit, buildings and more that are needed to support other attributes like jobs, schools, housing, and hospitals.

Detailed Syllabus:-

UNIT-I

Introduction and Orientation, Expectations Ground rules and Guidelines

UNIT-II

Principles Theories, Frameworks, Definitions, Practices Tools, Techniques, Metrics

UNIT-III

Transportation, Housing and Construction, Green Design and Architecture

UNIT-IV

The Future(s) of Sustainability, Megaprojects and Cities

Evaluation Criteria for Exam / Question Paper Setting:-

The examiner is required to set eight questions with minimum two from each unit. Students are required to attempt five questions with minimum one from each unit.

The question bank will be submitted to university within one month of commencement of semester.

Instructions for the Faculty –

Focus on the live study and application of the subject into the architecture design.

Core References:

The assigned Faculty is required to provide updated references/E-resources related to the content of the subject by ensuring the availability of the same in the department library, on web portals/online i.e. E-learning. The Faculty is also advised to keep on updating the reference list and submit the latest one in the Library & Academic department of the Campus.

Jyoti
Anushka

IK Gujral Punjab Technical University
Bachelor of Architecture (B. Arch. 6th Semester)

| Course Code | Course Name | L, S/T, P/FW, ST | Credits - 3 | Duration of Exam |
|------------------------|---|------------------|--------------------|------------------|
| UC/BARCH-609 (B)/19 | Vernacular / Rural / Indigenous Architecture/ Mud Arch | 2L, 1T | Int : Ext 40:60 | 03 |

Course Objective: The subject looks at specific vernacular architectural communities of India. Identifies and interprets specific local, regional, and national vernacular traditions from India. Develops a broader sense of understanding of the relationship between architecture, environment and culture

Course Outcomes: At the end of the course student will able to Become aware overall intent is to make students understand construction/detailing of work associated with interior finishes and works.

Detailed Syllabus:-

UNIT-I

Introduction to the field of Vernacular Architecture, traditional architecture

UNIT-II

Vernacular Architecture in the eastern, northern eastern India

UNIT-III

Vernacular Architecture of northern and western India

UNIT-IV

Vernacular Architecture of the Southern India & central India.

Evaluation Criteria for Exam / Question Paper Setting:-

The examiner is required to set eight questions with minimum two from each unit. Students are required to attempt five questions with minimum one from each unit.

The question bank will be submitted to university within one month of commencement of semester.

Instructions for the Faculty –

Focus on the live study and application of the subject into the architecture design.

Core References:

The assigned Faculty is required to provide updated references/E-resources related to the content of the subject by ensuring the availability of the same in the department library, on web portals/online i.e. E-learning. The Faculty is also advised to keep on updating the reference list and submit the latest one in the Library & Academic department of the Campus.

Jyoti Prakash

IK Gujral Punjab Technical University
Bachelor of Architecture (B. Arch. 6th Semester)

| Course Code | Course Name | L, S/T, P/FW, ST | Credits - 3 | Duration of Exam |
|------------------------|---|------------------|--------------------|------------------|
| UC/BARCH-609 (C)/19 | Architecture Conservation/ Restoration and Preservation | 2L, 1T | Int : Ext 40:60 | 03 |

Course Objective: The objective is to introduce ideologies and various philosophies that helped to formulate the principles of conservation discipline as it exists today in India and abroad. The students shall be introduced to the various charters and agencies and its role in the field of conservation.

Course Outcomes: At the end of the course student will able to:

- Be acquainted with the philosophies and principles of conservation.
- Understand the various charters and roles of various organisations in conservation.
- Understand degree of intervention for restoration and preservation of built heritage and appropriate remedial measures and solutions for strengthening and retrofitting of historical structures.

Detailed Syllabus:-

UNIT – I

Introduction to Conservation, History of Conservation movement in West and India, Understanding various conservation Philosophies, Approaches and Principles, Understanding of various definitions and terminology such as Historicity, Heritage, Culture, Authenticity, Values, Transformations, Regeneration, Revitalization, Redevelopment, Integrated Conservation etc.

UNIT – II

Introduction to Fundamental approaches and procedures for the inventories, Understanding process of identification and listing, Introduction to methods of documenting historic sites and structures through site sketches and measured drawings.

UNIT – III

Understanding the Concepts and policies of conservation of built environment with the relevance of Charters as a code of practice in conservation, the role of various international and national agencies [Archaeological Survey of India (A.S.I.), Indian National Trust of Art & Cultural Heritage (INTACH), International Council of Monuments & Sites (ICOMOS), World Heritage Committee, and UNESCO] engaged in conservation practice and policy making.

UNIT – IV

Issues related with physical deterioration of built heritage and its conservation, various types of defects/decays, its causes and classification of different agents of deterioration. Study of issues to be considered and techniques for Restoration and preservation of built heritage.

Role of Historic Building/Area/City in Present Context : Understanding Historic City by doing a study of its Heritage Components, various aspects for spatial Planning, the role of conservation and relevance of historic buildings/areas in present context

Evaluation Criteria for Exam / Question Paper Setting:-

The examiner is required to set eight questions with minimum two from each unit. Students are required to attempt five questions with minimum one from each unit.

The question bank will be submitted to university within one month of commencement of semester.

Jyoti Prakash

Instructions for the Faculty –

Focus on the live study and application of the subject into the architecture design.

Core References:

The assigned Faculty is required to provide updated references/E-resources related to the content of the subject by ensuring the availability of the same in the department library, on web portals/online i.e. E-learning. The Faculty is also advised to keep on updating the reference list and submit the latest one in the Library & Academic department of the Campus.

*John
Prasanna*

IK Gujral Punjab Technical University
Bachelor of Architecture (B. Arch. 6th Semester)

| Course Code | Course Name | L, S/T, P/FW, ST | Credits – 3 | Duration of Exam |
|------------------------|------------------|------------------|--------------------|------------------|
| UC/BARCH-609 (D)/19 | Furniture Design | 2L, 1T | Int : Ext 40:60 | 03 |

Course Objective: Furniture design course is intended to impart skills and techniques for developing and also innovating high-end household furniture, office/corporate furniture and resorts/hotel furniture.

Course Outcomes: At the end of the course student will able to Become aware overall intent is to make students understand construction/detailing of furniture design.

Detailed Syllabus:-

UNIT-I

Fundamentals of Design in Design of Simple Furniture and Ergonomics
Furniture design through ages medieval, European, Indian, modern and contemporary.

UNIT-II

Indoor – outdoor furniture, house hold, office furniture, inbuilt and standalone furniture.

UNIT-III

pace and Form Studies in Space Graphics - furniture graphics, materials & techniques for furniture design and construction.

UNIT-IV

Estimation costing and specifications, software's

Evaluation Criteria for Exam / Question Paper Setting:-

The examiner is required to set eight questions with minimum two from each unit. Students are required to attempt five questions with minimum one from each unit.

The question bank will be submitted to university within one month of commencement of semester.

Instructions for the Faculty –

Focus on the live study and application of the subject into the architecture design.

Core References:

The assigned Faculty is required to provide updated references/E-resources related to the content of the subject by ensuring the availability of the same in the department library, on web portals/online i.e. E-learning. The Faculty is also advised to keep on updating the reference list and submit the latest one in the Library & Academic department of the Campus.

Jyoti Prashant

IK Gujral Punjab Technical University
Bachelor of Architecture (B. Arch. 6th Semester)

| Course Code | Course Name | L, S/T, P/FW, ST | Credits - 3 | Duration of Exam |
|------------------------|---|------------------|--------------------|------------------|
| UC/BARCH-609 (E)/19 | Lighting and Illumination/ Lighting Design | 2L, 1T | Int : Ext 40:60 | 03 |

Course Objective: Architectural Lighting Design is both science and art. An Architectural Lighting Designer understands the intricate details and process of construction, as well as an understanding of light, vision, and how together they define our built environment. Light allows us to see. Light defines what see. With an understanding of how light works, Architects and Interior Designers can extend their knowledge beyond forms and surfaces – they can enter a world of brilliance, glow, shadow, sparkle, and darkness.

Course Outcomes: A basic understanding of light is explored with a “hands-on” approach in the first assignment, a 3-Dimensional study of how light effect your perception. The exercise consists of fabricating small non-architectural abstract t light concepts with light. The student’s individual discovery of new materials and light effects is encouraged.

Detailed Syllabus:-

UNIT-I

An overview of the history of light - Electric Lamps: Incandescent/Halogen/Fluorescent/HID/LED - learn basic wiring and simple lighting effects

UNIT-II

Light and Vision: Seeing and Measuring Light. Colour & Colour Media, and LEDs, - learn about vision and perception, colour, and - understanding shade and shadow

UNIT-III

controlling light, luminaire optics and distributions - introduction to light fixture materials and construction, and components

UNIT-IV

Light in Architecture and the Psychology of Light
learning to develop a lighting concept, approach, and strategy - drawing lighting, and rendering techniques

Evaluation Criteria for Exam / Question Paper Setting:-

The examiner is required to set eight questions with minimum two from each unit. Students are required to attempt five questions with minimum one from each unit.

The question bank will be submitted to university within one month of commencement of semester.

Instructions for the Faculty –

Focus on the live study and application of the subject into the architecture design.

Core References:

The assigned Faculty is required to provide updated references/E-resources related to the content of the subject by ensuring the availability of the same in the department library, on web portals/online i.e. E-learning. The Faculty is also advised to keep on updating the reference list and submit the latest one in the Library & Academic department of the Campus.

(Handwritten signatures)

IK Gujral Punjab Technical University
Bachelor of Architecture (B. Arch. 6th Semester)

| Course Code | Course Name | L, S/T, P/FW, ST | Credits | Duration of Exam |
|--------------------------|-------------------------------|-------------------------|----------------|--|
| UC/BARCH-614 - 618/19 | Open Elective- II/Mooc Swayam | 2L | 2 | Certificate from concerned/ imparting agency |

The list of major domain of MOOC's courses are attached in the preamble & the department will have a MOOC coordinator who will display the list of MOOC in every semester.

Jyoti
Prakash

IK Gujral Punjab Technical University
Bachelor of Architecture (B. Arch. 6th Semester)

| Course Code | Course Name | L, S/T, P/FW, ST | Credits | Duration of Exam |
|-----------------|--|------------------|------------|------------------|
| UC/BARCH-619/19 | Mentoring and Professional Development-III | | Non Credit | No Exam |

The objective of mentoring will be development of:

- Overall Personality
- Aptitude (Technical and General)
- General Awareness (Current Affairs and GK)
- Communication Skills
- Presentation Skills

The course shall be split in two sections i.e. outdoor activities and class activities. For achieving the above, suggestive list of activities to be conducted are:

UNIT – I (Class Activities)

- Expert and video lectures
- Aptitude Test
- Group Discussion
- Quiz (General/Technical)
- Presentations by the students
- Team building Exercises

UNIT – II (Outdoor Activities)

- Sports/NSS/NCC
 - Society Activities of various students chapter i.e. ISTE, SCIE, SAE, CSI, Cultural Club, etc.
- Evaluation shall be based on rubrics for Part – A & B Mentors/Faculty in charges shall maintain proper record student wise of each activity conducted and the same shall be submitted to the department.

Jyoti Prakash