I.K. Gujral Punjab Technical University Jalandhar, Kapurthala

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

FIRST SEMESTER

Course Type	S. no	Course Code	Course Title	Load Allocations					Marks %	Credits	Duration of Uni. Exam (in hrs) /Viva- Voce
				L	Sem/ Tut	P/FW	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**	03
	3	UC/BARCH-103/19	Architectural Graphics-I	1	-	-	2	**03**	**60:40**	**3**	03
	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**	03
	6	UC/BARCH-106/19	Structure Systems-I	1	-	-	1	**02**	**100**	**2**	No Exam only Internal Viva-Voce
SEC	7	UC/BARCH-107/19	Workshop-I	-	-	2	-	**02**	**100**	**1**	No Exam only Internal 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 External Viva Voce
	10	UC/HSMC-122/18	Human Values and Professional Ethics	1	2	-	-	**03**	**40:60**	**2**	03
	Total			10	3	4	14	**31**		**28**	

Abbreviation Used in the teaching scheme			
PC	Professional Core	**L**	Lecture
BS & AE	Building Science & Applied Engineering	**Sem/Tut**	Seminar/ Tutorial

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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

SECOND SEMESTER

Course Type	S. no	Course Code	Course Title	Load Allocations					Marks	Credits	Duration of Univ. Exam(in hrs) / Viva-Voce
				L	Sem/ Tut	P/FW	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**	03
	3	UC/BARCH-203/19	Architectural Graphics-II	1	-	-	2	**03**	**60:40**	**3**	03
	4	UC/BARCH-204/19	History of Architecture-II	2	-	-	-	**02**	**40:60**	**2**	03
BS &AE	5	UC/BARCH-205/19	Building Construction & Materials-II	1	-		4	**05**	**60:40**	**5**	03
	6	UC/BARCH-206/19	Theory of Structure	2	1	-	-	**03**	**40:60**	**3**	03
PAECC	7	UC/BARCH-207/19	Theory of Design- I	2	-	-	-	**02**	**40:60**	**2**	03
SEC	8	UC/BARCH-208/19	Workshop-II	-	-	2	-	**02**	**100**	**1**	No Exam only Internal Viva-Voce
	9	UC/EVSC- 101/19	Environmental Science	2	-	-	-	**02**	**40:60**	**2**	03
	10	UC/BARCH-210/19	Mentoring & Professional Development- I	-	-	2	-	**02**	**100**	**Non Credit**	No Exam
	Total			12	1	4	14	**31**		**28**	

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Note:-

***Educational Tour-I/ Summer Training-I / Vacation Assignment-I**

- *Educational Tour of 1-2 week duration (during or after) the First year of studies must be undertaken.*
- *Summer Training/ Vacation assignment to be given based on UC/BARCH-210/19. The marking of the same will be done in the Third semester course code UC/BARCH-308/19.*

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

THIRD SEMESTER

I.K. Gujral Punjab Technical University Jalandhar Kapurthala

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	Total	10	4	4	9	**27**		**24**	

Note:-

***Educational Tour-I/ Summer Training-I / Vacation Assignment-I**

- *Third semester course code UC/BARCH-308/19 is carried out in the intervening period of Second and Third Semester.*
- *The Summer Training-I/ Vacation Assignments-I to be evaluated on the basis of work submitted in the starting of Third semester only.*

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FOURTH SEMESTER

Course Type	Sr. no	Course Code	Course Title	Load Allocations					Marks	Credits	Duration of Univ. Exam(in hrs) / Viva-Voce
				L	Sem/ Tut	P/FW	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-III	2	-	-	-	**02**	**40:60**	**2**	03
BS &AE	3	UC/BARCH-403/19	Building Construction & Materials-IV	1	-	-	3	**04**	**60:40**	**4**	03
	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**	No Exam only 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
			Total	13	4	4	8	**29**		**26**	

Note:-

***Educational Tour-II/ Summer Training-II / Vacation Assignment-II**

- *Educational Tour/Documentation project of 1-2 week duration (during or after) the Second year of studies must be undertaken.*
- *Summer Training/ Vacation assignment to be given based on UC/BARCH-408/19. The marking of the same will be done in the Fifth semester course code UC/BARCH-514/19.*

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FIFTH SEMESTER

Course Type	Sr. no	Course Code	Course Title	Load Allocations					Marks	Credits	Duration of Univ. Exam(in hrs) / Viva-Voce
				L	Sem/ Tut	P/FW	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**	03
	3	UC/BARCH-503/19	Structure Systems-III	1	-	-	1	**02**	**100**	**2**	No Exam only 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-II	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 - 510/19	Elective- I	2	1	-	-	**03**	**40:60**	**3**	03
OE	9	UC/BARCH- 511 - 513/19	Open Elective- I /Mooc /Swayam	2	-	-	-	**02**	**40:60**	**2**	03
SEC	10	UC/BARCH-514/19	*Educational Tour II/ Summer Training-II/ Vacation Assignment-II	-	-	-	-	**-**	**100**	**1**	Internal Assessment /Viva-Voce
	Total			15	7		8	**30**		**31**	

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

Note:-

***Educational Tour-II/ Summer Training-II / Vacation Assignment-II**

- *Fifth semester course code UC/BARCH-514/19 is carried out in the intervening period of Fourth and Fifth Semester.*
- *The Summer Training-I/ Vacation Assignments-I to be evaluated on the basis of work submitted in the starting of Fifth semester only.*

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UC/BARCH-508/19	Green Buildings & Rating System
UC/BARCH-509/19	Hill Architecture
UC/BARCH-510/19	Architecture Acoustics

Open Elective-I (Choose any one from the given choices)	
UC/BARCH-511/19	Sociology for Architects
UC/BARCH-512/19	Health Education- I
UC/BARCH-513/19	Creative Writing

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SIXTH SEMESTER

Course Type	Sr.no	Course Code	Course Title	Load Allocations					Marks	Credits	Duration of Univ. Exam(in hrs) / Viva-Voce
				L	Sem/ Tut	P/FW	Stu	Total	Int : Ext		
PC	1	UC/BARCH-601/19	Architectural Design -VI	1	-	-	5	**06**	**60:40**	**6**	12 (in 2 days) + External Viva Voce
	2	UC/BARCH-602/19	History of Architecture-IV	2	-	-	-	**02**	**40:60**	**2**	03
	3	UC/BARCH-603/19	Estimating Costing & Specifications	2	1	-	-	**03**	**40:60**	**3**	03
	4	UC/BARCH-604/19	Architecture Legislation	2	-	-	-	**02**	**40:60**	**2**	03
BS & AE	5	UC/BARCH-605/19	Building Construction & Materials-VI	1	-	-	3	**04**	**60:40**	**4**	03
	6	UC/BARCH-606/19	Structure Design –IV (Project)	2	2	-	-	**04**	**40:60**	**4**	No Exam only External Viva
	7	UC/BARCH-607/19	Building Services-III	2	-	-	-	**02**	**40:60**	**2**	03
PAECC	8	UC/BARCH-608/19	Climate & Architecture-III (Sustainable Design)	2	-	-	-	**02**	**40:60**	**2**	03
PE	9	UC/BARCH-609-611/19	Elective- II	2	1	-	-	**03**	**40:60**	**3**	03
OE		UC/BARCH-612-614/19	Open Elective- II/Mooc Swayam	2	-	-	-	**02**	**40:60**	**2**	03
SEC	10	UC/BARCH-615/19	Mentoring and Professional Development-III	2	-	-	-	**02**	**100**	**Non-Credit**	No Exam
	Total			20	4		8	**32**		**30**	

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Note:-

- *Educational Tour of 2 week duration (during or after) the Third year of studies must be undertaken in the intervening period of Sixth and Seventh Semester.*
- *The MOOC coordinator appointed by the department will display the list of MOOC in every semester as per major domain of MOOC courses mentioned in the preamble. The students are required to submit the certificate from concerned/imparting agency after successful completing of the course.*

PE /Elective- II (Choose any one from the given choices)	
UC/BARCH-609/19	Sustainable Cities and Communities
UC/BARCH-610/19	Low-Cost effective Building Design
UC/BARCH-611/19	Interior Design

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SEVENTHSEMESTER

OE /Elective- II (Choose any one from the given choices)	
UC/BARCH-612/19	Psychology for Architects
UC/BARCH-613/19	Health Education-II
UC/BARCH-614/19	Lighting Design

Course Type	Sr. no	Course Code	Course Title	Duration	Marks	Credits	Duration of Univ. Exam(in hrs) / Viva-Voce
					Int : Ext		
PAECC	1	UC/BARCH- 701/19	Practical Training Programme	One Full Semester	**350:150**	**18**	No Exam only External Viva-Voce
	Total					**18**	

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Course Type	Sr. no	Course Code	Course Title	Load Allocations					Marks	Credits	Duration of Univ. Exam(in hrs) / Viva-Voce
				L	Sem/ Tut	P/FW	Stu	Total	Int : Ext		
PC	1	UC/BARCH-801/19	Architectural Design –VII	2	-	-	10	**12**	**60:40**	**12**	No University Exam only External Viva Voce based upon the Studio Assignments
BS & AE	2	UC/BARCH-802/19	Building Construction & Materials – VII	2	-	-	4	**6**	**60:40**	**6**	04
	3	UC/BARCH-803/19	Urban Design	2	-	-	3	**5**	**40:60**	**5**	03
	4	UC/BARCH-804/19	Housing	2	1	-	-	**3**	**40:60**	**3**	03

EIGHTH SEMESTER

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

PAECC	5	UC/BARCH-805/19	High Rise Building	2	1	-	-	**3**	**40:60**	**3**	03
PE	6	UC/BARCH-806-808/19	Elective-III	2	1	-	-	**3**	**40:60**	**3**	03
	Total			12	3	-	17	**32**		**32**	

PE /Elective- III (Choose any one from the given choices)	
UC/BARCH-806/19	Architectural Conservation
UC/BARCH-807/19	Sustainable Architecture
UC/BARCH-808/19	Building Maintenance

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NINTH SEMESTER

Course Type	S. no	Course Code	Course Title	Load Allocations					Marks	Credits	Duration of Univ. Exam(in hrs) / Viva-Voce
				L	Sem/ Tut	P/FW	Stu	Total	Int : Ext		
PC	1	UC/BARCH- 901/19	Architectural Design -VIII	2	-	-	10	**12**	**60:40**	**12**	No University Exam only External Viva Voce based upon the Studio Assignments
PAECC	2	UC/BARCH -902/19	Building Construction & Materials-VIII	2	-	-	4	**6**	**60:40**	**6**	04
	3	UC/BARCH- 903/19	Town Planning	2	1	-	-	**3**	**40:60**	**3**	03
BS &AE	4	UC/BARCH-904/19	Building Economics	2	1	-	-	**3**	**40:60**	**3**	03
PE	5	UC/BARCH- 905-907/19	Elective-IV	2	1	-	-	**3**	**40:60**	**3**	03
	6	UC/BARCH- 908-910/19	Elective-V	2	1	-	-	**3**	**40:60**	**3**	03
	Total			12	4	-	14	30		**30**	

PE /Elective- IV (Choose any one from the given choices)	
UC/BARCH-905/19	Vernacular Architecture
UC/BARCH-906/19	Principles of Human Settlement
UC/BARCH-907/19	Recent Heritage

PE /Elective- IV (Choose any one from the given choices)	
UC/BARCH-908/19	Traffic and Transportation
UC/BARCH-909/19	Geomatics Techniques for Architects
UC/BARCH-910/19	Research Methodology

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TENTH SEMESTER

Course Type	Sr. no	Course Code	Course Title	Load Allocations					Marks	Credits	Duration of Univ. Exam(in hrs) / Viva-Voce
				L	Sem/ Tut	P/FW	Stu	Total	Int : Ext		
PC	1	UC/BARCH-1001/19	Architectural Design (Thesis Project) -IX	-	-	-	24	**24**	**300:250**	**24**	No University Exam The External marks Shall be Awarded through External jury Viva Voce
PAECC	2	UC/BARCH-1002/19	Construction Management	2	1	-	-	**3**	**40:60**	**3**	03
	3	UC/BARCH-1003/19	Professional Practice	2	1	-	-	**3**	**40:60**	**3**	03
	4	UC/BARCH-1004/19	Disaster Management	2	1	-	-	**3**	**40:60**	**3**	03
	Total			6	3	-	20	**33**		**33**	

Note:-

- ***Students must score qualifying marks in the Course Code UC/BARCH-1001/19 for being eligible to obtain a degree in B. Architecture.***

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B. Architecture (Semester I) - Scheme 2019

(For Constituent Campus Only)

Course Type	S. no	Course Code	Course Title	Load Allocations					Marks %	Credits	Duration of Uni. Exam (in hrs) /Viva-Voce
				L	Sem / Tut	P/FW	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**	03
	3	UC/BARCH-103/19	Architectural Graphics-I	1	-	-	2	**03**	**60:40**	**3**	03
	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**	03
	6	UC/BARCH-106/19	Structure Systems-I	1	1	-	-	**02**	**100**	**2**	No Exam only Internal Viva-Voce
SEC	7	UC/BARCH-107/19	Workshop-I	-	-	2	-	**02**	**100**	**1**	No Exam only Internal 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 External Viva Voce
	10	UC/HSMC-122/18	Human Values and Professional Ethics	1	2	-	-	**03**	**40:60**	**2**	03
	Total			10	3	4	14	**31**		**28**	

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Course Code	Course Title	L	Sem/ Tut	P/ FW	Stu	Credits 6	Duration of University Exam
UC/BARCH-101/19	Architectural Design & Theory - I	1	-	-	5	Int:Ext 60:40	06 hours + viva voce by external jury

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 gain a fundamental knowledge of architecture design and its basic principles. The students will understand the skill required to interpret a work of architecture and to evaluate, identify and analyse artistic expression of architectural forms and the relationship between human activities of Space.

COURSE CONTENT

- **UNIT-I (Theory)**

- Introduction to Basic Design, Objectives of Design, Elements of Design, Principles of Design, Scale and proportion in Architecture, Anthropometrics (including norms for physically challenged persons), Human functions and their interactions for space requirements., Minimum and optimum areas for various human activities & functions, Functional 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, carpet, mural, door paving patterns, Sky line of city/village
- Compositions with 3-D Solids like cube, cuboids, cylinder, cone, prism etc.
- Design a small scale Security check post, Rain shelter, Bus stop, Milk booth with park layout

EVALUATION CRITERIA FOR EXAM / QUESTION PAPER SETTING

- The examiner is required to set five questions from Unit-I and two questions from Unit-II. Students are required to attempt four questions with minimum three questions from Unit-I one questions from Unit-II. The distribution of marks for unit I: Unit II is 24: 16 marks.
- Evaluation is to be done through viva voce by external examiner appointed by the university at college. Answer sheets should be retained at college level for the viva voce examination.

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 marked as an assignment.)
- The stress should be given on making students grasp the concept and do the design assignment as a creative fun activity.

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Course Code	Course Title	L	Sem/ Tut	P/ FW	Stu	Credits 4	Duration of University Exam
UC/BARCH-102/19	Architectural Drawing -I	1	-	-	3	Int:Ext 60:40	03 hours

COURSE OBJECTIVE

- The objective is to make the students familiarize with good drafting and lettering techniques use in architecture and gain the basic knowledge for preparing the architectural drawings by learning about the orthographic projections of simple geometric forms and representation of 3-D & 2-D forms.

COURSE Outcomes

- At the end of the course, the students will able to attain the knowledge to visualize the geometrical forms through plans, elevations and sections and gain the comprehensive understanding of the fundamental techniques of technical drawing and its architectural representation.
  -

COURSE CONTENT

- **UNIT-I**

- Drafting – Technique & its Principles
- Line - Types of Lines and Dimensioning of line
- Lettering - free hand & block lettering
- Scales – Different types of scale and its uses in the Architectural Drawing
- Orthographic Projections - Point, Lines, Plane and Solid in various positions in the First Quadrant.

- **UNIT- II**

- Section of Solids- Cube, Cuboids, Cone, Cylinder, Pyramid, Prism etc.
- Development of Surfaces - Simple Geometrical Solids (Cube, Cuboids, Cone, Cylinder, Pyramid, Prism etc.)
- Interpenetration of Solids

EVALUATION CRITERIA FOR EXAM / QUESTION PAPER SETTING

- Total eight questions are to be set from each unit & students are required to attempt total four questions i.e. two from each unit. The distribution of marks for unit I: Unit II is 16: 24 marks

INSTRUCTIONS FOR THE FACULTY

- The Faculty is required to give maximum examples of the orthographic projections and freehand line assignments.
- Emphasis should be laid on learning by doing and students have to be encouraged to make proper models to understand the geometry of forms.

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Course Code	Course Title	L	Sem/ Tut	P/ FW	Stu	Credits 3	Duration of University Exam
UC/BARCH-103/19	Architectural Graphics -I	1	-	-	2	Int:Ext 60:40	03 hours

COURSE OBJECTIVE

- The objective is to make the students familiar with visual arts & its basic principles, to explore the potential of Pencil of different grades, Coloured pencils as a powerful tool of Graphic Communication.

COURSE OUTCOMES

- At the end of the course, the students will gain a fundamental knowledge of architecture Graphics & its principles and achieved a comprehensive understanding of architectural presentation techniques.

COURSE CONTENT

- **UNIT-I (Pencil as fundamental tool of drawing)**

- Free hand line-work with different strokes/grades in pencil.
- Effect of light and shade on simple geometrical solids.
- Textures of different building materials (such as bricks, stones, grass, glass, timber etc.) in pencil through shading and surface finishes of wall and floor.
- B/W Composition by using different geometric forms with charcoal pencil.

- **UNIT- II (Pencil as presentation medium)**

- Freehand (proportionate) sketching of human figures, different types of vegetation, different transport modes and buildings etc.
- Indoor and outdoor furniture/antique items & Staircase-shading/role with light
- Sketches of scenes and activities from memory involving public spaces, markets, festivals, recreational spaces etc.
- Live sketching – indoor and outdoor area

- **UNIT-III (Rendering with coloured pencils/crayons/dry pastels)**

- Colour rendering of human figures, different types of vegetation, different transport modes and buildings etc.
- Colour Rendering of various scenes such as Garden/Park Scene, Street Scene, Lake Scene, Village/Market Scene, etc.
- Live sketching – indoor and outdoor area
- Role of light in rendering co-relation with different shapes of geometry and some building elements.

- **UNIT-IV (Art & Illusion)**

- Different exercises involving Logo Design, Collage making etc.
- Mural and Sculpture design in different materials like PoP, Clay, ceramic/Mosaic etc.

EVALUATION CRITERIA FOR EXAM / QUESTION PAPER SETTING

- Total four questions are to be set from each unit & students are required to attempt all questions.

INSTRUCTIONS FOR THE FACULTY

- Workshops related to pencil rendering will also be organised, highlighting its technique and style which can be organised indoor or outdoor.
- The students must be encouraged to appreciate the natural/man-made landscape and to understand the interrelationship of nature and architecture.

I.K. Gujral Punjab Technical University Jalandhar, Kapurthala

Bachelor's of Architecture (B. Arch): 1 to 10th Batch 2019 (For Constituent Campus Only)

Course Code	Course Title	L	Sem/ Tut	P/ FW	Stu	Credits 2	Duration of University Exam
UC/BARCH-104/19	History of Architecture -I	2	-	-	-	Int:Ext 40:60	03 hours

COURSE OBJECTIVE

- The objective of the course is to make student appreciate the constraints in the Architectural design of an ancient building with reference to its function, form and structures and 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 and able to 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. The student will understand the physical experience of buildings in order to appreciate the complexity of the physical and metaphysical influences bearing on architecture.

COURSE CONTENT

- **UNIT-I**

- Introduction, Definition and scope & importance of History of Architecture - Man's early/ prehistoric attempts to colonise and personalise space by taking the examples of early shelters, Stonehenge, tumuli etc. As an expression of man's physical and spiritual needs.
- Introduction to the river valley civilizations- the Origin and the Form of the civilization & the architecture characteristics of public buildings.
- Indus-valley civilization – Form/Planning of Harappan City, location and role of public and religious buildings. The architecture of dwelling units, Granary and great Bath.
- The Vedic village, Building typology and its construction details.

- **UNIT-II**

- Egyptian Civilization – Concept of the Royal Necropolis, location context and its architectural characteristics of public buildings like Mastabas, Pyramids and Temples (rock-cut and structural).
- Mesopotamian Civilization – the architecture of Religious & Public Buildings—Palaces, Ziggurats, Hanging Gardens etc. Examples of the city, Ziggurats of Ur and city & palaces of Khorsabad to be considered.

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.
- Question paper is to be set covering whole of the syllabus by making parts or mixing of topics.

INSTRUCTIONS FOR THE FACULTY

- The Faculty is required to give more emphasis on the functional components, architectural form, construction and ornamentation aspects of the buildings by considering limited examples (not more than 05) of each type of Architecture
- The Faculty is required to develop a holistic understanding in students to analysis the different architectural style/building typology.
- Educational trip will be organised to impart the practical knowledge of the content.

I.K. Gujral Punjab Technical University Jalandhar, Kapurthala

Bachelor's of Architecture (B. Arch): 1 to 10th Batch 2019 (For Constituent Campus Only)

Course Code	Course Title	L	Sem/ Tut	P/ FW	Stu	Credits 5	Duration of University Exam
UC/BARCH-105/19	Building Construction & Materials -I	1	-	-	4	Int:Ext 60:40	03 hours

COURSE OBJECTIVE

- The objective is to introduce the elementary building materials and their applications. To familiarize students with construction details of various components of construction.

COURSE OUTCOMES

- At the end of the course, the students will able to understand the properties, types, uses and application of various building materials (brick, lime, cement, mortar, sand, stones etc.) and gain the fundamental knowledge of building Construction especially in brick and stone.

COURSE CONTENT

- **UNIT-I**

- Brief introduction to mud, sand, clay, shurkhi, aggregates, lime and cement etc., Different types of mortar like mud mortar, lime mortar, cement mortar etc.- their properties and uses, Manufacturing process, Classification &types, uses, sizes and properties of bricks, Cost-effective bricks, AAC blocks, Fly-ash bricks etc. – their properties and uses in construction industry, Introduction to various components of a building (sub-structure to super-structure), their structural and functional roles.
- Classification &types, uses, sizes and properties of Stone available in India, Stone – quarrying process, its dressing, and deterioration and preservation measures, Application properties and visual check for different types of stone, Properties and uses of artificial stone.

- **UNIT-II**

- Brick masonry –different types of bonds (English, Flemish, Rat trap, etc.) and junctions (L-junctions, T-Junctions, cross junction) of varying wall thickness (not more that 2 brick thick)
- Attached and detached brick Piers of varying thickness (not more than 3'-0")
- Brick jalli-design and construction details
- Stone masonry of various types
- Lintels and sill level details, coping and threshold details.
- Arches-Flat, Segmental and Semi-circular

EVALUATION CRITERIA FOR EXAMINATION/ QUESTION PAPER SETTING

- Minimum eight questions are to be set from the entire syllabus with four questions from each unit. Students would be required to attempt four Questions with minimum two questions from each Unit. The distribution of marks for Unit I: Unit II is 12: 28 marks.
- Question paper is to be set covering whole of the syllabus by making parts or mixing of topics and set in such a form that the exam should be attempted on drawing sheets.

INSTRUCTIONS TO THE FACULTY

- The faculty should undertake 2-3 site visits for better understanding of bricks and stone construction and encouraged the students for market survey of material studied in the semester.

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Bachelor's of Architecture (B. Arch): 1 to 10th Batch 2019 (For Constituent Campus Only)

Course Code	Course Title	L	Sem/ Tut	P/ FW	Stu	Credits 02	Duration of University Exam
UC/BARCH-106/19	Structure System -I	1	-	-	1	Int:Ext 100:00	No exam, only Internal Viva-Voce

COURSE OBJECTIVE

- The main objective is to get the students familiarize with the Structure Systems in Architecture and inculcate 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 comprehend the fundamental principles of Cellular & Bulk Active structure systems

COURSE CONTENT

- **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, Vierendeel Girders), Columns, Grid (Skew & Square Grid)

EVALUATION CRITERIA FOR EXAM / QUESTION PAPER SETTING

- At the end of the semester, the students will submit the Models and Project report in hard bound form for evaluation.
- Evaluation of work done by the student during the semester is to be evaluating by Internal Jury appointed by the Head of the Department.

INSTRUCTIONS FOR THE FACULTY

- Emphasis must be given on learning by doing and the students must be encouraged to make the models of the structure system covered and encouraged to prepare a presentation on the topics assigned and the hard copy must be submitted for external evaluation.

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Bachelor's of Architecture (B. Arch): 1 to 10th Batch 2019 (For Constituent Campus Only)

Course Code	Course Title	L	Sem/ Tut	P/ FW	Stu	Credits 1	Duration of University Exam
UC/BARCH-107/19	Workshop - I	-	-	2	-	Int:Ext 100:00	No exam only Internal 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 gain the basic knowledge of the carpentry tools and its joints and attain skill to work with different materials for making architectural model.

COURSE CONTENT

- **UNIT-I**

- Exercise in 2-D compositions (formal, informal, abstract or modern etc.)
- Block making of 3-D geometrical blocks (by choosing different forms and different materials).
- Soap carving for creating three dimensional forms in space

- **UNIT-II**

- Carpentry – Introduction to the types, use of carpentry Tools and various joints in Carpentry.

- **UNIT-III**

- Model Making—making of different types of trees and other landscape elements like street lamps, pathways, plantation, water-bodies and different types of automobiles, Preparation of wooden base for model making.

- **UNIT-IV**

- Brick/Stone Masonry – Low height wall construction by using either bricks or stones for the understanding of various bonds.

EVALUATION CRITERIA FOR EXAM / QUESTION PAPER SETTING

- At the end of the semester, the students will submit the Models for evaluation.
- Evaluation of work done by the student during the semester is to be evaluating by Internal Jury appointed by the Head of the Department.

INSTRUCTIONS FOR THE FACULTY

- The Faculty is required to organize one or two model making workshop to enable the students to understand the concept of "learning by doing".
- Model making shall be attempted in groups consisting of 2-3 students.

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Bachelor's of Architecture (B. Arch): 1 to 10th Batch 2019 (For Constituent Campus Only)

Course Code	Course Title	L	Sem/ Tut	P/ FW	Stu	Credits 2	Duration of University Exam
UC/BTHU-101/18	Communicative English	2	-	-	-	Int:Ext 40:60	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 have proficiency in reading & listening, comprehension, writing and speaking skills and will converse fluently, will able to produce clear and coherent texts on their own.

COURSE CONTENT

- **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

- **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

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 requiring attempting total 05 questions i.e. compulsory question and one from other from each unit.

Course Code	Course Title	L	Sem/ Tut	P/ FW	Stu	Credits 1	Duration of University Exam
UC/BTHU-102/18	Communicative Skill Laboratory	-	-	2	-	Int:Ext 00:100	No Exam only External 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 courses students will acquire basic proficiency in listening and speaking skills. They will be able to converse fluently and produce on their own clear and coherent texts.

COURSE CONTENT

- 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

EVALUATION CRITERIA FOR EXAM / QUESTION PAPER SETTING

- At the end of the semester, the students will submit assignment based on above mentioned topics assigned by the concerned faulty member.
- No university exam and External Viva-Voce will be conducted as per work done.

INSTRUCTIONS FOR THE FACULTY

- The faculty is advised to prepare proper documentation of student activities & maintain student wise report and same shall be submitted to the department.
- The assignments and work shall be discussed and students must be encouraged to take part in various activities.

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Bachelor's of Architecture (B. Arch): 1 to 10th Batch 2019 (For Constituent Campus Only)

B. Architecture (Semester II) - Scheme 2019

(For Constituent Campus Only)

Course Type	S. no	Course Code	Course Title	Load Allocations					Marks	Credits	Duration of Univ. Exam(in hrs) / 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**	03
	3	UC/BARCH-203/19	Architectural Graphics-II	1	-	-	2	**03**	**60:40**	**3**	03
	4	UC/BARCH-204/19	History of Architecture-II	2	-	-	-	**02**	**40:60**	**2**	03
BS &AE	5	UC/BARCH-205/19	Building Construction & Materials-II	1	-		4	**05**	**60:40**	**5**	03
	6	UC/BARCH-206/19	Theory of Structure	2	1	-	-	**03**	**40:60**	**3**	03
PAECC	7	UC/BARCH-207/19	Theory of Design- I	2	-	-	-	**02**	**40:60**	**2**	03
SEC	8	UC/BARCH-208/19	Workshop-II	-	-	2	-	**02**	**100**	**1**	No Exam only Internal Viva-Voce
	9	UC/EVSC- 101/19	Environmental Science	2	-	-	-	**02**	**40:60**	**2**	03
	10	UC/BARCH-210/19	Mentoring & Professional Development- I	-	-	2	-	**02**	**100**	**Non Credit**	No Exam
	Total			12	1	4	14	**31**		**28**	

Note:-

***Educational Tour-I/ Summer Training-I / Vacation Assignment-I**

- *Educational Tour of 1-2 week duration (during or after) the First year of studies must be undertaken.*
- *Summer Training/ Vacation assignment to be given based on UC/BARCH-210/19. The marking of the same will be done in the Third semester course code UC/BARCH-308/19.*

Course Code	Course Title	L	Sem/ Tut	P/ FW	Stu	Credits 6	Duration of University Exam
UC/BARCH-201/19	**Architectural Design -II**	**1**	**-**	**-**	**5**	**Int:Ext 60:40**	**06 hours + viva voce by external jury**

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 develop a basic understanding of function, form, structure in the design of small structure and gain a fundamental knowledge of using principles in architecture design process.

COURSE CONTENT

- Small Cafes, Canopy/Kiosk
- Architect's Office, Doctor's Clinic, Lawyer office & such similar projects of small scale (Cycle stand, E- Rickshaw stand, Taxi stand & Parking layouts, Involving circulation, form structure, and function)

Note:

1. *All buildings should have accessibility to differently-able persons.*
2. *One project should be on a contoured side preferably.*

EVALUATION CRITERIA FOR EXAM / QUESTION PAPER SETTING

- One compulsory question is to be set from the entire syllabus.
- Evaluation is to be done through viva voce by external examiner appointed by the university at college. Answer sheets should be retained at college level for the viva voce examination.

INSTRUCTIONS FOR THE FACULTY

- The Basic methodology of teaching should be based on Library study to understand the basic functions of building and anthropometric.
- The emphasis of design should be on the space organisation and built form**,** case studies should be carried out to understand the similar buildings in similar context.
- 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.

Course Code	Course Title	L	Sem/ Tut	P/ FW	Stu	Credits 4	Duration of University Exam
UC/BARCH-202/19	Architectural Drawing -II	1	-	-	3	Int:Ext 60:40	03 hours

COURSE OBJECTIVE

- To make students learn the techniques to represent different objects through 3-D and developing skill for visualization of 3-D forms through isometric/axonometric views, perspective and sciography to enhance the designing skills.

COURSE OUTCOMES

- At the end of the course, the students will be able to understand the fundamental techniques of technical drawing used in 3-D and analyse the 3-dimensional drawings of the building with Sciography.

COURSE CONTENT

- **UNIT-I**

- Principle of Isometric projection, Isometric grid and Scale, Isometric /Axonometric Views of simple/complex forms.
- Fundamentals of Sciography (point, line, plane, solids etc.) , Sciography in Plans and Elevations, Sciography in Isometric/Axonometric Views

- **UNIT-II**

- Introduction to theory of Geometrical Perspective Drawing, Perspective by Side Elevation Method, Angular (Two Point Perspective) and Parallel (One Point Perspective), Perspective of different Solids and Building elements, Perspective by Grid Point method and Measuring Line method.
- Sciography in Perspectives (both one point & two point perspectives)

EVALUATION CRITERIA FOR EXAM / QUESTION PAPER SETTING

- Total four questions are to be set from each unit & students are required to attempt total two questions i.e. one from each unit. The distribution of marks for unit I: Unit II is 15: 25 marks

INSTRUCTIONS FOR THE FACULTY

- The Faculty is required to give maximum examples of the perspective view to enable the students to draw the views by using thumb rules.
- Emphasis should be laid on learning by doing and students have to be encouraged to make proper models to understand the geometry of forms.

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Bachelor's of Architecture (B. Arch): 1 to 10th Batch 2019 (For Constituent Campus Only)

Course Code	Course Title	L	Sem/ Tut	P/ FW	Stu	Credits 3	Duration of University Exam
UC/BARCH-203/19	Architectural Graphics -II	1	-	-	2	Int:Ext 60:40	03 hours

COURSE OBJECTIVE

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

COURSE OUTCOMES

- At the end of the course, the students will be able to gain a fundamental knowledge of architecture Graphics, its principles and attain the knowledge about the role of colours in presentation drawing and rendering techniques used in architectural design.

COURSE CONTENT

- **UNIT-I**

- Colour theory, Understanding colour value and intensity, Colour Wheel showing Primary, Secondary and Tertiary colours
- Colour Schemes & Charts showing Tints and Shades of various colours.
- Effect of colours in relief compositions.

- **UNIT- II**

- Representation of different textures in colour (brick, stone, timber, marble, glass etc.)
- Outdoor/indoor sketching of buildings, huts, group of trees, different kinds of trees/shrubs/grass with varying foliage in colours
- Colour rendering of blocks/geometrical forms, human figures, different types of vegetation, different transport modes and buildings etc.
- Rendering of drawings (Plan, elevation, 3-D views) in oil pastels and water coloured medium from previous semester design problem.

EVALUATION CRITERIA FOR EXAM / QUESTION PAPER SETTING

- Total four questions are to be set from each unit & students are required to attempt all questions.

INSTRUCTIONS FOR THE FACULTY

- Workshops related to colour rendering will also be organised, highlighting its technique and style which can be organised indoor or outdoor.
- The students must be encouraged to appreciate the natural/man-made landscape and to understand the interrelationship of nature and architecture.

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Bachelor's of Architecture (B. Arch): 1 to 10th Batch 2019 (For Constituent Campus Only)

Course Code	Course Title	L	Sem/ Tut	P/ FW	Stu	Credits 2	Duration of University Exam
UC/BARCH-204/19	History of Architecture -II	2	-	-	-	Int:Ext 40:60	03 hours

COURSE OBJECTIVE

- To understand the role of geo-physical, societal, political and technological factors in the evolution of architectural and urban forms.

COURSE OUTCOMES

- At the end of the course, the students will be able to 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 and an appreciative of the physical experience of buildings in order to realize the complexity of the physical and metaphysical influences bearing on architecture.

COURSE CONTENT

- **UNIT-I**

- Buddhist Art and Architecture : beginning & origin of Buddhist architecture and the important Socio- political factors in selection of sites
- Building typology: Stupas, Viharas, Chaitya halls etc..

- **UNIT-II**

- Hindu temple Architecture: evolution of temple form (rock-cut and structural form) and the comparison of different temple forms in various regions of India.
- Styles of Hindu temple Architecture: Dravidian, Indo-Aryan, Jain temples

EVALUATION CRITERIA FOR EXAM / QUESTION PAPER SETTING

- T he 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.
- Question paper is to be set covering whole of the syllabus by making parts or mixing of topics.

INSTRUCTIONS FOR THE FACULTY

- The Faculty is required to give more emphasis on the functional components, architectural form, construction and ornamentation aspects of the buildings especially in different regions of India (Orissa, Gujarat, Rajasthan, Khajuraho, Southern region and western region of India) by considering limited examples (not more than 05) of each type of Architecture
- The Faculty is required to develop a holistic understanding in students to analysis the different architectural style/building typology.
- Educational trip will be organised to impart the practical knowledge of the content.

I.K. Gujral Punjab Technical University Jalandhar, Kapurthala

Bachelor's of Architecture (B. Arch): 1 to 10th Batch 2019 (For Constituent Campus Only)

Course Code	Course Title	L	Sem/ Tut	P/ FW	Stu	Credits 5	Duration of University Exam
UC/BARCH-205/19	Building Construction & Materials -II	1	-	-	4	Int:Ext 60:40	03 hours

COURSE OBJECTIVE

- The main objective is to introduce the properties of timber as building materials and to familiarize the students with traditional construction methods of a single storeyed building in timber.

COURSE OUTCOMES

- At the end of the course, the students will be able to comprehend timber as a building material and its application in building components and gain knowledge of various surface finishes for single storey building and the fundamental knowledge for water proofing details in simple structures.

COURSE CONTENT

- **UNIT-I**

- Timber: Sources of timber, its classification & characteristics, defects of Timber, different Preservation and treatment measures and Uses of Timber in building construction.
- Industrial timber products and their applications-plywood, particleboard, laminated board, block board and batten board etc. Surface finishes:-White wash, Distemper, Paints and Varnishes- Types, Applications, Suitability, Advantages and Disadvantages.
- Foundation – introduction and importance of foundations, Types of Foundations (brick and stone) and their design considerations for load bearing structures.
- Damp proof course – introduction and types of D.P.C. , laying and maintenance of D.P.C. layers, Water proofing: - Water proofing materials (liquid, semi liquid and solid) – Composition, Properties, Applications.

- **UNIT – II**

- Doors - Types of Doors, Design and construction details of Framed, Ledged, Braced & Battened Door, Flush Door, and Wire mesh Door, Panelled Door etc. (considering different types of Joints and Joinery details)
- Windows - Types of Windows, Design and Construction details of Casement, Bay, Clearstory, Corner window Dormer window etc. (considering different types of Joints and Joinery details)
- Roofs - Construction of R.B.C. roof, Jack Arch Roof, Tiled and Battened Roof and concepts of water proofing & Thermal Insulation of roofs.
- Walls- various types of timber frame walls with details of joints and cladding, Dhajji wall construction, Foundation of timber post

NOTE: Draw the section through a single storey building covering the foundation, D.P.C. layer, window with sill and lintel level, roof and wall junction, roof insulations and parapet wall details.

EVALUATION CRITERIA FOR EXAMINATION/ QUESTION PAPER SETTING

- Minimum eight questions are to be set from the entire syllabus with four questions from each unit. Students would be required to attempt four Questions with minimum two questions from each Unit. The distribution of marks for Unit I: Unit II is 12: 28 marks.
- Question paper is to be set covering whole of the syllabus by making parts or mixing of topics and set in such a form that the exam should be attempted on drawing sheets.

INSTRUCTIONS TO THE FACULTY

- The faculty should encourage the students to visit the construction site/conduct market survey w.r.t. the topics covered in the class.
- Audio-visual lectures should be presented.

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Bachelor's of Architecture (B. Arch): 1 to 10th Batch 2019 (For Constituent Campus Only)

Course Code	Course Title	L	Sem/ Tut	P/ FW	Stu	Credits 3	Duration of University Exam
UC/BARCH-206/19	Theory of Structure	2	1	-	-	Int:Ext 40:60	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 develop techniques for analysing forces in statically determinate structures and learn the application of Maths and Physics to solve problems related to structures.

COURSE CONTENT

- **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.

- **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.

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.
- Question paper is to be set covering whole of the syllabus by making parts or mixing of topics.

INSTRUCTIONS FOR THE FACULTY

- Teaching in the subject shall be a combination of lectures by subject Experts, Site visits and Schematic layout exercises.
- The students of architecture must be made clear about the design concepts and tutorials be made an integral part of learning. Faculty also should encourage the students to read the IS code.

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Bachelor's of Architecture (B. Arch): 1 to 10th Batch 2019 (For Constituent Campus Only)

Course Code	Course Title	L	Sem/ Tut	P/ FW	Stu	Credits 2	Duration of University Exam
UC/BARCH-207/19	Theory of Design - I	2	-	-	-	Int:Ext 40:60	03 hours

COURSE OBJECTIVE

- The objective is 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 develop a basic understanding of spatial organisation and learn about the inter-dependence of function, structure and form in architectural design. .

COURSE CONTENT

- **UNIT-I**

- Formal Collision of Geometry and Articulation of Forms.
- Analysis and classification: space usage & inter-relationship of different spaces within a building.

- **UNIT-II**

- Organization of Form and Space
- Spatial Organization and Circulation Elements including Approach, Entrance, Configuration of the Path (Path- Space Relation, Form of the Circulation Space).

- **UNIT - III**

- Form defining Space with Horizontal Elements and Vertical Elements.

- **UNIT - IV**

- Quality of Architectural Space
- Study the philosophy of any four Contemporary Indian Architects

EVALUATION CRITERIA FOR EXAM / QUESTION PAPER SETTING

- The examiner is required to set eight questions with minimum four from each unit. Students are required to attempt five questions with minimum two from each unit.
- Question paper is to be set covering whole of the syllabus by making parts or mixing of topics.

INSTRUCTIONS FOR THE FACULTY

- The Faculty is required to guide the students with building examples (taken from Indian/world architecture) to understand the necessary relationship between indoor and outdoor space in context to the theory of design and must encouraged the students to do in depth study of design theory.
- Audio-visual lectures should be presented and the subject must be taught in coordination to site visits or study tour for topics relating to theory of form, space and basic architectural forms.

Course Code	Course Title	L	Sem/ Tut	P/ FW	Stu	Credits 1	Duration of University Exam
UC/BARCH-208/19	Workshop - II	-	-	2	-	Int:Ext 100:00	No exam only Internal 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 have proficiency in handling clay as a material and acquire skills in different types of architectural model making using various materials and get hold of skill in sculpture making in various mediums.

COURSE CONTENT

- **UNIT-I**

- Clay Modelling, Pinching, Coiling Techniques Slab Techniques
- Sculptures in Plaster of Paris, Wires, Scrap, Wood, Ceramic tiles etc.

- **UNIT- II**

- Prepare block model of the design project introduced in the semester along with site plan details such as parking area, green areas and landscape techniques etc.
- To prepare a detailed model of mixed materials of a major design project of same semester.

EVALUATION CRITERIA FOR EXAM / QUESTION PAPER SETTING

- At the end of the semester, the students will submit the Models for evaluation.
- Evaluation of work done by the student during the semester is to be evaluating by Internal Jury appointed by the Head of the Department.

INSTRUCTIONS FOR THE FACULTY

- The Faculty is required to organize one or two Sculpture/Mural workshop to enable the students to understand the concept of "learning by doing".
- Model making shall be attempted in groups consisting of 2-3 students.

Course Code	Course Title	L	Sem/ Tut	P/ FW	Stu	Credits 2	Duration of University Exam
UC/EVSC-101/19	Environmental Science	2	-	-	-	Int:Ext 40:60	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 propose solutions to environmental problems related to resource use and management. Also, interpret the results of scientific studies of environmental problems and describe threats to global biodiversity, their implications and potential solutions

COURSE CONTENT

- **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.
- 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

EVALUATION CRITERIA FOR EXAM / QUESTION PAPER SETTING

- T

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

- Question paper is to be set covering whole of the syllabus by making parts or mixing of topics.

INSTRUCTIONS TO THE FACULTY

- The focus should be laid upon the live study and application of the subject into the architecture design.
- Audio-visual lectures should be presented.

Course Code	Course Title	L	Sem/ Tut	P/ FW	Stu	Credits NA	Duration of University Exam
UC/BARCH-210/19	Mentoring and Professional Development - I	-	-	2	-	Int:Ext 100:00	No exam

COURSE OBJECTIVE

- The aim of the course is to develop Overall Personality, Aptitude (Technical and General), General Awareness (Current Affairs and GK), Communication Skills and Presentation Skills in the students.

COURSE OUTCOMES

- At the end of the course, the students will be able to develop new skills for navigating sustainable environment to face the challenging ideas and encouraging career development.

COURSE CONTENT

- **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. NASA, ISTE, SCIE, SAE, CSI, Cultural Club, Hobby & Adventure club etc.

EVALUATION CRITERIA FOR EXAM / QUESTION PAPER SETTING

- At the end of the semester, the students will submit assignment based on above mentioned topics assigned by the concerned faulty member.
- No university exam will be conducted.

INSTRUCTIONS FOR THE FACULTY

- The faculty is advised to prepare proper documentation of student activities & maintain student wise report and same shall be submitted to the department.
- The faculty must act as trusted advisor to the students. The assignments and work shall be discussed and students must be encouraged to take part in various activities.

I.K. Gujral Punjab Technical University Jalandhar, Kapurthala

Bachelor's of Architecture (B. Arch): 1 to 10th Batch 2019 (For Constituent Campus Only)

B. Architecture (Semester III) - Scheme 2019

(For Constituent Campus Only)

Course Type	S. no	Course Code	Course Title	Load Allocations					Marks	Credits	Duration of Univ. Exam(in hrs) / Viva-Voce
				L	Sem/ Tut	P/FW	Stu	Total	Int : Ext		
PC	1	UC/BARCH-301/19	Architectural Design -III	1	-	-	5	**06**	**60:40**	**6**	06 + External Viva-Voce
BS &AE	2	UC/BARCH-302/19	Building Construction & Materials-III	1	-	-	3	**04**	**60:40**	**4**	04
	3	UC/BARCH-303/19	Structure Systems-II	1	-	-	1	**02**	**100**	**2**	No Exam only External Viva Voce
	4	UC/BARCH-304/19	Structure Design-I	2	2	-	-	**04**	**40:60**	**3**	03
	5	UC/BARCH-305/19	Surveying & Leveling	2	-	2	-	**04**	**40:60**	**3**	03
PAECC	6	UC/BARCH-306/19	Climate & Architecture - I	2	2	-	-	**04**	**40:60**	**3**	03
SEC	7	UC/BARCH-307/19	Computer Application- I	1	-	2	-	**03**	**100**	**2**	No Exam only External Viva Voce
	8	UC/BARCH-308/19	*Educational Tour -I/ Summer Training-I/ Vacation Assignment-I	-	-	-	-	-	**100**	**1**	Internal Assessment /Viva-Voce
	Total			10	4	4	9	**27**		**24**	

Note:-

***Educational Tour-I/ Summer Training-I / Vacation Assignment-I**

- *Third semester course code UC/BARCH-308/19 is carried out in the intervening period of Second and Third Semester.*
- *The Summer Training-I/ Vacation Assignments-I to be evaluated on the basis of work submitted in the starting of Third semester only.*

I.K. Gujral Punjab Technical University Jalandhar, Kapurthala

Bachelor's of Architecture (B. Arch): 1 to 10th Batch 2019 (For Constituent Campus Only)

Course Code	Course Title	L	Sem/ Tut	P/ FW	Stu	Credits 6	Duration of University Exam
UC/BARCH-301/19	Architectural Design -III	1	-	-	5	Int:Ext 60:40	06 hours + viva voce by external jury

COURSE OBJECTIVE

- To make students understand and appreciate the constraints in the designing of a building of a small scale with reference to function, form and structure.

COURSE OUTCOMES

- At the end of the course, the students will able comprehend the role and importance of physical factors like orientation, ventilation, adequate protection from natural elements and human dimensions in various postures etc , in space planning in relation to everyday utilities.

COURSE CONTENT

- Design of House, Primary School, without urban regulatory controls with emphasis on environmental and ecological issues.
- Design of Cafeteria, Post Office etc,

Note: All buildings should have accessibility to differently-able persons.

EVALUATION CRITERIA FOR EXAM / QUESTION PAPER SETTING

- One compulsory question is to be set from the entire syllabus.
- Evaluation is to be done through viva voce by external examiner appointed by the university at college. Answer sheets should be retained at college level for the viva voce examination.

INSTRUCTIONS FOR THE FACULTY

- Design faculty 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 integral part of project presentation.

I.K. Gujral Punjab Technical University Jalandhar, Kapurthala

Bachelor's of Architecture (B. Arch): 1 to 10th Batch 2019 (For Constituent Campus Only)

Course Code	Course Title	L	Sem/ Tut	P/ FW	Stu	Credits 04	Duration of University Exam
UC/BARCH-302/19	Building Construction & Materials -III	1	-	-	3	Int:Ext 60:40	04 hours

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 timber, glass, and plastic/PVC in buildings.
- To make students understand and appreciate, various methods of building construction in coordination with the building materials and science related to them.

COURSE OUTCOMES

- At the end of the course student will able be aware of the different types of timber roofing systems and understand timber joinery details for trusses, staircases, sliding doors, sliding folding doors, partitions, panelling and Dhajji walls and apply appropriate details for building construction of the same.

COURSE CONTENT

- **UNIT-I**

- 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.
- Floor Coverings- Constituents, Properties, Uses and Process of Laying of Floor Covering Materials e.g. Linoleum, Cork Sheet, Parquets, Rubber (Tiles and Sheets) and Types of Stone Flooring.
- Plastic - Introduction, Advantages, Properties, Types and Uses as Building Material. Thermoplastics, Polythene, P.E.(Low density and high density) Poly Venyl Chloride, P.V.C. Polystructure P.S. Application of plastics in Buildings.

- **UNIT-II**

- **Timber Roofs and Trusses** - Introduction to different types of Roofs e.g. Flat, Couple, Close Couple, Collar, Lean- to and Double Lean- to roofs, Timber Built-up Trusses of various Spans.
- Doors & Windows - Design and Details of Sliding Doors, Sliding and Folding Doors
- Timber partition, glass block partition, timber panelling
- Timber Staircase-Design and Detail
- Dhajji Wall Construction

EVALUATION CRITERIA FOR EXAM / QUESTION PAPER SETTING

- Minimum Eight questions are to be set from the entire syllabus with four questions from each unit. Students would be required to attempt four Questions with minimum two questions from each Unit.
- Question paper is to be set covering whole of the syllabus by making parts or mixing of topics and set in such a form that the exam should be attempted on drawing sheets.

INSTRUCTIONS FOR THE FACULTY

- Field/ Project visits to study the uses of various materials as mentioned above, in construction industry and process of laying timber Roofs/trusses, Staircases and Doors and Windows etc.
- Market survey to be carried out for Building Materials with emphasis on learning of material available under different trade names with details of their manufacture, specification and performance.
- Building Construction with emphasis on construction drawings by pencil only.

I.K. Gujral Punjab Technical University Jalandhar, Kapurthala

Bachelor's of Architecture (B. Arch): 1 to 10th Batch 2019 (For Constituent Campus Only)

Course Code	Course Title	L	Sem/ Tut	P/ FW	Stu	Credits 02	Duration of University Exam
UC/BARCH-303/19	Structure System -II	1	-	-	1	Int:Ext 00:100	No exam, only External Viva-Voce

COURSE OBJECTIVE

- To make students aware about basic principles applicable in various structural systems. To make students learn basics of structure with emphasis on learning by doing and making 3-D models to provide the student with different spatial experience.

COURSE OUTCOMES

- At the end of the course, the students will be capable to comprehend the design erection process and application of large span structures, understand the needs, requirements, and selection for various types of structures.

COURSE CONTENT

- **UNIT-I**

- Structures acting mainly through Composition of Compression and Tension members such as Vector-active structure system in co-active tension and compression in; Space frames, Trusses (Timber & Steel), Domes (Ribbed & Geodesic)

- **UNIT-II**

- Structure acting mainly through axis: Lattice structure, Polyhedron structure, Tree type

EVALUATION CRITERIA FOR EXAM / QUESTION PAPER SETTING

- At the end of the semester, the students will submit the Models and Project report in hard bound form for evaluation.
- Evaluation of work done by the student during the semester is to be evaluating by Internal Jury appointed by the Head of the Department.

INSTRUCTIONS FOR THE FACULTY

- Emphasis must be given on learning by doing and the students must be encouraged to make the models of the structure system covered and encouraged to prepare a presentation on the topics assigned and the hard copy must be submitted for external evaluation.

I.K. Gujral Punjab Technical University Jalandhar, Kapurthala

Bachelor's of Architecture (B. Arch): 1 to 10th Batch 2019 (For Constituent Campus Only)

Course Code	Course Title	L	Sem/ Tut	P/ FW	Stu	Credits 03	Duration of University Exam
UC/BARCH-304/19	Structure Design -I	2	2	-	-	Int:Ext 40:60	03 hours

COURSE OBJECTIVE

- The aim and objective of the course is to get introduced to basic structural members in masonry and timber, to give knowledge of design of timber beams in buildings and to enable understanding of basic concepts of shear force and bending moment.

COURSE OUTCOMES

- At the end of the course, the students will able to design timber beams by applying code provisions, Masonry foundation and retaining walls, Analyse indeterminate structures and to calculate shear force and bending moment in determinate structures.

COURSE CONTENT

- **UNIT-I**

- Design of Foundations in Masonry work-- Safe Bearing Capacity, Load on Foundations, Depth of Foundation, Rankine's formula, Footing Sections.
- Design of Retaining Walls in Masonry-- Loads, Resultant Pressure, Stability of Structure, Middle Third Rule, Design examples.

- **UNIT – II**

- Bending Moment/ Shear Force, Type of Supports, Loads and Beams, BM and SF diagram for Simply Supported Beams with Point Load and Uniformly Distributed Load--Design examples

- **UNIT – III**

- Design of Simple Timber Beam, Bending Stress Check, Shear Check, Deflection Check, Bearing Check, Design examples with UDL and Concentrated load.

- **UNIT – IV**

- Analysis of portal frame by slope deflection method (Non-sway)

EVALUATION CRITERIA FOR EXAM / QUESTION PAPER SETTING

- T

he 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.

- Question paper is to be set covering whole of the syllabus by making parts or mixing of topics.

INSTRUCTIONS FOR THE FACULTY

- Teaching in the subject shall be a combination of lectures by subject Experts, Site visits and Schematic layout exercises.
- The focus should be laid upon the live study and application of the subject into the architecture design.

I.K. Gujral Punjab Technical University Jalandhar, Kapurthala

Bachelor's of Architecture (B. Arch): 1 to 10th Batch 2019 (For Constituent Campus Only)

Course Code	Course Title	L	Sem/ Tut	P/ FW	Stu	Credits 03	Duration of University Exam
UC/BARCH-305/19	Surveying & Leveling	2	-	2	-	Int:Ext 40:60	03 hours

COURSE OBJECTIVE

- To make students understand and learn about and basics of surveying and levelling and its application in designing of buildings.

COURSE OUTCOMES

- At the end of the course, the students will able to do levelling, compass survey, plane table survey, contouring, chain surveying. Students will have knowledge of survey instruments also.

COURSE CONTENT

- **UNIT-I**

- Chain Surveying: Principal of chain surveying, description of different equipment, Methods of chaining, selection of base line and stations, obstacles in chaining, Ranging rods.
- Prismatic Compass survey: Description of Prismatic & surveyors compass methods of traversing, local attractions and its elimination, adjustment of closing error.

- **UNIT-II**

- Plane Table survey: Description of different equipment's, different methods of plane tabling, 2- point and 3-point problems and their solutions.
- Levelling: Methods of levelling, Sensitivity of bubble tube, setting out grade lines, and permanent adjustment of levelling instruments.

- **UNIT-III**

- Contouring: Setting out contour gradient, different method of contouring, characteristics and uses of contours.

- **UNIT-IV**

- Minor Instruments: Abney level, Theodolite, Total Station: Introduction, Various components, Operation, Advantages/ Disadvantages

EVALUATION CRITERIA FOR EXAM / QUESTION PAPER SETTING

- T
  he 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.
- Question paper is to be set covering whole of the syllabus by making parts or mixing of topics.

INSTRUCTIONS FOR THE FACULTY

- Teaching in the subject shall be a combination of lectures by subject Experts, Site visits and Schematic layout exercises.
- The focus should be laid upon the live study and application of the subject into the architecture design.
- Emphasis must be given on learning by doing. Field survey and field exercise.

I.K. Gujral Punjab Technical University Jalandhar, Kapurthala

Bachelor's of Architecture (B. Arch): 1 to 10th Batch 2019 (For Constituent Campus Only)

Course Code	Course Title	L	Sem/ Tut	P/ FW	Stu	Credits 03	Duration of University Exam
UC/BARCH-306/19	Climate & Architecture-I	2	2	-	-	Int:Ext 40:60	03 hours

COURSE OBJECTIVE

- To make students understand the role and importance of climate as one of the major determinant of built form and to familiarize them with various climate controlling devices.

COURSE OUTCOMES

- At the end of the course, the students will able to understand the fundamental of climatology as important consideration in architecture design and it will orient his/ her proposal accordingly. Like thermal comfort, design sensitivity towards climate.

COURSE CONTENT

- **UNIT-I**

- Introduction to climatology, Importance of studying Building climatology, Elements of climate, Global climate factors, Interrelationship of climatic elements and Psychometric chart

- **UNIT-II**

- Understanding the movement of Sun, Solar Chart and its importance, Importance of understanding the optimum orientation of buildings and their forms in relation to Sun, Concept and Design of Shading Devices

- **UNIT-III**

- Definition and explanation of Thermal Comfort, Human Heat Balance and Physical Comfort, Relationship of Climatic Elements with Thermal Comfort, Thermal Stress Index, Bio-climatic Chart, Effective Temperature and Corrected Effective Temperature Histogram with their uses

- **UNIT-IV**

- Tropics and its Climatic zones, Macro and Micro Climate(site climate), Role of Climate with respect to Shelter, Study of various Indigenous Shelters in response to various Climate Zones in the Tropical belt of India, Principles of Architectural Design in different Climatic Zones in India (As per National Building Code) Introduction to computer software's dealing with fundamental climatology

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.
- Question paper is to be set covering whole of the syllabus by making parts or mixing of topics.

INSTRUCTIONS FOR THE FACULTY

- Teaching in the subject shall be a combination of lectures by subject Experts, Site visits and Schematic layout exercises.
- The focus should be laid upon the live study and application of the subject into the architecture design.
- Emphasis must be given on learning by doing. Field survey and field exercise.

Course Code	Course Title	L	Sem/ Tut	P/ FW	Stu	Credits 02	Duration of University Exam
UC/BARCH-307/19	Computer Application-I	1	-	2	-	Int:Ext 40:60	No exam, only External Viva-Voce

COURSE OBJECTIVE

- To make students aware of the role and importance of Computers in the field of Architecture.

COURSE OUTCOMES

- At the end of the course, the students will able to understand the basics of Computers hardware, operating systems and operative languages, being a fundamental course the students will be introduced to the basic of hardware and software. They will be introduced to 2D presentation.

COURSE CONTENT

- **UNIT-I**

- Introduction to MS Office tools (power point presentation, word file/excel etc.)
- Basic commands like copy, paste, stretch, offset, move fillet, extend, trim and other 2D commands.
- 2D modelling in Auto Cad, Auto Cad Revit, Google Sketch up,
- Drawing the basic Plans, Sections, and Elevations.

- **UNIT-II**

- Basic Text writing and dimensioning of the Plans, Elevation and Sections.
- Basic hatching and filling of the Walls in the Plans, Elevations and Sections.
- Basic rendering in the Auto Cad and in other Software's in 2D.

EVALUATION CRITERIA FOR EXAM / QUESTION PAPER SETTING

- At the end of the semester, the students will submit the Project report in hard bound form for evaluation.
- Evaluation of work done by the student during the semester is to be done through viva voce by external examiner appointed by the university at college.

INSTRUCTIONS FOR THE FACULTY

- Emphasis should be laid on developing the skill pertaining to 2-D on the Software's.
- Emphasis must be given on learning by doing and the students must be encouraged to make the models of the structure system covered and encouraged to prepare a presentation on the topics assigned and the hard copy must be submitted for external evaluation.

Course Code	Course Title	L	Sem/ Tut	P/ FW	Stu	Credits 1	Duration of University Exam
UC/BARCH-308/19	Educational Tour–I/ Summer Training-I/Vacation Assignment-I	-	-	-	-	Int:Ext 100:0	Internal Assessment/Viva-Voce

The education tour to one day to one or two week duration is 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 must be encouraged 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 assignments 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.

I.K. Gujral Punjab Technical University Jalandhar, Kapurthala

Bachelor's of Architecture (B. Arch): 1 to 10th Batch 2019 (For Constituent Campus Only)

B. Architecture (Semester IV) - Scheme 2019

(For Constituent Campus Only)

Course Type	Sr. no	Course Code	Course Title	Load Allocations					Marks	Credits	Duration of Univ. Exam(in hrs) / Viva-Voce
				L	Sem/ Tut	P/FW	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-III	2	-	-	-	**02**	**40:60**	**2**	03
BS &AE	3	UC/BARCH-403/19	Building Construction & Materials-IV	1	-	-	3	**04**	**60:40**	**4**	03
	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**	No Exam only 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
			Total	13	4	4	8	**29**		**26**	

Note:-

***Educational Tour-II/ Summer Training-II / Vacation Assignment-II**

- *Educational Tour/Documentation project of 1-2 week duration (during or after) the Second year of studies must be undertaken.*
- *Summer Training/ Vacation assignment to be given based on UC/BARCH-408/19. The marking of the same will be done in the Fifth semester course code UC/BARCH-514/19.*

I.K. Gujral Punjab Technical University Jalandhar, Kapurthala

Bachelor's of Architecture (B. Arch): 1 to 10th Batch 2019 (For Constituent Campus Only)

Course Code	Course Title	L	Sem/ Tut	P/ FW	Stu	Credits 6	Duration of University Exam
UC/BARCH-401/19	Architectural Design -IV	1	-	-	5	Int:Ext 60:40	06 hours + viva voce by external jury

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.

COURSE CONTENT

- Study of Rural, Vernacular, Historical Settlements/buildings of distinct Architectural characteristics including detailing with physical planning and other related systems.
- Community Buildings, Panchayat Ghar, Rural Dispensary or hostel, Farmer's House, Village Dairy Farm houses, Rural School etc.

Note: All buildings should have accessibility to differently-able persons.

EVALUATION CRITERIA FOR EXAM / QUESTION PAPER SETTING

- One compulsory question is to be set from the entire syllabus.
- Evaluation is to be done through viva voce by external examiner appointed by the university at college. Answer sheets should be retained at college level for the viva voce examination.

INSTRUCTIONS FOR THE FACULTY

- The Design faculty is required to take a well prepared well researched lecture on the said topics 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.

I.K. Gujral Punjab Technical University Jalandhar, Kapurthala

Bachelor's of Architecture (B. Arch): 1 to 10th Batch 2019 (For Constituent Campus Only)

Course Code	Course Title	L	Sem/ Tut	P/ FW	Stu	Credits 2	Duration of University Exam
UC/BARCH-402/19	History of Architecture - III	2	-	-	-	Int:Ext 40:60	03 hours

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 our ancestors and co-relate them with the contemporary scenario.

COURSE CONTENT

- **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, Gujarat, Khajuraho temple architecture

EVALUATION CRITERIA FOR EXAM / QUESTION PAPER SETTING

- T

he 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.

- Question paper is to be set covering whole of the syllabus by making parts or mixing of topics.

INSTRUCTIONS FOR THE FACULTY

- For each of the period given in syllabus, stress is to be laid on making students understand the Architectural Characters/ features , building evolution and form with only one or two representative examples to highlight those features.
- Emphasis should be laid on understating of evolution of buildings and form Continuous evaluation shall be made of students work based on various models, assignments and sketching.

I.K. Gujral Punjab Technical University Jalandhar, Kapurthala

Bachelor's of Architecture (B. Arch): 1 to 10th Batch 2019 (For Constituent Campus Only)

Course Code	Course Title	L	Sem/ Tut	P/ FW	Stu	Credits 04	Duration of University Exam
UC/BARCH-403/19	Building Construction & Materials -IV	1	-	-	3	Int:Ext 60:40	03 Hours

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 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, panelling, work out and apply appropriate details for building construction of the same.

COURSE CONTENT

- **UNIT-I**

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

- **UNIT-II**

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

EVALUATION CRITERIA FOR EXAM / QUESTION PAPER SETTING

- Minimum Six questions are to be set from the entire syllabus with three questions from each unit. Students would be required to attempt four Questions with minimum one question from each Unit. The distribution of marks for Unit I: Unit II is 12: 28 marks.
- Question paper is to be set covering whole of the syllabus by making parts or mixing of topics and set in such a form that the exam should be attempted on drawing sheets.

INSTRUCTIONS FOR THE FACULTY

- 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, emphasising on understating of complete construction details of timber construction.
- Preparing Construction sheets on above topics. Emphasis shall be laid on understating of complete construction details of the structure.

I.K. Gujral Punjab Technical University Jalandhar, Kapurthala

Bachelor's of Architecture (B. Arch): 1 to 10th Batch 2019 (For Constituent Campus Only)

I.K. Gujral Punjab Technical University Jalandhar, Kapurthala

Bachelor's of Architecture (B. Arch): 1 to 10th Batch 2019 (For Constituent Campus Only)

Course Code	Course Title	L	Sem/ Tut	P/ FW	Stu	Credits 04	Duration of University Exam
UC/BARCH-404/19	Structure Design -II	2	2	-	-	Int:Ext 40:60	03 Hours

COURSE OBJECTIVE

- The aim and objective of the course is to get introduced to design of reinforced concrete structures and to make 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 storey simple buildings.

COURSE CONTENT

- **UNIT-I**

- 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**

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

- **UNIT- III**

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

- **UNIT- IV**

- 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 minimum two from each unit. Students are required to attempt five questions with minimum one from each unit.
- Question paper is to be set covering whole of the syllabus by making parts or mixing of topics.

INSTRUCTIONS FOR THE FACULTY

- Teaching in the subject shall be a combination of lectures by subject Experts, Site visits and Schematic layout exercises.
- The students of architecture must be made clear about the design concepts and tutorials be made an integral part of learning. Faculty also should encourage the students to read the code IS 456-2000.

Course Code	Course Title	L	Sem/ Tut	P/ FW	Stu	Credits 03	Duration of University Exam
UC/BARCH-405/19	Building Services -I	2	1	-	-	Int:Ext 40:60	03 Hours

COURSE OBJECTIVE

- To make students learn and understand the requirements of Building Services and their application to buildings with 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, storm water drainage and sanitation and water requirements in various types of buildings and their integration in architectural design.

COURSE CONTENT

- **UNIT-I**

- WATER SUPPLY- Role, Importance & Sources of water ,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- Role, Importance , Basic principles of disposal of waste from buildings, Dry and Wet Carriage Systems, Sanitary Fittings-- Wash basins, 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**

- 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

- **UNIT- IV**

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

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.
- Question paper is to be set covering whole of the syllabus by making parts or mixing of topics.

INSTRUCTIONS FOR THE FACULTY

- Teaching in the subject shall be a combination of lectures by subject Experts, Site visits and Schematic layout exercises.

- Market survey to be carried out to study materials available and understand functions of various sanitary fittings and fixtures and be aware of the different types of materials and specifications of the same.
- The students must be encouraged to develop design skills for water supply and drainage systems in buildings and prepare architectural drainage layouts.

Course Code	Course Title	L	Sem/ Tut	P/ FW	Stu	Credits 03	Duration of University Exam
UC/BARCH-406/19	Climate and Architecture -II	2	1	-	-	Int:Ext 40:60	03 Hours

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 controlling devices.

COURSE OUTCOMES

- At the end of the course, the students will able to understand advanced climatology and ventilation as important consideration for designing a building.

COURSE CONTENT

- **UNIT-I**

- Ventilation in Buildings - Introduction and its mechanism, Wind Movement, Air movement within and around buildings, 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 design of buildings, Introduction to software's 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 minimum two from each unit. Students are required to attempt five questions with minimum one from each unit.
- Question paper is to be set covering whole of the syllabus by making parts or mixing of topics.

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 organised by the Professional Bodies/ others and preparing Models/ Charts to make students familiar with use of natural elements as essential input to design sustainable buildings.

Course Code	Course Title	L	Sem/ Tut	P/ FW	Stu	Credits 02	Duration of University Exam
UC/BARCH-407/19	Computer Application - II	1	-	2	-	Int:Ext 40:60	No exam only External viva-voce

COURSE OBJECTIVE

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

COURSE OUTCOMES

- At the end of the course, the students will able to develop skills required for using Computers as a tool for design, 3D modelling and rendering and familiarize with 3D model design and rendering techniques using different software for building visualization/design representation.

COURSE CONTENT

- **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 mentioned Software- 3D- Max, Photoshop, V-ray and any other Software.
- Basic of Animation on Google Sketch up /3D-Max

EVALUATION CRITERIA FOR EXAM / QUESTION PAPER SETTING

- At the end of the semester, the students will submit the Project report in hard bound form for evaluation.
- Evaluation of work done by the student during the semester is to be done through viva voce by external examiner appointed by the university at college.

INSTRUCTIONS FOR THE FACULTY

- Emphasis should be laid on developing the skill pertaining to 3-D on the Software.
- The students must be encouraged to produce 3D models and renderings of simple and complex buildings.

Course Code	Course Title	L	Sem/ Tut	P/ FW	Stu	Credits NA	Duration of University Exam
UC/BARCH-408/19	Mentoring and Professional Development - II	-	-	2	-	Int:Ext 100:00	No exam

COURSE OBJECTIVE

- The aim of the course is to develop Overall Personality, Aptitude (Technical and General), General Awareness (Current Affairs and GK), Communication Skills and Presentation Skills in the students.

COURSE OUTCOMES

- At the end of the course, the students will be able to develop new skills for navigating sustainable environment to face the challenging ideas and encouraging career development.

COURSE CONTENT

- **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 CRITERIA FOR EXAM / QUESTION PAPER SETTING

- At the end of the semester, the students will submit assignment based on above mentioned topics assigned by the concerned faulty member.
- No university exam will be conducted.

INSTRUCTIONS FOR THE FACULTY

- The faculty is advised to prepare proper documentation of student activities & maintain student wise report and same shall be submitted to the department.
- The faculty must act as trusted advisor to the students. The assignments and work shall be discussed and students must be encouraged to take part in various activities.

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Bachelor's of Architecture (B. Arch): 1 to 10th Batch 2019 (For Constituent Campus Only)

Course Code	Course Title	L	Sem/ Tut	P/ FW	Stu	Credits 02	Duration of University Exam
UC/BARCH-409/19	Constitutional Law	2	-	-	-	Int:Ext 40:60	03 hours

COURSE OBJECTIVE

- The objective of the course is to familiarize students (Prospective engineers) with elementary knowledge of laws that would be of utility in their profession. The syllabus covers Constitution of India and new areas of law like IPR, ADR, Human Rights, Right to Information, Corporate law, Law relating 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.

COURSE CONTENT

- **UNIT – I**

- Constitutional Law covering the Preamble; Fundamental Rights, Directive principles of State policy; Fundamental provisions – kinds, law relating to women in India covering landmark judicial decisions of Supreme

- **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 contracting party, Kinds of government contracts, Standard form contracts; nature, advantages, Historical development of human rights; UN Mechanism and specialized agencies, (UNICEF, UNESCO, WHO, ILO, etc.); Enforcement of Human Rights in India including Supreme Court, High Courts, Statutory Commissions – NHRC, NCW, NCM, NC-SCST etc.

- **UNIT- III**

- ADR system mechanism covering arbitration – meaning, scope and types, arbitration agreement, tribunal jurisdiction and grounds of challenge of arbitral award. Distinction between conciliation, arbitration, negotiation and media Information Technology- legislation and procedures, cybercrimes.

- **UNIT- IV**

- Law relating to intellectual property covering meaning of intellectual property, brief on forms of IP-copyright, trademark, patents, designs, secrets, other new forms such as geographical indications, right to information act/concept and evolution, election provisions under the Indian constitution (Article 324-329), offences relating to election under IPC 1860(sec 171A-1711)

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.
- Question paper is to be set covering whole of the syllabus by making parts or mixing of topics.

INSTRUCTIONS FOR THE FACULTY

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

I.K. Gujral Punjab Technical University Jalandhar, Kapurthala

Bachelor's of Architecture (B. Arch): 1 to 10th Batch 2019 (For Constituent Campus Only)

B. Architecture (Semester V) - Scheme 2019

(For Constituent Campus Only)

Course Type	Sr. no	Course Code	Course Title	Load Allocations					Marks	Credits	Duration of Univ. Exam(in hrs) / 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**	03
	3	UC/BARCH-503/19	Structure Systems-III	1	-	-	1	**02**	**100**	**2**	No Exam only 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
PAEC C	6	UC/BARCH-506/19	Theory of Design-II	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 - 510/19	Elective- I	2	1	-	-	**03**	**40:60**	**3**	03
OE	9	UC/BARCH- 511 - 513/19	Open Elective- I /Mooc /Swayam	2	-	-	-	**02**	**40:60**	**2**	03
SEC	10	UC/BARCH-514/19	*Educational Tour II/ Summer Training-II/ Vacation Assignment-II	-	-	-	-	-	**100**	**1**	Internal Assessment /Viva-Voce
	Total			15	7		8	**30**		**31**	

Note:-

***Educational Tour-II/ Summer Training-II / Vacation Assignment-II**

- *Fifth semester course code UC/BARCH-514/19 is carried out in the intervening period of Fourth and Fifth Semester.*
- *The Summer Training-I/ Vacation Assignments-I to be evaluated on the basis of work submitted in the starting of Fifth semester only.*

PE /Elective- I (Choose any one from the given choices)	
UC/BARCH-508/19	Green Buildings & Rating System
UC/BARCH-509/19	Hill Architecture
UC/BARCH-510/19	Architecture Acoustics

Open Elective-I (Choose any one from the given choices)	
UC/BARCH-511/19	Sociology for Architects
UC/BARCH-512/19	Health Education- I
UC/BARCH-513/19	Creative Writing

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Course Code	Course Title	L	Sem/ Tut	P/ FW	Stu	Credits 6	Duration of University Exam
UC/BARCH-501/19	Architectural Design -V	1	-	-	5	Int:Ext 60:40	12 hours (in 2 days) + viva voce by external jury

COURSE OBJECTIVE

- To make students understand and appreciate the constraints in the designing of a buildings with reference to function, form and structure and 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 able 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 of site topography.

COURSE CONTENT

- **Commercial Buildings** - Hotels, Motels, Restaurants, Hostels, Club Houses etc. on contour site
- **Public buildings -** Institution and Public Buildings- Museum, Libraries and Court Houses etc.

Note:

3. *All buildings should have accessibility to differently-able persons.*
4. *One project should be on a contoured side preferably.*

EVALUATION CRITERIA FOR EXAM / QUESTION PAPER SETTING

- One compulsory question is to be set from the entire syllabus.
- Evaluation is to be done through viva voce by external examiner appointed by the university at college. Answer sheets should be retained at college level for the viva voce examination.

INSTRUCTIONS FOR THE FACULTY

- The Design faculty is required to take a well prepared well researched lecture on the said topics 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.
- The Design Faculty is also advised to keep on updating the reference list and submit the latest one in the Library & Academic department of the Campus.

Course Code	Course Title	L	Sem/ Tut	P/ FW	Stu	Credits 04	Duration of University Exam
UC/BARCH-502/19	Building Construction & Materials -V	1	-	-	3	Int:Ext 60:40	03 Hours

COURSE OBJECTIVE

- To make students understand and appreciate, various methods of building construction in coordination with the building materials and science related to them. The Students will gain knowledge on the various applications of materials like Iron, Steel and Aluminium in buildings.

COURSE OUTCOMES

- At the end of the course student will able to become aware of the different types of steel construction and understand details for trusses, staircases, sliding doors, partitions work out and apply appropriate details for building construction of the same.

COURSE CONTENT

- **UNIT-I**

- The manufacturing process, casting, characteristics, form and uses of Cast Iron, Wrought Iron, Steel, Stainless Steel, Aluminium, copper as building materials.
- Properties and applications of copper, titanium and carbon fibre in buildings.
- Various structural members, Sections and Joinery in Steel, Aluminium and PVC.

- **UNIT-II**

- Steel – Construction details of Doors and windows (framed and sliding), Steel Staircase, Different types and details of Steel Trusses, Built-up Trusses, North-light truss, and Steel Connections, Steel Flooring and Grillage foundation.
- Aluminium, and PVC - Partition Walls, Aluminium composite panelling details.

EVALUATION CRITERIA FOR EXAM / QUESTION PAPER SETTING

- Minimum Six questions are to be set from the entire syllabus with three questions from each unit. Students would be required to attempt four Questions with minimum one question from each Unit. The distribution of marks for Unit I: Unit II is 12: 28 marks.
- Question paper is to be set covering whole of the syllabus by making parts or mixing of topics and set in such a form that the exam should be attempted on drawing sheets.

INSTRUCTIONS FOR THE FACULTY

- 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, emphasising on understating of complete construction details of Double Storeyed structure which may include the complete process of lying of reinforcement and concrete & brickwork execution for better learning experience.
- Preparing Construction sheets on above topics. Emphasis shall be laid on understating of complete construction details of the structure.

Course Code	Course Title	L	Sem/ Tut	P/ FW	Stu	Credits 2	Duration of University Exam
UC/BARCH-503/19	Structure System-III	1	-	-	1	Int:Ext 0:100	No exam, only External Viva-Voce

COURSE OBJECTIVES

- At the end of the course, the students will 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

- At the end of the course, the student will be able to understand the basic principles of structures and realize the fundamental requirements of long span structures
- The student will understand the architectural features and necessity of shells and plate structures and able to comprehend the design principles and applications of pneumatic and tensile structures.

COURSE CONTENT

- **UNIT-I**

- Recapitulation of what has been done in pervious semester.

- **UNIT-II**

- Form Active Structural System or Structural System in Simple Stress Conditions: Cable Structures (Roofs, Bridges etc.) and Tents Structures

- **UNIT-III**

- Surface active Structure System: Shell Structures and Folded Plates structures.

- **UNIT-IV**

- Vertical Structure System for High Rise Buildings.

EVALUATION CRITERIA FOR EXAM / QUESTION PAPER SETTING

- At the end of the semester, the students will submit the Models and Project report in hard bound form for evaluation.
- Evaluation of work done by the student during the semester is to be done through viva voce by external examiner appointed by the university at college.

INSTRUCTIONS FOR THE FACULTY

- Emphasis must be given on learning by doing and the students must be encouraged to make the models of the structure system covered and encouraged to prepare a presentation on the topics assigned and the hard copy must be submitted for external evaluation.

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Course Code	Course Title	L	Sem/ Tut	P/ FW	Stu	Credits 4	Duration of University Exam
UC/BARCH-504/19	Structure Design-III	2	2	-	-	Int:Ext 40:60	03 Hours

COURSE OBJECTIVE

- The aim and objective of the course 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

COURSE CONTENT

- **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

- T he 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.
- Question paper is to be set covering whole of the syllabus by making parts or mixing of topics.

INSTRUCTIONS FOR THE FACULTY

- Teaching in the subject shall be a combination of lectures by subject Experts, Site visits and Schematic layout exercises.
- The focus should be laid upon the live study and application of the subject into the architecture design.

Course Code	Course Title	L	Sem/ Tut	P/ FW	Stu	Credits 3	Duration of University Exam
UC/BARCH-505/19	Building Services-II	2	1	-	-	Int:Ext 40:60	03 Hours

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 and will be capable for developing design skills for MEP layouts in architecture design.

COURSE CONTENT

- **UNIT I**

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

- **UNIT-II**

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

- **UNIT-III**

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

- **UNIT-IV**

- 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

- T he 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.

- Question paper is to be set covering whole of the syllabus by making parts or mixing of topics.

INSTRUCTIONS FOR THE FACULTY

- Teaching in the subject shall be a combination of lectures by subject Experts, Site visits and Schematic layout exercises.
- Market survey is to be carried out to study the products available in market and samples has to be collected. All the assignments shall be clubbed with Design Studio Project.

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Bachelor's of Architecture (B. Arch): 1 to 10th Batch 2019 (For Constituent Campus Only)

Course Code	Course Title	L	Sem/ Tut	P/ FW	Stu	Credits 3	Duration of University Exam
UC/BARCH-506/19	Theory of Design-II	2	1	-	-	Int:Ext 40:60	03 Hours

COURSE OBJECTIVE

- 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.

COURSE CONTENT

- **UNIT I**

- Design principles, philosophy and detailed study of any two major projects of the Foreign Architects listed below:

1.Louis I.Kahn
2.Eero Sarinen
3.Philip Johnson
4.Paul Rudolph
5.John Utzon
6.Kenzo Tange

- **UNIT II**

- Design principles, philosophy and detailed study of any two major projects of the Indian Architects listed below:

1.A.P.Kanvinde
2.C.M. Correa
3.B.V.Doshi
4.J.A.Stein
5.U.C.Jain
6.Raj Rewal

EVALUATION CRITERIA FOR EXAM / QUESTION PAPER SETTING

- The examiner is required to set eight questions with minimum four from each unit. Students are required to attempt five questions with minimum two from each unit.
- Question paper is to be set covering whole of the syllabus by making parts or mixing of topics.

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 student's knowledge base.

I.K. Gujral Punjab Technical University Jalandhar, Kapurthala

Bachelor's of Architecture (B. Arch): 1 to 10th Batch 2019 (For Constituent Campus Only)

Course Code	Course Title	L	Sem/ Tut	P/ FW	Stu	Credits 3	Duration of University Exam
UC/BARCH-507/19	Landscape Architecture	2	1	-	-	Int:Ext 40:60	03 Hours

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 able to understand and appreciate the elements, principle and need of landscaping and apply the same for landscape design solutions.

COURSE CONTENT

- **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 in Indian Gardens through history: Persian Gardens, Mogul Gardens etc.

- **UNIT- IV**

- Study on comparative basis of development of landscape design in worldwide Gardens through history: Japanese Gardens, Italian Gardens, French Gardens, English Gardens

EVALUATION CRITERIA FOR EXAM / QUESTION PAPER SETTING

- T he 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.
- Question paper is to be set covering whole of the syllabus by making parts or mixing of topics.

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.

I.K. Gujral Punjab Technical University Jalandhar, Kapurthala

Bachelor's of Architecture (B. Arch): 1 to 10th Batch 2019 (For Constituent Campus Only)

Course Code	Course Title	L	Sem/ Tut	P/ FW	Stu	Credits 3	Duration of University Exam
UC/BARCH-508/19	Green Buildings and Rating System	2	1	-	-	Int:Ext 40:60	03 Hours

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 able to understand the energy utilization and the basic aim to conserve the embodied energy in terms of the already existing structures by assessing the energy efficacy by studying the already built tools and assessment criteria's.

COURSE CONTENT

- **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, and 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

- T he 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.
- Question paper is to be set covering whole of the syllabus by making parts or mixing of topics.

INSTRUCTIONS FOR THE FACULTY

- Teaching in the subject shall be a combination of lectures by subject Experts, Site visits to energy efficient buildings and preparing a report of case studies.
- The focus should be laid on the live study and application of the subject into the architecture design.

I.K. Gujral Punjab Technical University Jalandhar, Kapurthala

Bachelor's of Architecture (B. Arch): 1 to 10th Batch 2019 (For Constituent Campus Only)

Course Code	Course Title	L	Sem/ Tut	P/ FW	Stu	Credits 3	Duration of University Exam
UC/BARCH-509/19	Hill Architecture	2	1	-	-	Int:Ext 40:60	03 Hours

COURSE OBJECTIVE

- To make students aware about the responsibility of architects to design buildings on hills with environmental & ecological constraints and impart a comprehensive knowledge of historic aspects and present day concerns.

COURSE OUTCOMES

- At the end of the course, the students will able to understand the architecture of hills and recognize the specific requirements of art and science of designing buildings in hill areas based on climate, topography, local materials, social factors etc.

COURSE CONTENT

- **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

- T

he 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.

- Question paper is to be set covering whole of the syllabus by making parts or mixing of topics.

INSTRUCTIONS FOR THE 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.

I.K. Gujral Punjab Technical University Jalandhar, Kapurthala

Bachelor's of Architecture (B. Arch): 1 to 10th Batch 2019 (For Constituent Campus Only)

Course Code	Course Title	L	Sem/ Tut	P/ FW	Stu	Credits 3	Duration of University Exam
UC/BARCH-510/19	Architecture Acoustics	2	1	-	-	Int:Ext 40:60	03 ours

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.

COURSE CONTENT

- **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.
- Question paper is to be set covering whole of the syllabus by making parts or mixing of topics.

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

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Bachelor's of Architecture (B. Arch): 1 to 10th Batch 2019 (For Constituent Campus Only)

Course Code	Course Title	L	Sem/ Tut	P/ FW	Stu	Credits 2	Duration of University Exam
UC/BARCH-511/19	Sociology for Architect	2	-	-	-	Int:Ext 40:60	03 Hours

Course Objective

- To make students learn the theoretical framework for the understanding of designed space in its relationship with inhabitants, while critiquing the dynamics between designers' intentions and people's appropriation of space.

Course Outcomes

- At the end of the course, the students will able to appreciate the sociological concepts that can be applied to the study of design practice and inhabitation, with a study of a methodological approach to the assessment of design and to the post-occupancy evaluation of the social production of space.

COURSE CONTENT

- **UNIT I**

- Definition & theory of Society (culture & sub-cultural definitions) as it relates to architecture, context of society, concept of personal and group space, and role of the architect in respond to social ideals, Behavioral characteristics of humans, aspect of socialization,

- **UNIT- II**

- Social Spaces throughout history as seen in the changes relative to design during the various critical periods of civilization – Greek, Roman, Gothic, Renaissance, etc.

- **UNIT- III**

- Behavioral attributes relative to local society, basics of societal initiatives and influences of a built form, Study of built form relative to construction in time and place (availability within society regarding construction techniques)

- **UNIT- IV**

- Social norms, values and roles integrated through architectural design into the built form by the relationships of the building's elements and spaces. Scio-culture definition, norms and values, social expectations and roles for culture, cultural influences and their relationship with client and public;

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.
- Question paper is to be set covering whole of the syllabus by making parts or mixing of topics.

INSTRUCTIONS FOR THE FACULTY

- Subject shall be taught through the combination of Guest Lectures and Experts talks and visits to public places.
- Focus on the live study and application of the subject into the architecture design.

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Bachelor's of Architecture (B. Arch): 1 to 10th Batch 2019 (For Constituent Campus Only)

Course Code	Course Title	L	Sem/ Tut	P/ FW	Stu	Credits 2	Duration of University Exam
UC/BARCH-512/19	Health Education - I	2	-	-	-	Int:Ext 40:60	03 Hours

COURSE OBJECTIVE

- To make student understand the importance of health education and get a general overview of mental and social health and gain knowledge about the various 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 able to get an opportunity to gain new and useful information related to daily living, self-esteem, family and community living.

COURSE CONTENT

- **UNIT I**

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

- **UNIT- II**

- 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**

- 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**

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

EVALUATION CRITERIA FOR EXAM / QUESTION PAPER SETTING

- T he 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.
- Question paper is to be set covering whole of the syllabus by making parts or mixing of topics.

INSTRUCTIONS FOR THE FACULTY

- Subject shall be taught through the combination of Guest Lectures and Experts talks.

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Bachelor's of Architecture (B. Arch): 1 to 10th Batch 2019 (For Constituent Campus Only)

Course Code	Course Title	L	Sem/ Tut	P/ FW	Stu	Credits 2	Duration of University Exam
UC/BARCH-513/19	Creative Writing	2	-	-	-	Int:Ext 40:60	03 Hours

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

- At the end of the course the students will able to 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.

COURSE CONTENT

- **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**

- Humour 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.
- Question paper is to be set covering whole of the syllabus by making parts or mixing of topics.

INSTRUCTIONS FOR THE FACULTY

- Subject shall be taught through the combination of Guest Lectures and Experts talks.
- All offsets must be directed towards narrative writing. Students should be encouraged irrespective of the genre, topic, and style. Focus on enhancement of creative and artistic expression should be there.

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Bachelor's of Architecture (B. Arch): 1 to 10th Batch 2019 (For Constituent Campus Only)

Course Code	Course Title	L	Sem/ Tut	P/ FW	Stu	Credits 1	Duration of University Exam
UC/BARCH-514/19	Educational Tour–II/ Summer Training-II/Vacation Assignment-II	-	-	-	-	Int:Ext 100:0	Internal Assessment/Viva-Voce

The education tour to one day to one or two week duration is 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 must be encouraged 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 assignments 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.

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Bachelor's of Architecture (B. Arch): 1 to 10th Batch 2019 (For Constituent Campus Only)

B. Architecture (Semester VI) - Scheme 2019

(For Constituent Campus Only)

Course Type	Sr.no	Course Code	Course Title	Load Allocations					Marks	Credits	Duration of Univ. Exam(in hrs) / Viva-Voce
				L	Sem /Tut	P/F W	Stu	Total	Int : Ext		
PC	1	UC/BARCH-601/19	Architectural Design -VI	1	-	-	5	**06**	**60:40**	**6**	12 (in 2 days) + External VivaVoce
	2	UC/BARCH-602/19	History of Architecture-IV	2	-	-	-	**02**	**40:60**	**2**	03
	3	UC/BARCH-603/19	Estimating Costing & Specifications	2	1	-	-	**03**	**40:60**	**3**	03
	4	UC/BARCH-604/19	Architecture Legislation	2	-	-	-	**02**	**40:60**	**2**	03
BS & AE	5	UC/BARCH-605/19	Building Construction & Materials-VI	1	-	-	3	**04**	**60:40**	**4**	03
	6	UC/BARCH-606/19	Structure Design –IV (Project)	2	2	-	-	**04**	**40:60**	**4**	No exam only External viva
	7	UC/BARCH-607/19	Building Services-III	2	-	-	-	**02**	**40:60**	**2**	03
PAECC	8	UC/BARCH-608/19	Climate & Architecture-III (Sustainable Design)	2	-	-	-	**02**	**40:60**	**2**	03
PE	9	UC/BARCH-609-611/19	Elective- II	2	1	-	-	**03**	**40:60**	**3**	03
OE		UC/BARCH-612-614/19	Open Elective- II/Mooc Swayam	2	-	-	-	**02**	**40:60**	**2**	03
SEC	10	UC/BARCH-615/19	Mentoring and Professional Development-III	2	-	-	-	**02**	**100**	**Non-Credit**	No Exam
	Total			20	4		8	**32**		**30**	

PE /Elective- II (Choose any one from the given choices)	
UC/BARCH-609/19	Sustainable Cities and Communities
UC/BARCH-610/19	Low-Cost effective Building Design
UC/BARCH-611/19	Interior Design

OE /Elective- II (Choose any one from the given choices)	
UC/BARCH-612/19	Psychology for Architects
UC/BARCH-613/19	Health Education-II
UC/BARCH-614/19	Lighting Design

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Bachelor's of Architecture (B. Arch): 1 to 10th Batch 2019 (For Constituent Campus Only)

Course Code	Course Title	L	Sem/ Tut	P/ FW	Stu	Credits 6	Duration of University Exam
UC/BARCH-601/19	Architectural Design -VI	1	-	-	5	Int:Ext 60:40	12 hours (in 2 days) + viva voce by external jury

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, the students will comprehend the 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.

COURSE CONTENT

- Public building with larger span - Planning and designing of column free structure like Auditorium, Cinemas, Theatres, Multiplex.
- Specialized Laboratories and Housing- Housing for EWS, LIG,MIG,HIG or Gated Communities
- 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

Note: All buildings should have accessibility to differently-able persons.

EVALUATION CRITERIA FOR EXAM / QUESTION PAPER SETTING

- One compulsory question is to be set from the entire syllabus.
- Evaluation is to be done through viva voce by external examiner appointed by the university at college. Answer sheets should be retained at college level for the viva voce examination.

INSTRUCTIONS FOR THE FACULTY

- The Design faculty is required to take a well prepared well researched lecture on the said topics 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.
- The Design Faculty is also advised to keep on updating the reference list and submit the latest one in the Library & Academic department of the Campus.

I.K. Gujral Punjab Technical University Jalandhar, Kapurthala

Bachelor's of Architecture (B. Arch): 1 to 10th Batch 2019 (For Constituent Campus Only)

Course Code	Course Title	L	Sem/ Tut	P/ FW	Stu	Credits 2	Duration of University Exam
UC/BARCH-602/19	History of Architecture -IV	2	-	-	-	Int:Ext 40:60	03 Hours

COURSE OBJECTIVE

- To make students understand the constraints in the ancient building design with reference to its function, form & structures and appreciate the architectural solutions evolved in successive historic periods.

COURSE OUTCOMES

- At the end of the course, the students will be able to develop a holistic approach to architecture an integral component of built environment, as an outcome of various social, political and economic influences and as a response to the cultural& climatic conditions.

COURSE CONTENT

- **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

- T he 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.
- Question paper is to be set covering whole of the syllabus by making parts or mixing of topics.

INSTRUCTIONS FOR THE FACULTY

- For each of the period given in syllabus, stress is to be laid on making students understand the Architectural Characters/ features , building evolution and form with only one or two representative examples to highlight those features.
- Continuous evaluation shall be made of students work based on various models, assignments and sketching.

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Bachelor's of Architecture (B. Arch): 1 to 10th Batch 2019 (For Constituent Campus Only)

Course Code	Course Title	L	Sem/ Tut	P/ FW	Stu	Credits 3	Duration of University Exam
UC/BARCH-603/19	Estimating Costing & Specifications	2	1	-	-	Int:Ext 40:60	03 Hours

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 be able to prepare detailed estimates and cost of two-storeyed residential buildings in masonry and reinforced cement concrete.

COURSE CONTENT

- **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.
- Preparing estimates of quantities of materials for various items of work e.g. earthwork, brickwork, flooring, roofing etc- units of measurements and payments.

- **UNIT- II**

- 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.
- 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.

- **UNIT- III**

- 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 etc.
- Studio exercise related to specifications for small building project, standard P.W.D. specifications.

EVALUATION CRITERIA FOR EXAM / QUESTION PAPER SETTING

- T

he 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.

- Question paper is to be set covering whole of the syllabus by making parts or mixing of topics.

INSTRUCTIONS FOR THE FACULTY

- Teaching in the subject shall be a combination of lectures by subject Experts, classroom exercises, site visits.

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Bachelor's of Architecture (B. Arch): 1 to 10th Batch 2019 (For Constituent Campus Only)

Course Code	Course Title	L	Sem/ Tut	P/ FW	Stu	Credits 2	Duration of University Exam
UC/BARCH-604/19	Architecture Legislation	2	-	-	-	Int:Ext 40:60	03 Hours

COURSE OBJECTIVE

- To make students understand 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 be sentient of need for building byelaws, importance of legislation in building industries and NBC norms.

COURSE CONTENT

- **UNIT- I**

- Building Bye-laws - Need, Role and Importance of Legislation in the Building Industry, its Contents and Scope
- Study of Building Bye-laws of Chandigarh & PUDA and Local Municipal Corporation/Local Bodies

- **UNIT- II**

- 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 and Protection of Industrial/ Multi-Storeyed Buildings against Fire etc w.r.t. National Building Code
- Disability Act

EVALUATION CRITERIA FOR EXAM / QUESTION PAPER SETTING

- T he 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.
- Question paper is to be set covering whole of the syllabus by making parts or mixing of topics.

INSTRUCTIONS FOR THE FACULTY

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

I.K. Gujral Punjab Technical University Jalandhar, Kapurthala

Bachelor's of Architecture (B. Arch): 1 to 10th Batch 2019 (For Constituent Campus Only)

Course Code	Course Title	L	Sem/ Tut	P/ FW	Stu	Credits 04	Duration of University Exam
UC/BARCH-605/19	Building Construction & Materials -VI	1	-	-	3	Int:Ext 60:40	04 Hours

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, the students will be able to prepare the construction detailing work associated with the interior finishes and services.

COURSE CONTENT

- **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**

- Details related to temporary construction work
    - Shoring
    - Underpinning
    - Scaffolding

EVALUATION CRITERIA FOR EXAM / QUESTION PAPER SETTING

- Minimum Six questions are to be set from the entire syllabus with three questions from each unit. Students would be required to attempt four Questions with minimum one question from each Unit.
- Question paper is to be set covering whole of the syllabus by making parts or mixing of topics and set in such a form that the exam should be attempted on drawing sheets.

INSTRUCTIONS FOR THE FACULTY

- 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, emphasising on understating of complete construction details of Double Storeyed structure which may include the complete process of lying of reinforcement and concrete & brickwork execution for better learning experience.
- Preparing Construction sheets on above topics. Emphasis shall be laid on understating of complete construction details of the structure.

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Bachelor's of Architecture (B. Arch): 1 to 10th Batch 2019 (For Constituent Campus Only)

Course Code	Course Title	L	Sem/ Tut	P/ FW	Stu	Credits 4	Duration of University Exam
UC/BARCH-606/19	Structure Design-IV (Project)	2	2	-	-	Int:Ext 40:60	No exam, only External Viva-Voce

COURSE OBJECTIVE

- To make students skilled enough to apply the knowledge gained regarding structural design in an applied project.

COURSE OUTCOMES

- At the end of the course, the students will be make structurally safe buildings against natural/ manmade disasters.

COURSE CONTENT

- Detailed Structural Design & Drawings of a Public /Residential Building, (R.C.C. frame structure) with emphasis laid on practical design considerations
- Techniques for Earth quake Resistant Design, Earth quake Resistant provisions for Brick Masonry& R.C.C. Buildings.
- Introduction to Code provision, IS- 4326 and IS- 1893 for Earth quake Resistant Design of Buildings.

EVALUATION CRITERIA FOR EXAM / QUESTION PAPER SETTING

- At the end of the semester, the students will submit the Project report in hard bound form for evaluation.
- Evaluation is to be done through viva voce by external examiner appointed by the university at college.

INSTRUCTIONS FOR THE FACULTY

- Student shall prepare report consisting of Detailed Structure Design of a building considering all safety factors including fire, earthquake, cyclone, floods, etc.
- Report to be prepared in bound form with drawings attached and submitted to the Resource Centre/Head of Department office.

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Course Code	Course Title	L	Sem/ Tut	P/ FW	Stu	Credits 2	Duration of University Exam
UC/BARCH-607/19	Building Services - III	2	-	-	-	Int:Ext 40:60	03 Hours

COURSE OBJECTIVE

- To make students learn and understand the basic principles leading design provision of HVAC, Building Management System and Acoustics within the buildings

COURSE OUTCOMES

- At the end of the course, the students will be able to detail out the working principles of building HVAC services, for appropriate design space for automation systems and use of variety of acoustic materials.

COURSE CONTENT

- **UNIT- I**

- **Air Conditioning -** Role, Importance and Principles governing Air conditioning
- Refrigeration Cycle, Air cycle, Cooling Load, Methods of Cooling and Heating-Evaporative Cooling et
- 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** - 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** - Introduction, Relevance, Scope and Importance
- Building Management System- Functions, Applicability to different services
- Building Management System- Limitations, Advantages, Disadvantages components and integration in buildings

- **UNIT- IV**

- **Intelligent Buildings** - Concept, applicability and limitations
- Case-study of any intelligent building with fully automation system

EVALUATION CRITERIA FOR EXAM / QUESTION PAPER SETTING

- T he 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.
- Question paper is to be set covering whole of the syllabus by making parts or mixing of topics.

INSTRUCTIONS FOR THE FACULTY

- Teaching in the subject shall be a combination of lectures by subject Experts, Site visits and Schematic layout exercises.

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Course Code	Course Title	L	Sem/ Tut	P/ FW	Stu	Credits 2	Duration of University Exam
UC/BARCH-608/19	Climate & Architecture –III (Sustainable Design)	2	-	-	-	Int:Ext 40:60	03 Hours

COURSE OBJECTIVE

- To make students conscious about the sustainability issues, need and importance of promoting sustainable Architecture.

COURSE OUTCOMES

- At the end of the course, the students will be able to understand the concept of climate responsive design and application of sustainable development approaches introduced by various councils to save the planet.

COURSE CONTENT

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

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.
- Question paper is to be set covering whole of the syllabus by making parts or mixing of topics.

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 organised by the Professional Bodies/ others and preparing Models/ Charts to make students familiar with use of natural elements as essential input to design sustainable buildings.
- Focus on the live study and application of the subject into the architecture design.

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Course Code	Course Title	L	Sem/ Tut	P/ FW	Stu	Credits 3	Duration of University Exam
UC/BARCH-609/19	Sustainable Cities & Communities	2	1	-	-	Int:Ext 40:60	03 Hours

COURSE OBJECTIVE

- To make students aware and educate 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, the students will be aware about the overall intent for sustainable built environment and physical components of cities to support livelihood.

COURSE CONTENT

- **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.
- Question paper is to be set covering whole of the syllabus by making parts or mixing of topics.

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 organised by the Professional Bodies/ others and preparing Models/ Charts to make students familiar with use of natural elements as essential input to design sustainable buildings.
- Focus on the live study and application of the subject into the architecture design.

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Course Code	Course Title	L	Sem/ Tut	P/ FW	Stu	Credits 3	Duration of University Exam
UC/BARCH-610/19	Low-Cost Effective Building Design	2	1	-	-	Int:Ext 40:60	03 Hours

COURSE OBJECTIVE

- To make students aware of the use of conventional and non-conventional resources for low-cost construction.

COURSE OUTCOMES

- At the end of the course, the students will be familiarizing with local & regional construction techniques for cost effective design and understand the relationship between architecture, environment and culture.

COURSE CONTENT

- **UNIT-I**

- Introduction to the subject as also the building processes adopted in various climatic zones of the country, resulting in varied vernacular expressions.
- Use of cost-effective technologies through the use of local materials, up-gradation of traditional technologies, prefabrication and pre-engineering methods.

- **UNIT-II**

- Need & importance of low cost construction in rural and urban sector
- Innovation of building techniques for cost effectiveness

- **UNIT-III**

- Analysis of space norms for low cost buildings
- Comparative analysis of building materials and costing with relation to space designing

- **UNIT-IV**

- Economy through Planning & Design
- Study of usages pattern of low cost buildings by the habitants

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.
- Question paper is to be set covering whole of the syllabus by making parts or mixing of topics.

INSTRUCTIONS FOR THE FACULTY

- Emphasis should be laid on seminars so that each student gets a chance to engage in self-teaching.
- Teaching in the subject will be a combination of Expert lectures, visits to traditional buildings representing peculiar culture, technology and architectural elements, visits to local villages with library studies of different regions of India.

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Bachelor's of Architecture (B. Arch): 1 to 10th Batch 2019 (For Constituent Campus Only)

Course Code	Course Title	L	Sem/ Tut	P/ FW	Stu	Credits 3	Duration of University Exam
UC/BARCH-611/19	Interior Design	2	1	-	-	Int:Ext 40:60	03 Hours

COURSE OBJECTIVE

- To make students apprehend the basic principles of interior design in the context of built environment.

COURSE OUTCOMES

- At the end of the course, the students will be able to appreciate the complexities and constraints in the design and execution of architectural interiors.

COURSE CONTENT

- **Unit I**

- Interior Design – Objectives, purpose, role and importance for Architects
- Principles of Interior Design and their application in the context of buildings and aesthetic composition in interiors.
- Elements of Interior Design , Role in interiors
- Aesthetic Order, functional Value and Psychological impact of various elements of Interior Design.

- **Unit II**

- Spatial organization, perceptual needs, psychological needs, convenience, maintenance , durability and image in interior design
- Application of Colour, Texture, Landscaping, Artificial and Natural Lighting in the Building interiors
- Traditional and modern building materials for interior finishes

- **Unit III**

- Interior design accessories and decorative elements Built-in and movable furniture, interior furnishings, Fabrics, Murals, Paintings, Sculpture, Lighting Fixtures, Floor coverings, Wall coverings and related materials.
- Treatments applied to floors, walls, partitions and ceilings for interior designing

- **Unit IV**

- Electrical and mechanical services and their integration into interior design schemes.
- Space organization in interiors--presentation of the complete interior scheme of a given projects such as Library, Public Halls, Conference Room, Commercial buildings etc

EVALUATION CRITERIA FOR EXAM / QUESTION PAPER SETTING

- T he 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.
- Question paper is to be set covering whole of the syllabus by making parts or mixing of topics.

INSTRUCTIONS FOR THE FACULTY

- Teaching in the subject will be a combination of Expert lectures, Specific case studies with special emphasis on the interior decor.
- Students would also be encouraged to attend building material exhibitions etc. and prepare a Study Report of any project listed in the syllabus.

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Bachelor's of Architecture (B. Arch): 1 to 10th Batch 2019 (For Constituent Campus Only)

Course Code	Course Title	L	Sem/ Tut	P/ FW	Stu	Credits 2	Duration of University Exam
UC/BARCH-612/19	Psychology for Architects	2	-	-	-	Int:Ext 40:60	03 Hours

COURSE OBJECTIVE

- To make student apprehend the basic psychological theory, study of human behaviour which helps the architects to develop a sophisticated understanding of people and behaviour for built environment and design.

COURSE OUTCOMES

- At the end of the course, the students will get the introduction to psychology that focuses on human behaviour in the built environment and increase students' understanding of how the built environment affects human behaviour.

COURSE CONTENT

- **UNIT –I**
- **Overview of the development of the field of architectural & environmental psychology, introduction to the framework of people-environment transaction, with an emphasis on meanings people assign to various places.**
- **The psychological concept of place, concept of perception and experience in architecture. the relations between space-place and perception-experience**
- **Critical theories & principles on architectural psychology and the role of architects in experiential design.**
- Positively and negatively affects of building design on usability, health, and well-being and work performance.

- **UNIT –II**
- **Architect-Employer Relationship: Understanding the responsibility of analyzing the requirements of the owner and customer as an architect**
- **Teamwork and Collaboration: Ability to enhance individual skills and take on different roles through identification and work as a member of the design team, in conjunction with other environments**

- **UNIT –III**
- **Architectural Practice / Professional Development: Understanding the role of the internship in professional development, and mutual rights and responsibilities of the employer and the trainee**
- **Professional Ethics: Understanding the ethical issues that are related to the professional adjudication in architectural design and practice**

- **UNIT –IV**
- **Evaluate an architectural project with a comprehensive program, according to the design criteria concerning the client, user requirements, appropriate precedents, space and equipment requirements, site conditions and related laws and standards**
- Psychological theory and principles applied to improve the existing built environment/design

EVALUATION CRITERIA FOR EXAM / QUESTION PAPER SETTING

- T

he 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.

- Question paper is to be set covering whole of the syllabus by making parts or mixing of topics.

INSTRUCTIONS FOR THE FACULTY

- Teaching in the subject will be combination of Expert lectures, visits and discussions to the reputed Architects of the region.
- Students would be required to submit a report based on the experiences shared by the Architects.

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Course Code	Course Title	L	Sem/ Tut	P/ FW	Stu	Credits 2	Duration of University Exam
UC/BARCH-613/19	Health Education - II	2	-	-	-	Int:Ext 40:60	03 Hours

COURSE OBJECTIVE

- To make student learn various aspect of health fitness.

COURSE OUTCOMES

- At the end of the course, the students will be conscious to live healthier life by improving their physical, mental, emotional and social health by increasing their knowledge and influencing their attitudes about caring for well-being.

COURSE CONTENT

- **UNIT –I**

- Concept of vital capacity, blood pressure, pulse rate, general and specific conditioning
- Physical Fitness and its components: speed, strength, endurance, agility, etc.

- **UNIT –II**

- Nutrition, exercise and body composition
- Food requirements, and balanced diet

- **UNIT –III**

- Methods of developing fitness
- Awareness to various forms of pollution and water

- **UNIT –IV**

- Impact of environment on health.
- Effects of drugs on health
- Yoga, health and fitness

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.
- Question paper is to be set covering whole of the syllabus by making parts or mixing of topics.

INSTRUCTIONS FOR THE FACULTY

- Emphasis should be laid upon the group discussions among the students by exchanging their views and experiences.
- Students are encouraged to take part in various sports activities.

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Course Code	Course Title	L	Sem/ Tut	P/ FW	Stu	Credits 2	Duration of University Exam
UC/BARCH-614/19	Lighting Design	2	-	-	-	Int:Ext 40:60	03 Hours

COURSE OBJECTIVE

- To make student learn various methods of determining qualitative & quantitative lighting requirements both for interiors and exteriors.

COURSE OUTCOMES

- At the end of the course, the students will be able to appreciate the impact of day-lighting and artificial lighting on different textures, colours and forms of space helping to achieve the true purpose of architecture.

COURSE CONTENT

- **UNIT –I**

- Basic anatomy and functions of the eye. Adjustments made by the eye, Age-related defects and their design implication.
- Visual arc, Visual acuity, resolution angle, Contrast, Colour Contrast, Colour Adaptation, Visual performance and its relationship to Contrast, Size of task and Luminance. Central and peripheral vision.

- **UNIT –II**

- Photometric terms used in the lighting industry and their interrelationship. Measurement of these terms.
- Colour Specification with Mussel and CIE system, Additive and Subtractive colour mixing.

- **UNIT –III**

- Lamp Properties; Effect of voltage & Temperature fluctuation on functioning of lamps, lamp cost, Lumen Loss, Lamp photometric, etc. Brief history of lamps.
- Lamps – Incandescent, Discharge sources. High intensity discharge sources. Fibre optics, Induction Lamps, LED lamps. Recent developments in lamp technology.
- Luminaries properties like intensity distribution for ceiling luminaries & floodlights, LOR, ULOR, DLOR, IP rating, Glare control methods, Aesthetics and applications.

- **UNIT –IV**

- Quantitative lighting design of a simple space manually using lumen methods. Lighting design-using computers.
- Design principles used for lighting of various types of internal spaces. Design principles used for lighting of various external situations.
- Day lighting, Importance and method to calculate illumination due to daylight using daylight factor, day lighting practices. Integration with electric lighting.

EVALUATION CRITERIA FOR EXAM / QUESTION PAPER SETTING

- T

he 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.

- Question paper is to be set covering whole of the syllabus by making parts or mixing of topics.

INSTRUCTIONS FOR THE FACULTY

- Focus to be laid on the live study and application of the subject into the architectural design project.
- Teaching in the subject will be a combination of Expert lectures, Specific case studies and field visits to different sites famous for its lighting effect.

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Course Code	Course Title	L	Sem/ Tut	P/ FW	Stu	Non-Credits	Duration of University Exam
UC/BARCH-615/19	Mentoring and Professional Development-III	2	-	-	-	Int:Ext 100	No Exam

COURSE OBJECTIVE

- To make student learn the overall personality development skills for better shaping of their career.

COURSE OUTCOMES

- At the end of the course, the students will be able to develop new skills for navigating sustainable environment to face the challenging ideas and encouraging career development.

COURSE CONTENT

- **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 CRITERIA FOR EXAM / QUESTION PAPER SETTING

- At the end of the semester, the students will submit assignment based on above mentioned topics assigned by the concerned faulty member.
- No university exam will be conducted.

INSTRUCTIONS FOR THE FACULTY

- The faculty is advised to prepare proper documentation of student activities & maintain student wise report and same shall be submitted to the department.
- The assignments and work shall be discussed and students must be encouraged to take part in various activities.
- The faculty must act as trusted advisor to the students.

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Bachelor's of Architecture (B. Arch): 1 to 10th Batch 2019 (For Constituent Campus Only)

B. Architecture (Semester VII) - Scheme 2019

(For Constituent Campus Only)

Course Type	Sr. no	Course Code	Course Title	Duration	Marks	Credits	Duration of Univ. Exam(in hrs) / Viva-Voce
					Int : Ext		
PAECC	1	UC/BARCH- 701/19	Practical Training Programme	One Full Semester	**350:150**	**18**	No Exam only External Viva-Voce
	Total					**18**	

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Course Code	Course Title	L	Sem/ Tut	P/ FW	Stu	Credits 18	Duration of University Exam
UC/BARCH-701/19	Practical Training Programme	-	-	-	-	Int:Ext 350:150	No exam, only viva voce by external jury

COURSE OBJECTIVE

- To make students aware about the practical efficiency of the profession and learn the intricacies of Architectural Profession by joining and working with practicing Architects/Architectural firms for one complete semester.

COURSE OUTCOMES

- At the end of the course, the students will be enabling to gain the kind and range of practical experience which will prepare them for their likely responsibilities, immediately after qualifying B.Architecture course by undergo Practical Training in a qualified, registered and competent Architect's Office.

COURSE CONTENT

- **Practical Training Manual**:
- The total marks shall be suitably apportioned to assess on regular basis the monthly reports, office work and work done outside office hours.
- Students are required to send/ submit monthly reports of work done by them in the office in which they are working according to a prescribed schedule. These reports shall be assessed/marked regularly by the Practical Training Coordinator (PTC).
- On the conclusion of training, the work done by the student shall be examined and evaluated through a viva- voce to be conducted jointly by the Director/ Principal/HOD, PTC and one External Examiner, who will be appointed by the University.
- **Work to be done by the student**:

- During training, students are required to do two distinct types of work in order to make optimum utilization of the period of training.

a) Work to be done during office hours:

- The work to be done during office hours will include:
  - Drafting, Tracing, Sketch designs, Presentation drawing, Perspectives, Models, documentation etc.
  - Working Drawing and details

b) Work to be done during extra - office hours:

- The work to be done during extra - office hours will include:
  - Preparing a study report on Building design, Analysis incorporating Site visits, recording Observations etc.

- **Distribution of marks**

a) University (External) Marks - 150

- **Univ. Viva – Voce Marks – 100 (**To be conducted by the external expert appointed by University)
- **Marks awarded by the employer – 50** (To be sent in original to the University)

b) **Internal Marks** – **350** (To be sent by PTC in the format given below)

Uni. Roll No.	Joining Report Marks	Monthly Report Marks	Building Study Report Marks	Seminar/Presentation Marks
	20	80	125	125

NOTE: Based on the above guidelines a detailed program shall be drawn each year by the PTC, which shall be approved by the Director/Principal before it is implemented. The intention will be to update the program on regular basis, incorporating new details, with focus on making continuous qualitative improvement of the practical training.

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EVALUATION CRITERIA FOR EXAM / QUESTION PAPER SETTING

- External marks shall be awarded through viva- voce conducted by the External Jury appointed by the University of the Work done by the student during the semester.

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Bachelor's of Architecture (B. Arch): 1 to 10th Batch 2019 (For Constituent Campus Only)

B. Architecture (Semester VIII) - Scheme 2019

(For Constituent Campus Only)

Course Type	Sr. no	Course Code	Course Title	Load Allocations					Marks	Credits	Duration of Univ. Exam(in hrs) / Viva-Voce
				L	Sem /Tut	P/FW	Stu	Total	Int : Ext		
PC	1	UC/BARCH-801/19	Architectural Design –VII	2	-	-	10	**12**	**125:125**	**12**	No University Exam only External Viva Voce based upon the Studio Assignments
BS & AE	2	UC/BARCH-802/19	Building Construction & Materials – VII	2	-	-	4	**6**	**75:75**	**6**	04
	3	UC/BARCH-803/19	Urban Design	2	-	-	3	**5**	**40:60**	**5**	03
PAECC	4	UC/BARCH-804/19	Housing	2	1	-	-	**3**	**40:60**	**3**	03
	5	UC/BARCH-805/19	High Rise Buildings	2	1	-	-	**3**	**40:60**	**3**	03
PE	6	UC/BARCH-806-808/19	Elective-III	2	1	-	-	**3**	**40:60**	**3**	03
	Total			12	3	-	17	**32**		**32**	

PE /Elective- III (Choose any one from the given choices)	
UC/BARCH-905/19	Architectural Conservation
UC/BARCH-906/19	Sustainable Architecture
UC/BARCH-907/19	Building Maintenance

Course Code	Course Title	L	Sem/ Tut	P/ FW	Stu	Credits 12	Duration of University Exam
UC/BARCH-801/19	Architectural Design -VII	2	-	-	10	Int:Ext 60:40	No exam, only viva voce by external jury

COURSE OBJECTIVE

- To make students understand the principles and implications of advance and complex design problems with focus on planning, landscaping, energy conservation and services considering zoning regulations.

COURSE OUTCOMES

- At the end of the course, the students will be familiarize with specialised building design, laying emphasis on advanced structure and service requirements and able to design complex buildings for different uses.

COURSE CONTENT

- **Health care and Academic Institutions -** Planning and Designing of large Complexes like-Hospitals cum Medical Colleges
- **Traffic Nodes -** Planning and Designing of Bus Terminal, Railway Station, Airport
- **Large Span Buildings -** Planning and Designing of Large Industries, Exhibitions/Pavilions etc

Note: All buildings should have accessibility to differently-able persons.

EVALUATION CRITERIA FOR EXAM / QUESTION PAPER SETTING

- External marks shall be awarded through viva- voce conducted by the External Jury appointed by the University of the Work done by the student during the semester. The Design Project sheets of the students shall be retained at the institute after the conduct of viva voce.

INSTRUCTIONS FOR THE FACULTY

- The Design faculty is required to take a well prepared well researched lecture on the said topics 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.
- The Design Faculty is also advised to keep on updating the reference list and submit the latest one in the Library & Academic department of the Campus.

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Course Code	Course Title	L	Sem/ Tut	P/ FW	Stu	Credits 06	Duration of University Exam
UC/BARCH-802/19	Building Construction & Materials -VII	2	-	-	4	Int:Ext 60:40	04 Hours

COURSE OBJECTIVE

- To make the students learn about all the aspects of advanced building construction techniques as applicable to commercial/mixed-use buildings & large span structures.

COURSE OUTCOMES

- At the end of the course, the students will be aware and familiar with special constructional details involving finishing and furnishing, extension and expansion joints and basements with details.

COURSE CONTENT

- **UNIT-I**

- Study , design and details of various types of counters and Interior finishes, lighting for Banks, Hotels, Offices, Shops, Railway station and other public places.
- Materials and Construction details of wall Panelling, False Ceiling including Thermal and Acoustics treatments.

- **UNIT-II**

- Extension and Expansion joints in R.C.C.
- Construction of Basement including design, detailing, treatment for water/damp proofing etc.
- Study of Prefabricated structures, Advantages and disadvantages of on-site and off- site pre- fabrication.
- Pre-fabricated components, involving simple details in prefabrication.

EVALUATION CRITERIA FOR EXAM / QUESTION PAPER SETTING

- Minimum Six questions are to be set from the entire syllabus with three questions from each unit. Students would be required to attempt four Questions with minimum one question from each Unit.
- Question paper is to be set covering whole of the syllabus by making parts or mixing of topics and set in such a form that the exam should be attempted on drawing sheets.

INSTRUCTIONS FOR THE FACULTY

- Market Survey to study complete range of products available in the market under different trade names with their manufacturing details, specifications and performance.
- Construction site visits/Field visit to study the interiors and exterior details of building
- Preparing Construction sheets on above topics. Emphasis shall be laid on understating of complete construction details of the structure.

I.K. Gujral Punjab Technical University Jalandhar, Kapurthala

Bachelor's of Architecture (B. Arch): 1 to 10th Batch 2019 (For Constituent Campus Only)

Course Code	Course Title	L	Sem/ Tut	P/ FW	Stu	Credits 05	Duration of University Exam
UC/BARCH-803/19	Urban Design	2	-	-	3	Int:Ext 40:60	03 Hours

COURSE OBJECTIVE

- To make students understand the urban design as a professional discipline situated at the interface between architecture, landscape architecture and urban planning and sensitise the students about the concept of public realm, understanding of the city as a three dimensional entity and perception of spaces at multiple scales.

COURSE OUTCOMES

- At the end of the course, the students will able to familiarize with the implementation processes of various statutory and non-statutory guidelines and capable to create awareness and promote understanding of the nature, role and importance of Urban Design in the making of quality Built Environment and Human Settlements.

COURSE CONTENT

- **UNIT- I**

- **Urban Design** - Introduction, Role, Scope and Importance & Comparison between Architecture and Town planning
- **Vocabulary of Urban Design-** Pattern, Grains, Texture, Density etc
- **Determinants of Urban Form –** Landform, Climate, Symbolism, Activity Pattern, Socio-cultural Factors, Materials, Techniques etc.

- **UNIT- II**

- **Concept of Imageability-** Characteristics, role and interrelationship of Elements of city's image like Paths, Nodes, Landmarks, Edges, Districts
- **Designing Cities-** Systems of Communication, Utilities, Landscape Features, Transport, Visual Expression, Size, Contrast, Urban Character and city extension areas.
- **Shapes of the Cities-** Case studies of well known urban cities and their Comparative advantages and Disadvantages

- **UNIT- III**

- **Types of Urban Spaces**- Street, Square, Precinct, Piazza, Mall etc
- **Elements of Urban Spaces-** Identification, characteristics and role in shaping of the spaces. Changing of Urban Spaces in historical perspective- Greek, Romans, and Medieval and Contemporary cities.
- **Design Principles-** Scale and Enclosures

- **UNIT- IV**

- **Development Controls-** Types, Role and Importance of legislation in Urban Design.
- **Legal and Institutional framework**- Objectives, Constitution, Role, Importance, Impact and Analysis of urban legislation in Delhi, Mumbai, Jaipur, Kolkata etc.
- **Aesthetic Legislation-** Historical Development and applications of aesthetic controls of Chandigarh (their basis, characteristics and problems of implementation and enforcement)

EVALUATION CRITERIA FOR EXAM / QUESTION PAPER SETTING

- T

he 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.

- Question paper is to be set covering whole of the syllabus by making parts or mixing of topics.

INSTRUCTIONS FOR THE FACULTY

- Emphasis shall be laid on understanding of evolution of Cities and Buildings. Continuous evaluation shall be made of students work based on various assignments and sketching.
- Teaching in the subject will be a combination of Expert lectures, specific case studies and field visits of historical and contemporary cities.
- Students would be required to do, in groups, a case study of a city to make them understand the various aspects of urban design. The study will be illustrated with maps, visuals, photographs and sketches.

I.K. Gujral Punjab Technical University Jalandhar, Kapurthala

Bachelor's of Architecture (B. Arch): 1 to 10th Batch 2019 (For Constituent Campus Only)

Course Code	Course Title	L	Sem/ Tut	P/ FW	Stu	Credits 03	Duration of University Exam
UC/BARCH-804/19	Housing	2	1	-	-	Int:Ext 40:60	03 Hours

COURSE OBJECTIVE

- To make students understand the role, importance and issues related to housing and contextualize the housing and urban development processes in India, to think from a holistic and multidisciplinary perspective about common problems.

COURSE OUTCOMES

- At the end of the course, the students will able to analyze the issues related to problems of urban development & housing and comprehend the various government policies to provide basic comfortable environment for the citizens of India.

COURSE CONTENT

- **UNIT- I**

- **Housing in India-** Housing need, demand, Status, Role and importance and concept of affordability.
- **Housing typologies-** Plotted and flatted development
- **Housing surveys-** Types & Methods of conducting surveys

- **UNIT- II**

- **Housing-** problems and solutions, Housing for the Poor
- **Slums** -Origin, Growth, Problems and Solutions
- Role of Public and Private Sectors in Housing.

- **UNIT- III**

- **Housing Policies-** National Housing and Habitat Policy 2007
- **Institutional framework-** for Housing Finance and Housing Delivery

- **UNIT- IV**

- Factors affecting Cost of Housing
- Basic Housing Norms and Standards for EWS, LIG and MIG

EVALUATION CRITERIA FOR EXAM QUESTION PAPER SETTING

- T

he 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.

- Question paper is to be set covering whole of the syllabus by making parts or mixing of topics.

INSTRUCTIONS FOR THE FACULTY

- Emphasis should be laid on understanding of the National policies and their implementations. The library study and literature review shall be presented in PowerPoint presentation.
- Teaching in the subject will be combination of invited lectures, visit to the nearby government housing projects and slum areas to conduct the housing surveys.

I.K. Gujral Punjab Technical University Jalandhar, Kapurthala

Bachelor's of Architecture (B. Arch): 1 to 10th Batch 2019 (For Constituent Campus Only)

I.K. Gujral Punjab Technical University Jalandhar, Kapurthala

Bachelor's of Architecture (B. Arch): 1 to 10th Batch 2019 (For Constituent Campus Only)

Course Code	Course Title	L	Sem/ Tut	P/ FW	Stu	Credits 03	Duration of University Exam
UC/BARCH-805/19	High Rise Buildings	2	1	-	-	Int:Ext 40:60	03 Hours

COURSE OBJECTIVE

- To make students understand the context of planning, designing and construction of High Rise buildings and their role and importance in shaping the Human Settlements and Urban Form in the Modern Context.

COURSE OUTCOMES

- At the end of the course, the students will able to explore the capability of new construction techniques for vertical growth and gain fundamental knowledge of different types of automation services and used in high rise construction.

COURSE CONTENT

- **UNIT I**
- **High Rise Buildings**- Introduction, Historical perspective, Origin, Definition, Role, Importance , Limitations, Advantages and Disadvantages
- **Planning /Designing-** Typology and principles of designing High Rise Building

- **UNIT II**
- **Construction Methods-** Structure System & Techniques used for the construction of High Rise Buildings and Structural safety
- **Building Technologies and Materials-** Advanced building technologies and latest materials used in the Construction

- **UNIT III**
- **Building Services-** HVAC system, Building Management systems(BMS), Automation, Fire Safety
- Study of famous **High Rise** Buildings-Burj Khalifa, Sears Towers, Empire State Building, World Trade Centre, Imperial Towers and Orchid Woods Mumbai.

- **UNIT IV**
- **Legal Framework –** Study of governing the High Rise Buildings
- **National Building Code**- Guidelines for Designing High Rise Buildings 2005 &2016

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.
- Question paper is to be set covering whole of the syllabus by making parts or mixing of topics.

INSTRUCTIONS FOR THE FACULTY

- Emphasis should be laid on seminars so that each student gets a chance to engage in self-teaching.
- Students should be encouraged to analysis the architectural style, building typology which may include functional, and constructional, structural and ornamental aspects.
- Teaching in the subject will be a combination of invited lectures, visit to Multi-Storied/ High Rise Buildings and library studies/power point presentations of High Rise Buildings mentioned above.

Course Code	Course Title	L	Sem/ Tut	P/ FW	Stu	Credits 03	Duration of University Exam
UC/BARCH-806/19	Architectural Conservation	2	1	-	-	Int:Ext 40:60	03 Hours

COURSE OBJECTIVE

- To make students understand the importance of the Historical Buildings and their preservation& conservation.

COURSE OUTCOMES

- At the end of the course, the students will able to appreciate the significance of built heritage in the present day context and learn to define the architect's role in the process of conservation.

COURSE CONTENT

- **UNIT-I**

- **Heritage**- Introduction, Definition, Role, Importance, purpose, values & ethics and Limitations
- **Philosophy of Action**- Need for a multidisciplinary approach, Intervention such as Preservation, Restoration, Reconstitution, Adaptive use etc.
- **Role of Architect**- Various aspects of study and stages of conservation action, methods for architectural conservation, Preparatory procedures, Research analysis and documentation.

- **UNIT-II**

- **Indian Architecture-** Study of basic historical styles, their construction methods & structural analysis, finishes, landscaping style ornamentation and detailing like Arches Domes, Vaults and Shikhara etc.
- **Effect of Climate**- Causes and decay in materials and structure, Results of weathering/ pollution

- **UNIT-III**

- **Historic Buildings** – Classification and Methods of saving monuments from vandalism.
- **Management of Historic Sites-** Problems of Cultural Tourism, interpretation and Presentation of Historic structures
- **Legal framework-** Study of legal and Institutional framework to protect Heritage and its limitations

- **UNIT-IV**

- **Role of various** - Organizations Methods of studying and documenting historical monuments in the context of guidelines issued by UNESCO, INTACH, ICOMOS.
- Report on the field study of a historic building, documenting various material and non-material aspects and giving recommendations for conservation action.

EVALUATION CRITERIA FOR EXAM QUESTION PAPER SETTING

- T

he 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.

- Question paper is to be set covering whole of the syllabus by making parts or mixing of topics.

INSTRUCTIONS FOR THE FACULTY

- Emphasis shall be laid on understanding of Architectural Conservation. Continuous evaluation shall be made of students work based on various assignments and sketching.
- Teaching in the subject will be a combination of Expert lectures, specific case studies and field visits of historical and contemporary buildings/complexes.
- Students would be required to do, in groups, a case study of a historical building to make them understand the various aspects of Architectural Conservation. The study will be illustrated with maps, visuals, photographs and sketches.

Course Code	Course Title	L	Sem/ Tut	P/ FW	Stu	Credits 03	Duration of University Exam
UC/BARCH-807/19	Sustainable Architecture	2	1	-	-	Int:Ext 40:60	03 Hours

COURSE OBJECTIVE

- To make students understand the need and importance of the sustainable development and optimal use of natural resources in building construction through various techniques.

COURSE OUTCOMES

- At the end of the course, the students will able to appreciate the concepts of sustainable development and familiarized with the various design strategies for promoting sustainable architecture.

COURSE CONTENT

- **UNIT-I**

- **Sustainable Development-** Introduction, objectives and economic, social & environmental aspects of sustainable development and Role of Architect in sustainable development
- **Human Settlements**- Planning, Growth, Development, Problems

- **UNIT-II**

- **Global warming –** Introduction, Causes, Effects and Remedies, Carbon Credits
- **Sources of Energy**- Renewable and Non- renewable sources, their role and importance for sustainability
- **Built Environment**- Relationship between man & environment, Sustainable Construction, Ecological Buildings, Green Building

- **UNIT-III**

- **Sustainable Design** – Concept, Objectives, Principles, Approach to Sustainable design and Quality of indoor/outdoor environment
- **Design Strategies –** Importance of Climate responsive and Solar Passive techniques in Indian Climates, Site Surrounding & landscape, production and uses of sustainable materials

- **UNIT-IV**

- **Building Rating System-** Sustainability Assessment like LEED, Life Cycle Assessment, GRIHA ECBC Code etc.
- **Recycling/Reuse**- India's approach to sustainable Development

EVALUATION CRITERIA FOR EXAM QUESTION PAPER SETTING

- T

he 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.

- Question paper is to be set covering whole of the syllabus by making parts or mixing of topics.

INSTRUCTIONS FOR THE FACULTY

- Emphasis shall be laid on understanding of Sustainable Development.
- Teaching in the subject will be a combination of Expert lectures, specific case studies and field visits to sustainable buildings/complexes.

Course Code	Course Title	L	Sem/ Tut	P/ FW	Stu	Credits 03	Duration of University Exam
UC/BARCH-808/19	Building Maintenance	2	1	-	-	Int:Ext 40:60	03 Hours

COURSE OBJECTIVE

- To make students understand the suitable construction techniques, right choice of building materials, effective supervision and adequate specifications for construction work to avoid any kind of defects in the building.

COURSE OUTCOMES

- At the end of the course, the students will able to restore the functionality of inflated building with the maintenance techniques.

COURSE CONTENT

- **UNIT-I**

- Building Maintenance- Introduction, Need, Scope, Importance and Economic & Social significance, Role of an Architect
- Climate- Effect on the life cycle of buildings, Problems and issues related to materials, design and detailing.

- **UNIT-II**

- Deterioration and Decay of buildings- Causes, Effect, Remedies, Typology, Reasons, Prevention
- Defects in Buildings-Efflorescence, Dampness, Settlement, Cracks, Corrosion etc – their causes, effects, preventive and remedy

- **UNIT-III**

- Building services - Maintenance of water supply, sewerage, and Sanitation system
- Cost analysis- Methods, techniques and types

- **UNIT-IV**

- Retrofitting – Need, importance Buildings for Structural safety
- Case study of any existing building

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.
- Question paper is to be set covering whole of the syllabus by making parts or mixing of topics.

INSTRUCTIONS FOR THE FACULTY

- Teaching in the subject will be a combination of Expert lectures, Specific case studies and field visits to buildings in deteriorating conditions.
- Lectures from representatives of industry and visits to the industrial units involved in producing materials to make buildings safe will be made integral part of teaching

I.K. Gujral Punjab Technical University Jalandhar, Kapurthala

Bachelor's of Architecture (B. Arch): 1 to 10th Batch 2019 (For Constituent Campus Only)

B. Architecture (Semester IX) - Scheme 2019

(For Constituent Campus Only)

Course Type	Sr. no	Course Code	Course Title	Load Allocations					Marks	Credits	Duration of Univ. Exam(in hrs) / Viva-Voce
				L	Sem /Tut	P/FW	Stu	Total	Int : Ext		
PC	1	UC/BARCH-901/19	Architectural Design –VIII	2	-	-	10	**12**	**60:40**	**12**	No University Exam only External Viva Voce based upon the Studio Assignments
PAECC	2	UC/BARCH-902/19	Building Construction & Materials – VIII	2	-	-	4	**6**	**60:40**	**6**	04
	3	UC/BARCH-903/19	Town Planning	2	1	-	-	**3**	**40:60**	**3**	03
BS & AE	4	UC/BARCH-904/19	Building Economics	2	1	-	-	**3**	**40:60**	**3**	03
PE	5	UC/BARCH-905-907/19	Elective-IV	2	1	-	-	**3**	**40:60**	**3**	03
	6	UC/BARCH-908-910/19	Elective-V	2	1	-	-	**3**	**40:60**	**3**	03
	Total			12	4	-	14	**30**		**30**	

PE /Elective- IV (Choose any one from the given choices)	
UC/BARCH-905/19	Vernacular Architecture
UC/BARCH-906/19	Principles of Human Settlement
UC/BARCH-907/19	Recent Heritage

PE /Elective- IV (Choose any one from the given choices)	
UC/BARCH-908/19	Traffic and Transportation
UC/BARCH-909/19	Geomatics Techniques for Architects
UC/BARCH-910/19	Research Methodology

Course Code	Course Title	L	Sem/ Tut	P/ FW	Stu	Credits 12	Duration of University Exam
UC/BARCH-901/19	**Architectural Design -VIII**	**2**	**-**	**-**	**10**	**Int:Ext 60:40**	**No exam, only viva voce by external jury**

COURSE OBJECTIVE

- To make students aware and understand the complexity and methodology to handle large projects through group design, involving urban environment and prevailing building regulations.

COURSE OUTCOMES

- At the end of the course, the students will be familiarize with Public building design and Campus Planning techniques, laying emphasis on environment responsive design solutions, landscape architecture and service requirements .

COURSE CONTENT

- **Higher Order of Office/Commercial complex,** -City Centre, District Centre, Large Exhibition Complexes, Convention Centre Multiplexes
- **Campus designing** - University, Professional Institutes, Integrated Campus etc.
- **Capital Complex**-Secretariat, High Court, Assembly

Note: All buildings should have accessibility to differently-able persons.

EVALUATION CRITERIA FOR EXAM / QUESTION PAPER SETTING

- External marks shall be awarded through viva- voce conducted by the External Jury appointed by the University of the Work done by the student during the semester. The Design Project sheets of the students shall be retained at the institute after the conduct of viva voce.

INSTRUCTIONS FOR THE FACULTY

- The Design faculty is required to take a well prepared well researched lecture on the said topics 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)
- Minimum Two projects should be done by the student. The Projects selected should be based on realistic contexts.
- The design submitted shall include complete project drawings, perspective, models and details.
- Teaching focus will be to promote design concept based on Site, Urban design, Landscaping, Traffic and Transportation, Climate, Energy, Services, Safety and compliance with Building Regulations etc.
- The Design Faculty is also advised to keep on updating the reference list and submit the latest one in the Library & Academic department of the Campus.

Course Code	Course Title	L	Sem/ Tut	P/ FW	Stu	Credits 06	Duration of University Exam
UC/BARCH-902/19	Building Construction & Materials -VIII	2	-	-	4	Int:Ext 60:40	04 Hours

COURSE OBJECTIVE

- To make students learn about the advance construction techniques and enable to prepare project working drawings.

COURSE OUTCOMES

- At the end of the course, the students will be aware and familiar with the process of preparing working drawing for a major project and gain knowledge about the use modular coordination in construction industry.

COURSE CONTENT

- **UNIT-I**

- **Working Drawing** - Complete Set of Working Drawing of a major design project of 8th semester including Site plan, Foundation plans, Elevations and Sections. Materials used in building façade with construction details.
- **Commercial Kitchen**- Study, designing and working drawing
- Pre- stressing and Post- Tensioning - Introduction ,typology, need and details

- **UNIT-II**

- Modular Construction- Objectives, basic principles, planning and structural modules.
- Mass production, Transportation, Storage and handling of construction materials.
- Curtain Walls- Role, functions, materials, principles and details

EVALUATION CRITERIA FOR EXAM / QUESTION PAPER SETTING

- Minimum six questions are to be set from the entire syllabus with three questions from each unit. Students would be required to attempt two Questions with minimum one question from each Unit.
- Question paper is to be set covering whole of the syllabus by making parts or mixing of topics and set in such a form that the exam should be attempted on drawing sheets.

INSTRUCTIONS FOR THE FACULTY

- 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. Emphasis shall be laid on preparation of working drawings & various details of the structure.
- Teaching in the subject shall be a combination of field/ site visits, visit to industrial units involved in mass production and preparing construction plates on above topics.

I.K. Gujral Punjab Technical University Jalandhar, Kapurthala

Bachelor's of Architecture (B. Arch): 1 to 10th Batch 2019 (For Constituent Campus Only)

Course Code	Course Title	L	Sem/ Tut	P/ FW	Stu	Credits 05	Duration of University Exam
UC/BARCH-903/19	Town Planning	2	1	-	-	Int:Ext 40:60	03 Hours

COURSE OBJECTIVE

- To make students understand the role and importance of Town Planning in the evolution of Human Settlements and Urban Forms in the Historical and Modern Context.

COURSE OUTCOMES

- At the end of the course, the students will able to publicize the planning process for the development of new towns and formulizing the proposals for healthy development for urban renewal.

COURSE CONTENT

- **UNIT- I**
- **Town Planning -** Introduction, Role, Importance and Scope
- **Planning Principles & Theories -** Human Settlement in Nile Valley, Greek and Roman Periods.
- **Town Planning in India**- Vedic period, Indus Valley, Islamic, Medieval and Colonial Period.

- **UNIT- II**
- **Classification of Human Settlements** based on Road Pattern, Form, Use, Scale/Population etc.
- **Planning Concepts**- Garden City, Linear City, Industrial City and Sustainable City and Neighbourhood
- **Existing Towns and Cities in India**- Planning, growth, Problems, Remedies etc.

- **UNIT- III**
- **Urbanization** – Causes, Pattern and Effect in India.
- **Master Plan** – Objectives, Role, Importance and Methodology.
- **Regional Plan** - Objectives, Role, Importance and Methodology

- **UNIT- IV**
- **Study of Towns in India** – Chandigarh, New Delhi & Gandhi Nagar etc.
- Town Planning in Punjab
- Role of Development Authorities in Urban Development.

EVALUATION CRITERIA FOR EXAM / QUESTION PAPER SETTING

- T he 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.
- Question paper is to be set covering whole of the syllabus by making parts or mixing of topics.

INSTRUCTIONS FOR THE FACULTY

- Emphasis shall be laid on understanding of evolution and growth of towns.
- Teaching in the subject will be a combination of Expert lectures, specific case studies and field visits of historical and contemporary cities.
- Students would be required to do, in groups, a case study of a city to make them understand the scope of future growth of town planning. The study will be illustrated with maps, visuals, photographs and sketches.

I.K. Gujral Punjab Technical University Jalandhar, Kapurthala

Bachelor's of Architecture (B. Arch): 1 to 10th Batch 2019 (For Constituent Campus Only)

Course Code	Course Title	L	Sem/ Tut	P/ FW	Stu	Credits 03	Duration of University Exam
UC/BARCH-904/19	Building Economics	2	1	-	-	Int:Ext 40:60	03 Hours

COURSE OBJECTIVE

- To create awareness, impart knowledge and promote understanding of the role and importance of Economy and Cost –effectiveness in the buildings to promote sustainability.

COURSE OUTCOMES

- At the end of the course, the students will able to focus on the structural innovation that provides the value required at the lowest level and manages all costs relating to construction projects.

COURSE CONTENT

- **UNIT- I**
- **Building Economics -**Introduction, Definition, Role, Scope, Importance and Principles of building economics.
- **Cost of Building-** Components, Impact of various components ,Types of costs including Construction Cost, Maintenance cost, Operational Cost etc
- **Cost Management-** Aims, Objectives, Need, Principles, Procedure, Cost Analysis.

- **UNIT- II**
- **Cost Analysis -** Analysis of Comparative Economics of **Low Rise and High Rise Buildings**
- **Technology** – Role, Importance, Use, Up-gradation of local Technologies to make buildings cost- effective.
- **Construction Techniques**- Study of Innovative Building Techniques for cost reduction with comparative merits and Demerits

- **UNIT- III**
- **Modular construction-** Introduction, Role and Importance of Pre- Engineered Buildings, Mass Production, Standardization etc in cost effectiveness
- **Materials-** Role, Importance, Innovative building materials ,up-gradation of local materials, Comparative analysis of available building materials

- **UNIT- IV**
- **Cost Reduction -**through Planning, Designing and Specification of buildings involving Space Optimization and Structural Innovations
- **Space Norms**- Role and importance of Space Norms for Cost –reduction, Principles for defining Space Norms, Norms defined in NBC**.**

EVALUATION CRITERIA FOR EXAM QUESTION PAPER SETTING

- T he 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.
- Question paper is to be set covering whole of the syllabus by making parts or mixing of topics.

INSTRUCTIONS FOR THE FACULTY

- Teaching in the subject will be a combination of Expert lectures, Specific case studies and field visits to Low Cost buildings.
- Lectures from representatives of industry and visits to the industrial units involved in producing building materials will be made integral part of teaching.
- Students would also be encouraged to attend building material exhibitions etc.

I.K. Gujral Punjab Technical University Jalandhar, Kapurthala

Bachelor's of Architecture (B. Arch): 1 to 10th Batch 2019 (For Constituent Campus Only)

Course Code	Course Title	L	Sem/ Tut	P/ FW	Stu	Credits 03	Duration of University Exam
UC/BARCH-905/19	Vernacular Architecture	2	1	-	-	Int:Ext 40:60	03 Hours

COURSE OBJECTIVE

- To make students understand and appreciate the elements, techniques and factors which go into the making of vernacular architecture as distinct from other styles of architecture.

COURSE OUTCOMES

- At the end of the course, the students will able to understand the various social, economic and mythical values of different regions and the distinct style of indigenous techniques of constructions.

COURSE CONTENT

- **UNIT-I**

- **Vernacular Architecture**- Meaning, Role, scope, purpose & characteristics of Vernacular Architecture, Differentiating Vernacular Architecture from traditional architecture, factors influencing vernacular architecture
- **Determinants of Vernacular Architecture**- Role and importance of social, cultural, economic , climatic, technological factors

- **UNIT-II**

- Evolution of development of shelter form and identity, Difference in rural and urban vernacular architecture
- Various settlement pattern, architectural forms, construction details and different Materials & Technology in India.

- **UNIT-III**

- Vernacular Architecture and Disaster Management.
- Contemporary case-study addressing the need of using local technology and materials

- **UNIT-IV**

- **Illustrated Case studies** - Vernacular settlements/Building typology from various regions in India and abroad.
- Study of **Vernacular Architecture of various Regions of Punjab** with their distinct features/ elements.

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.
- Question paper is to be set covering whole of the syllabus by making parts or mixing of topics.

INSTRUCTIONS FOR THE FACULTY

- Emphasis should be laid on seminars so that each student gets a chance to engage in self-teaching.
- Teaching in the subject will be a combination of Expert lectures, visits to historic buildings representing peculiar culture, technology and architectural elements, visits to museums and archives with library studies of different regions of Punjab and India.

Course Code	Course Title	L	Sem/ Tut	P/ FW	Stu	Credits 03	Duration of University Exam
UC/BARCH-906/19	Principles of Human Settlement	2	1	-	-	Int:Ext 40:60	03 Hours

COURSE OBJECTIVE

- To make students understand the origins of human settlement, its determinants & evolution through the course of history.

COURSE OUTCOMES

- At the end of the course, the students will able to understand the characteristics of human settlement as expression of political aspirations and changing scenario in the context of globalization.

COURSE CONTENT

- **UNIT-I**

- **Importance of evolution of human settlement-** Origin of civilization, effects of civilization on human settlement, determinants of human settlement, ancient towns in India.
- **Historical periods and growth of human settlement-** Ancient, medieval, renaissance, industrial and post-industrial age

- **UNIT-II**

- **Human settlement and their characteristics –** Importance of shelter, form and scale in city, concept of landmarks, axis and orientation, city as living commercial, cultural and functional entities.

- **UNIT-III**

- **Human settlement as Political expression –** Washington DC, Brazilian, Pretoria, Milton Keynes, New Delhi, Chandigarh and contribution of Ebenezer Howard, Lewis Mumford, Patrick Geddes, CA Doxiadis

- **UNIT-IV**

- **Human Settlement in Changing World –** Global city and city origin, Global economy and trade, Information & communication technology and its impact on cities, city of future and future of cities.

EVALUATION CRITERIA FOR EXAM QUESTION PAPER SETTING

- T

he 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.

- Question paper is to be set covering whole of the syllabus by making parts or mixing of topics.

INSTRUCTIONS FOR THE FACULTY

- Teaching in the subject will be a combination of Expert lectures, specific case studies and field visits of historical and contemporary buildings/complexes.
- Students would be required to do, in groups, a case study of a city to make them understand the various aspects of human settlement and analyze the people's satisfaction based on political expression the study will be illustrated with maps, visuals, photographs and sketches.

Bachelor's of Architecture (B. Arch): 1 to 10th Batch 2019 (For Constituent Campus Only)

Course Code	Course Title	L	Sem/ Tut	P/ FW	Stu	Credits 03	Duration of University Exam
UC/BARCH-907/19	Recent Heritage	2	1	-	-	Int:Ext 40:60	03 Hours

COURSE OBJECTIVE

- To make students understand the philosophy and techniques for the preservation of recent built heritage in 19th & 20th century and other such architectural landmarks.

COURSE OUTCOMES

- At the end of the course, the students will able to explore the idealistic realm of architecture and learn the physical expression of past generations which requires conservation.

COURSE CONTENT

- **UNIT-I**

- **Recent Heritage -** Definition, scope, need and importance for study. Overview of historical development and roots of Recent Heritage.
- Various social, economic, technological and aesthetic processes that shaped its form.
- Nature of Innovations, such as in use of building materials, technology, concepts of production, organization of space, etc.
- Categories and Manifestations (City Planning, Mass Housing, Standardization, Industrial development, Landscapes, etc.).

- **UNIT-II**

- Diversity of expression in geo-cultural regions of the world, Problems of Material, Technology, Changing Use Patterns, etc.
- Philosophical questions - Attitudinal and Aesthetical problems; issues of Authenticity; Criteria for valuation, identification and conservation.

- **UNIT-III**

- Studies of various expressions of built Recent Heritage, such as Colonial Heritage, Industrial Heritage, Modern Heritage, etc.
- Each of these categories can be further analyzed in terms of the cultural and regional nuances of Asian, African, Latin American, American and European perspective.

- **UNIT-IV**

- **Legal protection** - UNESCO AND ICOMOS initiatives.
- **Conservation-** Study of context and processes of conservation projects in India and other countries on urban scale; Critical regionalism; Conservation policies, laws and professional norms; Cultural heritage strategies in the context of urban development.

EVALUATION CRITERIA FOR EXAM QUESTION PAPER SETTING

- T

he 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.

- Question paper is to be set covering whole of the syllabus by making parts or mixing of topics.

INSTRUCTIONS FOR THE FACULTY

- Emphasis shall be laid on understanding of Sustainable Development.
- Teaching in the subject will be a combination of Expert lectures, specific case studies and field visits to sustainable buildings/complexes.

I.K. Gujral Punjab Technical University Jalandhar, Kapurthala

Bachelor's of Architecture (B. Arch): 1 to 10th Batch 2019 (For Constituent Campus Only)

I.K. Gujral Punjab Technical University Jalandhar, Kapurthala

Bachelor's of Architecture (B. Arch): 1 to 10th Batch 2019 (For Constituent Campus Only)

Course Code	Course Title	L	Sem/ Tut	P/ FW	Stu	Credits 03	Duration of University Exam
UC/BARCH-908/19	Traffic and Transportation	2	1	-	-	Int:Ext 40:60	03 Hours

COURSE OBJECTIVE

- To make students understand the methods, techniques of traffic & transportation, the socioeconomic and environmental issues related to the movement of humans and goods in general and in urban areas in particular.

COURSE OUTCOMES

- At the end of the course, the students will able to restore the functionality of inflated building with the maintenance techniques.

COURSE CONTENT

- **UNIT-I**

- **Traffic and Transportation**- Introduction, Need, Role and Importance
- **Transport Systems**-Typologies, basic character and comparative advantages and disadvantages.
- **Inter and Intra city Traffic**- Nature, characteristics, problems and solutions

- **UNIT-II**

- **Road Accidents**- Causes, effects, and remedies to promote Road Safety
- **Problems and Issues** related to Traffic and Transportation in the Indian cities and Core areas with options to meet these challenges.

- **UNIT-III**

- **Traffic Control Devices**- Typology, Application and comparative Merits and Demerits
- **Signage**- Introduction, Objectives, Function and classification
- Design of **Road Intersections**, Rotaries, over bridges, Underpasses, Flyovers with reference to a well designed city like Chandigarh.
- **Roads**- Hierarchy, Classification, Capacity, Road Cross-sections

- **UNIT-IV**

- **Mass Transportation/ Public Transport**-Concept, Characteristic, Mode, Advantages and disadvantages
- **Surveys**-Objectives, Need, Importance, Types and Methodologies for conducting Traffic Surveys.
- **Parking-** Introduction, Types, Requirement, Problems and Solutions.
- **National Transport Policy**
- **Traffic Management and Land use Planning**

EVALUATION CRITERIA FOR EXAM QUESTION PAPER SETTING

- T

he 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.

- Question paper is to be set covering whole of the syllabus by making parts or mixing of topics.

INSTRUCTIONS FOR THE FACULTY

- Teaching in the subject will be a combination of Expert lectures, Specific case studies of Chandigarh road network as compare to any other unplanned city/sub-urban area.
- Lectures from representatives of industry and visits to the industrial units involved in producing materials to make buildings safe will be made integral part of teaching

I.K. Gujral Punjab Technical University Jalandhar, Kapurthala

Bachelor's of Architecture (B. Arch): 1 to 10th Batch 2019 (For Constituent Campus Only)

Course Code	Course Title	L	Sem/ Tut	P/ FW	Stu	Credits 03	Duration of University Exam
UC/BARCH-909/19	Geomatics Techniques for Architects	2	1	-	-	Int:Ext 40:60	03 Hours

COURSE OBJECTIVE

- To make students understand the basic concepts of Geomatics and its use for gathering information which helps architects to plan the line of sight perfectly so that the building do not obstruct the important features of horizon .
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COURSE OUTCOMES

- At the end of the course, the students will gain the knowledge about the basic principles of Geomatics engineering techniques for data collection and mapping for planning infrastructural facilities, including various architectural applications.

COURSE CONTENT

- **UNIT-I**

- Importance of Geomatics engineering techniques to architecture and planning, Data collection techniques - Field surveying, Photogrammetric, Remote Sensing, Geographic Information System and Global Positioning System.
- Basics concepts of remote sensing, electromagnetic spectrum, platforms and sensors, remote sensing data products

- **UNIT-II**

- Satellite Image - Image Interpretation and Analysis basic elements of image interpretation- visual interpretation keys , Digital Image Processing , Pre-processing
- Image enhancement techniques – multispectral image classification , Supervised and unsupervised, Applications of remote sensing

- **UNIT-III**

- GPS: Introduction to GPS surveys, GPS data collection for mapping.
- Aerial and terrestrial photogrammetric, types of photographs, geometry of an aerial photograph, flying height and scale, relief (height) displacement, stereoscopy, height determination.

- **UNIT-IV**

- Introduction to GIS, Database (Spatial and non-spatial), Digital Elevation Model (DEM).
- Applications of Geomatics engineering techniques to architecture and planning; Utility of high resolution remote sensing data for infrastructural planning, 3D visualization etc.

EVALUATION CRITERIA FOR EXAM QUESTION PAPER SETTING

- T

he 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.

- Question paper is to be set covering whole of the syllabus by making parts or mixing of topics.

INSTRUCTIONS FOR THE FACULTY

- Focus to be laid on the live study and application of the subject into the architectural design project. Practice on Image Processing System to use remote sensing images and also Practice on GIS for layers creation.
- Teaching in the subject will be a combination of Expert lectures, Specific case studies and field visits to different topographical sites.

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Bachelor's of Architecture (B. Arch): 1 to 10th Batch 2019 (For Constituent Campus Only)

Course Code	Course Title	L	Sem/ Tut	P/ FW	Stu	Credits 03	Duration of University Exam
UC/BARCH-910/19	Research Methodology	2	1	-	-	Int:Ext 40:60	03 Hours

COURSE OBJECTIVE

- To make students appreciate the process of research and aware of its potential in the field of architecture.

COURSE OUTCOMES

- At the end of the course, the students will gain the knowledge of basic principles of any research task related to the discipline and its application to the profession, and the role of architectural criticism and journalism in the production of architecture.

COURSE CONTENT

- **UNIT-I**

- **Research in architecture**- its nature, purpose & scope and meaning of research in the field of architecture, Introduction to Architectural Research Techniques-the nature and function of research
- **Vocabulary of Research Techniques:** Exposure to different terms, resources and standards like – MLA, APA, CHICAGO STYLE etc.

- **UNIT-II**

- **Basic and applied research, Technical and behavioural-** oriented research
- **Modes of Enquiry and Methods of Research** : Research methodology, various techniques of data collection in general, specific techniques in architectural research, methods of analysis stage,

- **UNIT-III**

- **Research Design-** Hypothesis, conclusion and implication with special reference to architectural research, methods of conducting research, selection of topic and its relevance, identification and formulation of problem
- Compiling and analyzing existing research database, presentation of results, evaluation of findings, conclusion and recommendations communication of research reporting

- **UNIT-IV**

- **Formal Writing**: the structure of a report, the necessity for the development of writing skills , Technical data about formal writing the use of visuals, the qualities of research, the use of primary and secondary references, bibliography, notation, cross reference etc
- **Fields of Research in the discipline**: Research in the fields of environment, community structure, architectural history and theory, urban structure, building type studies

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.
- Question paper is to be set covering whole of the syllabus by making parts or mixing of topics.

INSTRUCTIONS FOR THE FACULTY

- Focus to be laid on the seminars on Indian architectural writers, journalists and critics.
- Teaching in the subject will be a combination of Expert lectures and encouraging students to prepare and present mock research proposals.
- The students would be expectant for Production of a journal by themselves and other contributors.

B. Architecture (Semester X) - Scheme 2019

(For Constituent Campus Only)

Course Type	Sr. no	Course Code	Course Title	Load Allocations					Marks	Credits	Duration of Univ. Exam(in hrs) / Viva-Voce
				L	Sem /Tut	P/FW	Stu	Total	Int : Ext		
PC	1	UC/BARCH-1001/19	Architectural Design (Thesis Project) -IX	-	-	-	24	**24**	**300:250**	**24**	No University Exam The External marks Shall be Awarded through External jury Viva Voce
PAECC	2	UC/BARCH-1002/19	Construction Management	2	1	-	-	**3**	**40:60**	**3**	03
	3	UC/BARCH-1003/19	Professional Practice	2	1	-	-	**3**	**40:60**	**3**	03
	4	UC/BARCH-1004/19	Disaster Management	2	1	-	-	**3**	**40:60**	**3**	03
	Total			6	3	-	20	**33**		**33**	

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Bachelor's of Architecture (B. Arch): 1 to 10th Batch 2019 (For Constituent Campus Only)

Course Code	Course Title	L	Sem/ Tut	P/ FW	Stu	Credits 24	Duration of University Exam
UC/BARCH-1001/19	Architectural Design –IX (Thesis Project)	-	-	-	24	Int:Ext 300:250	No exam, only viva voce by external jury

COURSE OBJECTIVE

- To make student understand the aspects and trends of the architectural design project of own choice through literature reviews, case-studies and framing of design requirements of selected project.

COURSE OUTCOMES

- At the end of the course, the students will be able to synthesis and use knowledge of various disciplines gained during entire study in an architectural project.

COURSE CONTENT

- **THESIS PROJECT WILL COMPRISE OF THE FOLLOWING:**

- **An Illustrated Report**- which will include the validity and scope of the chosen project, methodology, prototype studies, site analysis, client's and architect's briefs, delineation of programme and design criteria.
- **A fully worked-out Design Proposal**- including consideration of site planning structures, services, and any other aspect/specific to the project.

- **STAGES OF WORK:**

- **The entire process of Thesis Design shall be divided into four distinct stages involving:**

1. **Approval of Project**
   - The intent of the thesis project as well as the criteria for selection of the project will be introduced to the students around the 6th week of the previous semester, i.e.9th Semester B.Arch.
   - Before the closing of the 9th Semester, students will be required to submit brief write-up on three projects out of which one will be approved.
2. **Rough Report**
   - Rough Report shall comprise of all analytical aspects of the project including Synopsis, Library studies, Prototype studies, Site analysis, Delineation of Building Program, etc.
3. **Evolution of Design -** Shall be worked out in minimum of four stages.
4. **Draft of Final Report** - Shall include Evolution of Design, Final Report, Drawings and Model, to be evaluated through a University Examination- Through a visual presentation/viva-voce.

- ***NOTE***

- *Students will be required to submit two identical copies of the final report along with a soft copy, on a standard format prescribed in the thesis programme issued by the Thesis Coordinator.*
- *The report must also included A-3 size copies of all final drawings and at least two photographs of the final model/models.*
- *The original copy of the report, the final drawings and models will be returned to the student after the declaration of the result. The photocopy along with the soft copy of the report and drawings will be retained for reference in the college library.*

SCHEDULE OF SUBMISSIONS/EXAMINATION

***(Note**: Commencement of the semester will be considered as Zero week.)*

Stages of work	Time allocated	Max. Marks
1. Sessional Work	**16 weeks**	**300**
(a) Rough report	**6 weeks**	**100**
(i) Synopsis	1 week	20
(ii) Preliminary Library studies	2 weeks	20
(iii) Site analysis, Prototypes/ Additional Library studies	2 weeks	30
(iv) Programme Formulation	1 week	30
(b) Evolution of Design	**5 weeks**	**150**
(i) Design Criteria and Concept	1 week	25
(ii) Design Proposal Stage-I	1 week	25
(iii) Design Proposal Stage-II	1 week	50
(iv) Pre-final Design	2 weeks	50

(c) Draft Final report with drawings (Incorporating improvements suggested in Rough Report, Design Criteria and explanatory Sketches of Evolution of Design)	**5 weeks**	**50**
2. External Examination/Viva-voce	**-**	**250**

SUBMISSION REQUIREMENTS

- Students are required to submit the Final Report, all final drawings and models in the standard format prescribed in the Thesis programme.
- The students would also be required to submit an abstract of the thesis project.
- Submission will be made one day before the date of examination.
- All buildings should have accessibility to the physically challenged persons

EVALUATION METHODOLOGY:

- The thesis studio will be conducted under the overall coordination of the Thesis Coordinator. In addition, two members of the Visiting Faculty would also be associated throughout the duration of the studio. Each student will be assigned a Thesis Guide (from amongst the faculty) who will supervise the progress of the student's work on a regular basis.
- Approval of the thesis project/topic will be done by the Principal/HOD, the Thesis Coordinator and the concerned Thesis Guide.
- All stages of Sessional work will be evaluated jointly by the Principal/HOD and the entire studio team (Thesis Coordinator, Visiting Faculty and the concerned Thesis Guide).
- Marks awarded at each stage will be based on the average of those awarded by all jury members.
- Jury for the External Examination will comprise the Principal, Thesis Coordinator and two External Examiners appointed by the P.T.U.

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Course Code	Course Title	L	Sem/ Tut	P/ FW	Stu	Credits 06	Duration of University Exam
UC/BARCH-1002/19	Construction Management	2	1	-	-	Int:Ext 60:40	03 Hours

COURSE OBJECTIVE

- To make student understand and appreciate the role and importance of management in building construction.

COURSE OUTCOMES

- At the end of the course, the students will learn the professional services required for effective management of the any construction project related to the project scheduling, cost, quality & safety etc.

COURSE CONTENT

- **UNIT-I**
- **Project Management**- Concept, Background, Purpose, Aim, Objectives, Scope and Significance
- **Traditional Management Systems**- Advantages and limitations
- **Role of Architect** in Construction/Project Management
- **Resources** of Construction Industry, Construction stages, Construction team, Equipment Management

- **UNIT-II**
- **Project Management Techniques**- Network ,CPM, PERT,
- **CPM Analysis**- Critical Path, Float Computation Result Sheet etc
- **PERT**- Introduction, Theory and Network analysis
- **Computer Application** in Construction Management

- **UNIT-III**
- **Cost Time** analysis in Network Planning.
- **Financing of Project**, Depreciation and Break even Cost analysis
- **Cost Control**- Budget, Accounting System, Problems.

- **UNIT-IV**
- **Quality and Safety**- Objectives, Issues, Organising for Quality and Safety, Stages of Inspection and Quality control
- **Planning of Temporary Services** at the site.
- **Security of Materials** and Manpower at building site.

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.
- Question paper is to be set covering whole of the syllabus by making parts or mixing of topics.

INSTRUCTIONS FOR THE FACULTY

- Teaching in the subject will be a combination of Expert lectures and visits to Construction /Project Sites and discussions with Project Managers.
- Students would be required to do a case study of a ongoing construction project.

Course Code	Course Title	L	Sem/ Tut	P/ FW	Stu	Credits 06	Duration of University Exam
UC/BARCH-1003/19	Professional Practice	2	1	-	-	Int:Ext 60:40	03 Hours

COURSE OBJECTIVE

- To make students understand and familiar with different aspects of Architectural Practice and Professional Responsibilities.

COURSE OUTCOMES

- At the end of the course, the students will able to familiarize with the professional, vocational and legal aspects of architecture practice.

COURSE CONTENT

- **UNIT- I**

- **Architects –** Role, Functions, Social Obligations, Profession Activities, Responsibilities etc.
- **Indian Architects Act 1972 –** Scope, Objective, Role & Importance in managing the profession and professionals.
- **Council of Architecture –** Constitution, Role and Function, Registration of Architects etc.
- **Indian Institute of Architects –** History, Objectives, Role and Function in promoting Architectural profession and education.

- **UNIT- II**

- **Architectural Practice –** Type of Practices, Setting office, Office Organization, Management, Income Tax, Service Tax etc.
- **Architectural Competition –** Importance, Type, Procedure, Guidelines framed by Council of Architectural to conduct competition, including Role of Board of Assessors, Professional Adviser and Technical Advisers.
- **Code of Professional conduct**
- Conditions Governing the **Appointment of Architects**, Scale of Professional charges, Execution of work and payment of fee.

- **UNIT- III**

- Duties, Responsibilities and Liabilities of **Client, Architect, Contractor** and their mutual relationship.
- **Tenders-** Type, Process, Scrutiny and Selection of Contractor, Pre Qualification and Registration of Contractor.
- Concept of **Contract.**

- **UNIT- IV**

- **Copy Right Act** as Applicable to Architectural work.
- **Complaints –** Procedure for lodging complaints, and their Resolution based on Indian Architects Act 1972
- **Valuation -** Purpose, Objective, Types and Method of valuation.
- Arbitration and Reconciliation 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.
- Question paper is to be set covering whole of the syllabus by making parts or mixing of topics.

INSTRUCTIONS FOR THE FACULTY

- Teaching in the subject will be a combination of Expert lectures from Architects working in the profession, visits to the offices and discussions with reputed Architects.
- Students should be encouraged to attend professional meets organized by the professional bodies including IIA, COA, IOE etc.

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Course Code	Course Title	L	Sem/ Tut	P/ FW	Stu	Credits 06	Duration of University Exam
UC/BARCH-1004/19	Disaster Management	2	1	-	-	Int:Ext 60:40	03 Hours

COURSE OBJECTIVE

- To make the students understand the various Pre & Post- disaster design and management measures to make buildings safe against any natural disaster.

COURSE OUTCOMES

- At the end of the course, the students will develop understanding on disaster and planning/ design measures for safer buildings.

COURSE CONTENT

- **UNIT- I**
- **Disasters**: Introduction to hazard, risk, vulnerability and disaster; Types of disaster natural man-made; Disaster profile of India; Lessons learnt from past experiences
- **Role of Architects and Planners** in creating Safe Buildings/Cities
- **Geological disaster**- Earthquake, Landslides, Snow Avalanches; Causes for Landslides and Avalanches, their impact on built environment, measures with respect to architectural, structural and planning considerations

- **UNIT- II**
- **Earthquake**: Causes, Effects, Problems & design issues
- General Principles of designing RCC & Masonry buildings against Earthquake, Special construction techniques to make buildings safe against Earthquake
- Study of **Earthquake Zones** in India-- features and Design/ construction requirements

- **UNIT- III**
- Introduction, Causes, Effects of **Fire, Floods, Cyclones, Landslide, Tsunami, Avalanche, etc.**
- General requirements, principles and measures for **making safe building design** against Fire, Floods, Cyclones, Landslide, Tsunami Avalanche, etc.
- Manmade disaster- Fire, Blast, Vandalism and neglect; Types of damage and their respective design considerations

- **UNIT- IV**
- **Special Technique** for constructing safe buildings for above disasters
- **Pre- disaster and Post- disaster management-** problems, issues and options
- Disaster Management Cycle; Preparedness and Post disaster relief and logistics management; Cost aspect, Role and responsibilities of different agencies, government and community participation; role of building byelaws

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.
- Question paper is to be set covering whole of the syllabus by making parts or mixing of topics.

INSTRUCTIONS FOR THE FACULTY

- Teaching in the subject will be a combination of Expert lectures, Site visits to structurally safe buildings and discussions with reputed Architects.
- Students should be encouraged to attend professional meets organized by the professional bodies including IIA, COA, and IOE etc. on Disaster resistant buildings.