

1.1.2 & 1.2.2

**Supporting Documents- Name of the  
Department- Architecture**

**Copy of Syllabus of all Programs offered indicating credits /  
electives approved by board**



## IK Gujral Punjab Technical University Kapurthala

### FIRST YEAR

### 1<sup>st</sup> and 2<sup>nd</sup> SEMESTER MASTER OF ARCHITECTURE (ARCHITECTURAL EDUCATION AND RESEARCH)

#### 1<sup>st</sup> SEMESTER

Course Type	S. No	Course Code	Course Title	Load Allocations					Marks %	Credits	Duration of Univ. Exam/ Viva-Voce
				L	Sem / Tut	P/ FW	Stu	Total			
PC	1	UC/MARCH-101/20	Studio-I	2	-	-	4	06	60:40	6	Viva Voce/ Ext. Jury
	2	UC/MARCH-102/20	Contemporary Architecture-I	2	2	-	-	04	40:60	3	
Edu. & Res	3	UC/MARCH-103/20	Educational Technology	2	2	-	-	04	40:60	3	03
	4	UC/MARCH-104/20	Research Methodology-I	2	2	-	-	04	40:60	3	03
PE (Choose one)		UC/MARCH/ PE-106-10/20	Professional Elective- I	2	2	-	-	04	40:60	3	03
	5	UC/MARCH/ MOOC-111-20	MOOC-I								Certificate from concerned/ imparting agency
<b>Total</b>								22		18	

#### 2<sup>nd</sup> SEMESTER

Course Type	S. No	Course Code	Course Title	Load Allocations					Marks %	Credits	Duration of Univ. Exam/ Viva-Voce
				L	Sem / Tut	P/ FW	Stu	Total			
PC	1	UC/MARCH-201/20	Studio – II	2	-	-	4	06	60:40	6	Viva Voce/ Ext. Jury
	2	UC/MARCH-202/20	Dissertation - I	2	2	-	-	04	40:60	3	
Edu. & Res	3	UC/MARCH-203/20	Psychological of Teaching Learning	2	2	-	-	04	40:60	3	03
	4	UC/MARCH-204/20	Architecture Research Methodology-II	2	2	-	-	04	40:60	3	03
PE (Choose one)		UC/MARCH-206-10/20	Professional Elective- I	2	2	-	-	04	40:60	3	03
	5	UC/MARCH-211-20/20	MOOC-II						40:60		Certificate from concerned/ imparting agency
SEC	6	----	*Educational Tour/ Summer Training/ Vacation Assignment	-	-	-	-	-	-	-	Evaluation will be done in 3rd sem
<b>Total</b>								22		18	

Elective I: 1. Fundamentals of built environment and resource conservation      2. Recent trends in sustainable architecture      3. Architectural Software  
 Elective II: 1. Architecture appreciation      2. Geomatics techniques for architects      3. Building Industry

*Rashid*

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**IK Gujral Punjab Technical University Kapurthala**

**SECOND YEAR**

**3<sup>rd</sup> and 4<sup>th</sup> SEMESTER MASTER OF ARCHITECTURE (ARCHITECTURAL EDUCATION AND RESEARCH)**

**3<sup>rd</sup> SEMESTER**

Course Type	S. No	Course Code	Course Title	Load Allocations					Marks %	Credits	Duration of Univ. Exam/ Viva-Voce
				L	Sem / Tut	P/ FW	Stu	Total			
PC	1	UC/MARCH-301/20	Studio – III	2	-	-	4	06	60:40	6	Viva Voce/ Ext. Jury
Edu. & Res	2	UC/MARCH-302/20	Architecture Appreciation	2	2	-	-	04	60:40	3	Viva Voce/ Ext. Jury
	3	UC/MARCH-303/20	Instructional methods	2	2	-	-	04	40:60	3	03
		UC/MARCH-304/20	*Educational Tour/ Summer Training/ Vacation Assignment	-	-	-	-	-	100	1	Viva Voce/ Int. Jury
PE (Choice one)	4	UC/MARCH-305-10/20	Professional Elective- I (Ref Table-)	2	2	-	-	04	40:60	3	03
		UC/MARCH-321-30/20	MOOC-III (Ref Table-)						-		Certificate from concerned/ imparting agency
OE (Choice one)	6	UC/MARCH-311-15/20	Open Elective- I (Ref Table-)	2	2	-	-	04	40:60	3	03
		UC/MARCH-331-40/20	MOOC-IV (Ref Table-)						-		Certificate from concerned/ imparting agency
<b>Total</b>								22	-	<b>19</b>	

**4<sup>TH</sup> SEMESTER**

Course Type	S. No	Course Code	Course Title	Load Allocations					Marks %	Credits	Duration of Univ. Exam/ Viva-Voce
				L	Sem / Tut	P/ FW	Stu	Total			
	1	UC/MARCH-401/20	Teaching Practice (Institutional Internship)	-	2	-	6	8	60:40	5	Viva Voce/ Ext. Jury
	2	UC/MARCH-402/20	Dissertation-II	-	2	-	10	12	60:40	12	Viva Voce/ Ext. Jury
<b>Total</b>								20		<b>17</b>	
<b>Grand Total</b>										<b>72</b>	

*Rashid*

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Note: Table-1 (Abbreviation Used)

Abbreviation Used in the teaching scheme			
PC	Professional Core	L	Lecture
Edu. Research	Education & Research	Sem/Tut	Seminar/ Tutorial
SEC	Skill Enhancement Courses	P/FW	Practical/ Field Work
PE	Professional Electives	Stu	Studio
OE	Open Elective	Int.	Internal
MOOC	Massive Open Online Courses	Ext.	External

*Prabhu J.*

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Table no-1 Codes assigned to MOOC's of M. Architecture (AER).

Sr. No.	Track	MOOC (Stream)	1 <sup>st</sup> SEM UC/MARCH/ MOOC-	2 <sup>nd</sup> SEM UC/MARCH/ MOOC	3 <sup>rd</sup> SEM UC/MARCH/ MOOC-	
			MooC-I	MooC-II	MooC-III	MooC-IV
1	T1	Education/Teaching	111	211	321	331
2	T2	Allied Architecture/Design / Arts /Planning	112	212	322	332
3	T3	Energy/Environment	113	213	323	333
4	T4	Building Science & Applied Engineering / Building Services / Building Technology	114	214	324	334
5	T5	Computer Science/ Programming/ Data Sciences/ Software's/ Interruptive Technologies	115	215	325	335
6	T6	Management/ Business/ Entrepreneurship	116	216	326	336
7	T7	Humanities/Social Sciences	117	217	327	337
8	T8	Journalism/Mass Communication / Media	118	218	328	338
9	T9	Finance/Commerce/Economics Accounts	119	219	329	339
10	T10	Legal Services/Administration/ Personal Development / Health & Happiness / Miscellaneous	120	220	330	340

*Prabhu*

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Table no-2 Codes assigned to Professional/Open Electives in M. Architecture (AER).

	PROFESSIONAL ELECTIVE-I UC/MARCH	PROFESSIONAL ELECTIVE -II UC/MARCH	PROFESSIONAL ELECTIVE -III UC/MARCH	OPEN ELECTIVE-I UC/MARCH
	Traditional Indian Architecture	Climate & Architecture Climatology	Futuristic Architecture	Creative Writing - I
Code	105	205	305	311
	Ecology	Fundamental of Built environment & Resource Conservation	Green Buildings & Rating Systems	Health Education - I
Code	106	206	306	312
	Principles of Human Settlement	Smart Cities	Housing Policies	Human resource development & organization behavior
Code	107	207	307	313
	Building Industry	Geo special Technologies	Risk Management	Sociology & Psychology V/S Architecture
Code	108	208	308	314
	Architecture Appreciation & Criticism	Guidance & Counseling	E- Resources/ E- Learning	Thought Processes/ Mind Management
Code	109	209	309	315
	Digital Architecture/Advance Computer software	Environment & social issues in Architecture	Architecture Journalism & Photography	Life Skills
Code	110	201	310	316

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

**Second Semester**

Course Type	S. no	Course Code	Course Title	Load Allocations					Marks Int : Ext	Credits	Duration of Univ. Exam/ Viva-Voce
				L	Sem/ Tut	P/F W	Stu	Total			
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	05	03
	6	UC/BARCH-206/19	Theory of Structure- I	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/BARCH-209/19	Environmental Science	2	-	-	-	02	40:60	2	03
	✓10	UC/BARCH-210/19	Mentoring & Professional Development- I	-	-	2	-	02	100	Non-Credit	No Exam
	11		*Educational Tour I/ Summer Training-I/ Vacation Assignment-I	-	-	-	-	-	100	-	Evaluation will be done in 3rd sem
<b>Total</b>				12	1	4	14	31		28	

*P. Kashyap*  
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\*NOTES: Educational Tour of 1-2 week duration during or after the first year of studies must be undertaken and Summer Training/ Vacation assignment to be given based on UC/BARCH-209/19. The marking of the same will done in the third semester UC/BARCH-309/19

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

**Third Semester**

Course Type	Sr. no	Course Code	Course Title	Load Allocations					Marks Int : Ext	Credits	Duration of Univ. Exam/ Viva-Voce
				L	Sem/ Tut	P/F W	Stu	Total			
PC	1	UC/BARCH-301/19	Architectural Design -III	1	-	-	5	06	60:40	6	06 + External Viva Voce
	2	UC/BARCH-302/19	Building Construction & Materials-III	1	-	-	3	04	60:40	4	04
BS & AE	3	UC/BARCH-303/19	Structure Systems-II	1	-	-	1	02	100	2	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
	6	UC/BARCH-306/19	Climate & Architecture-I	2	2	-	-	04	40:60	3	03
PAECC SEC	7	UC/BARCH-307/19	Computer Application-I	1	-	2	-	03	100	2	External Viva Voce
	8	UC/BARCH-308/19	* Educational Tour I/ Summer Training-I / Vacation Assignment-I	-	-	-	-	-	100	1	-
<b>Total</b>				11	4	4	11	27		24	

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



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

**Third Semester**

Course Type	Sr. no	Course Code	Course Title	Load Allocations					Marks Int : Ext	Credits	Duration of Univ. Exam/ Viva-Voce
				L	Sem/ Tut	P/F W	Stu	Total			
PC	1	UC/BARCH-301/19	Architectural Design -III	1	-	-	5	06	60:40	6	06 + External Viva Voce
	2	UC/BARCH-302/19	Building Construction & Materials-III	1	-	-	3	04	60:40	4	04
BS & AE	3	UC/BARCH-303/19	Structure Systems-II	1	-	-	1	02	100	2	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
	6	UC/BARCH-306/19	Climate & Architecture-I	2	2	-	-	04	40:60	3	03
	7	UC/BARCH-307/19	Computer Application-I	1	-	2	-	03	100	2	External Viva Voce
PAECC SEC	8	UC/BARCH-308/19	* Educational Tour I/ Summer Training-I/ Vacation Assignment-I	-	-	-	-	-	100	1	-
			<b>Total</b>	11	4	4	11	27		24	

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

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

Fourth Semester

Course Type	Sr. no	Course Code	Course Title	Load Allocations					Marks Int : Ext	Credits	Duration of Univ. Exam/ Viva-Voce
				L	Sem/ Tut	P/F W	Stu	Total			
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	60:40	2	External Viva Voce
	8	UC/BARCH-408/19	Mentoring and Professional Development-II	-	-	2	-	02	100:0	Non-Credit	No Exam
	9	UC/BARCH-409/19	Constitutional Law	2	-	-	-	02	40:60	2	03
	10	_____	*Education Tour II / Summer Training II /Vacation Assignment II	-	-	-	-	-	-	-	The evaluation will be done in 5 <sup>th</sup> sem
<b>Total</b>				13	4	4	8	29		26	

\*NOTES: Educational Tour of 1-2 week duration during or after the II<sup>nd</sup> year of studies (as a measure drawing /Documentation Camp) should be undertaken and Summer Training/ Vacation assignment to be given based on UC/BARCH-408/19. The marking of the same will done in the fifth semester UC/BARCH-518/1

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

Fifth Semester

Course Type	Sr. no	Course Code	Course Title	Load Allocations					Marks	Credits	Duration of Univ. Exam/ Viva-Voce
				L	Sem/ Tut	P/F W	Stu	Total			
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	60:40	2	External Viva Voce
	4	UC/BARCH-504/19	Structure Design-III	2	2	-	-	04	40:60	4	03
	5	UC/BARCH-505/19	Building Services-II	2	1	-	-	03	40:60	3	03
PAECC	6	UC/BARCH-506/19	Theory of Design-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 (A) - 508 (E) /19	Elective- I / MooC	2	1	-	-	03	40:60	3	03
OE	9	UC/BARCH/ /509 (A) - 509 (E) /19	Open Elective- I /MooC	2	-	-	-	02	40:60	2	03
SEC	10	UC/BARCH-510/19	*Educational Tour II/ Summer Training-II/ Vacation Assignment-II	-	-	-	-	-	100	1	No Exam
<b>Total</b>				15	7		8	30		31	

Note: \* UC/BARCH-510/19 is carried out in the intervening period of 4<sup>th</sup> and 5<sup>th</sup> semester, the evaluation of report to be done in the 5<sup>th</sup> semester.


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

- UC/BARCH/ /508 (A) Green Buildings & Rating System
- UC/BARCH/ /508 (B) Hill Architecture
- UC/BARCH/ /508 (C) Emerging Technologies in Architecture
- UC/BARCH/ /508 (D) Product Design
- UC/BARCH/ /508 (E) Architecture Acoustics

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

- UC/BARCH/ /509 (A) Sociology for Architects / Fundamentals of Sociology
- UC/BARCH/ /509 (B) Health Education- I
- UC/BARCH/ /509 (C) Music ( Vocal, Instrumental),
- UC/BARCH/ /509 (D) Laser/ Printing Technology
- UC/BARCH/ /509 (E) Creative Writing
- UC/BARCH/MOOC 509 (F - O) (Ref MOOC Table)

UC/BARCH/PE/MOOC508(F - O) (Ref MOOC Table)

  
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Sixth Semester

Course Type	Sr.no	Course Code	Course Title	Load Allocations					Marks	Credits	Duration of Univ. Exam/ Viva-Voce
				L	Sem/ Tut	P/F W	Stu	Total			
PC	1	UC/BARCH-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 (Project) -IV	1	-	-	3	04	40:60	4	03
	7	UC/BARCH-607/19	Building Services-III	2	-	-	-	02	40:60	2	03
PAECC	8	UC/BARCH-608/19	Climate & Architecture (Sustainable Design) -III	2	-	-	-	02	40:60	2	03
PE	9	UC/BARCH-609 (A) - 609 (E)/19	Elective- II	2	1	-	-	03	40:60	3	03
OE	10	UC/BARCH-610(A) - 610 (E)/19	Open Elective- II/Mooc Swayam	2	-	-	-	02	40:60	2	03
SEC	✓ 11	UC/BARCH-611/19	Mentoring and Professional Development-III	2	-	-	-	02	100	Non- Credit	No Exam
			<b>Total</b>	20	4		8	32		30	

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

- UC/BARCH-609 (A) Sustainable Cities & Communities
- UC/BARCH-609 (B) Vernacular / Rural / Indigenous  
Architecture/ Mud Arch
- UC/BARCH-609 (C) Architecture Conservation/ Restoration and  
Preservation
- UC/BARCH-609 (D) Furniture Design

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

- UC/BARCH-610(A) Psychology for Architects
- UC/BARCH-610(B) Health Education- II
- UC/BARCH-610(C) Dance forms ( any form)
- UC/BARCH-610(D) Web designing Management

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UC/BARCH-609 (E)

Lighting and Illumination/ Lighting Design

UC/BARCH/PE/MOOC  
609(F - O)

(Ref MOOC Table)

UC/BARCH-610(E  
)  
UC/BARCH/MOOC  
610 (F - O) (Ref  
MOOC Table)

Advanced HVAC & Design for Fire

*R. Singh*  
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Seventh Semester

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

*P. S. Gupta*  
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## Eighth Semester

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

Course Type	Sr. no	Course Code	Course Title	Load Allocations					Marks Int : Ext	Credits	Duration of Univ. Exam/ Viva- Voce
				L	Sem/Tut	P/F W	Stu	Total			
PC	1	UC/BARCH-801/19	Architectural Design -VII	1	-	-	6	07	60:40	7	Portfolio viva voce
	2	UC/BARCH-802/19	Comprehensive Smart Village Development/ Agro related infrastructure	1	-	-	3	04	60:40	4	Portfolio viva voce
	3	UC/BARCH-803/19	Urban Design	2	1	-	-	03	40:60	3	03
	4	UC/BARCH-804/19	Housing	2	1	-	-	03	40:60	3	03
BS & AE	5	UC/BARCH-805/19	Building Construction & Materials-VII	1	-	-	4	05	60:40	5	03
PE	6	UC/BARCH-806 (A)-806 (E)/19	Elective-III	2	1	-	-	03	40:60	3	03
	7	UC/BARCH-807 (A)-807 (E)/19	Elective- IV	2	1	-	-	03	40:60	3	03
OE	8	UC/BARCH-808 (A)-808 (E)/19	Open Elective- III/Mooc / Swayam	2	-	-	-	02	40:60	2	03
	9	---	*Education Tour III / Summer Training III/ Vacation Assignment III	-	-	-	-	-	-	Non-Credit	The evaluation will be done in 9 <sup>th</sup> sem
			<b>Total</b>	13	4	-	13	30	40:60	30	

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

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

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

- UC/BARCH-806 (A) GIS/ Remote sensing/ Geospatial Technologies/Geomatics Techniques for Architects
- UC/BARCH-806 (B) Indian Architecture/ Vastu Shastra
- UC/BARCH-806 (C) Advance Building Materials
- UC/BARCH-806 (D) Retail Design
- UC/BARCH-806 (E) Advance Structure Systems

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

- UC/BARCH-807 (A) Ekistics
- UC/BARCH-807 (B) Art Appreciation
- UC/BARCH-807 (B) Industrial / Prefab Technologies
- UC/BARCH-807 (B) Interior Design
- UC/BARCH-807 (B) Building Information Modelling (BIM)/ Advance Computer Software's

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

- UC/BARCH-808 (A) Client psychology
- UC/BARCH-808 (B) Society's perception for architects & Architecture
- UC/BARCH-808 (C) Generic Skills & Entrepreneurship development
- UC/BARCH-808 (D) Cyber laws & Ethics
- UC/BARCH-808 (E) Human resources development & Organization behavior

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

Ninth Semester

Course Type	S. no	Course Code	Course Title	Load Allocations					Marks		Credits	Duration of Univ. Exam/ Viva-Voce
				L	Sem/ Tut	P/F W	Stu	Total	Int : Ext			
PC	1	UC/BARCH- 901/19	Architectural Design - VIII	1	-	-	6	07	60:40	7	External Viva Voce	
PAECC	2	UC/BARCH -902/19	Research Methodology & Dissertation	2	-	-	3	05	60:40	5	03 Hours Theory exams. The dissertation to be marked by taking viva voce	
	3	UC/BARCH- 903/19	Construction Management	2	1	-	-	03	40:60	3	03	
BS &AE	4	UC/BARCH-904/19	Building Construction & Materials-VIII	1	-	-	4	05	60:40	5	04	
PE	5	UC/BARCH- 905 (A) - 905 (E )/19	Elective-V	2	1	-	-	03	40:60	3	03	
	6	UC/BARCH- 906 (A)- 906 (E )/19	Elective- VI	2	1	-	-	03	40:60	3	03	
OE	7	UC/BARCH- 907(A)-907 (E )/19	Open Elective - IV/ MooC / Swayam	2	-	-	-	02	40:60	2	03	
SEC	8	UC/BARCH- 908/19	*Educational Tour III/Summer Training III/ Vacation Assignment-III	-	-	-	-	-	100	1		
			<b>Total</b>	12	3		13	28		29		

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

*[Signature]*  
Director  
I.K.G.P.T.U  
Mohali Campus-II

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

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

UC/BARCH-905 (A)	Town & Country Planning
UC/BARCH-905 (B)	Art & Architecture
UC/BARCH-905 (C)	Building Maintenance
UC/BARCH-905 (D)	Graphics & Communication Design
UC/BARCH-905 (E)	Advance Digital Architecture

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

UC/BARCH-906 (A)	Traffic & Transportation
UC/BARCH-906 (B)	Contemporary Indian Architecture (Modern Trends)
UC/BARCH-906 (C)	Building System Integration & Management
UC/BARCH-906 (D)	Cost effective Construction
UC/BARCH-906 (E)	Building Industry

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

UC/BARCH-907 (A)	French
UC/BARCH-907 (B)	German
UC/BARCH-907 (C)	Spanish
UC/BARCH-907 (D)	Chinese
UC/BARCH-907 (E)	Any Indian Language

*P. S. L. 1/20*  
Director  
I.K.G.P.T.U.  
Mohali Campus-II

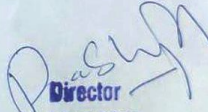
IK Gujral Punjab Technical University Kapurthala  
Bachelor's of Architecture (B.Arch): Teaching Scheme 2019

Tenth Semester

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

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

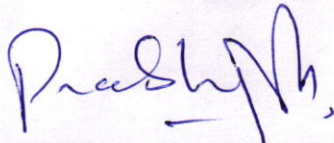
- UC/BARCH-1004 (A) Building Economics
- UC/BARCH-1004 (B) Contemporary World Architecture
- UC/BARCH-1004 (C) Architecture Design With Steel and Glass/ High Rise Buildings
- UC/BARCH-1004 (d) Architecture Journalism & Photography
- UC/BARCH-1004 (E) Futuristic Architecture

  
**Director**  
**I.K.G.P.T.U**  
**Mohali Campus-II**

1.2.2 List of Programs in Which CBCS / Elective Course Implemented in the Last Academic Year

Name of the Department: Architecture

Program	Revision Year of Syllabus
B. Arch	2019
M. Arch (Architecture Education)	2020



(Signature of Head of Department)

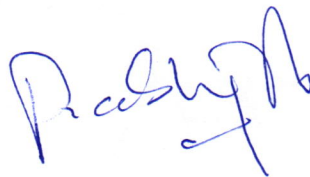
**Director**

**I.K.G.P.T.U**

**Sahali Campus-II**

2.2 Link for the Syllabus for B.Arch, M.Arch & M.Planning

<https://mohalicampus.ptu.ac.in/Syllabus>



**Director  
I.K.G.P.T.U  
Mohali Campus-II**

New approval vide 21.1.21

Fourth Semester

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

Course Type	Sr. no	Course Code	Course Title	Load Allocations					Marks	Credits	Duration of Univ. Exam/ Viva-Voce
				L	Sem/ Tut	P/F W	Stu	Total	Int : Ext		
PC	1	UC/BARCH-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	
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
	7	UC/BARCH-407/19	Computer Application-II	1	-	2	-	03	60:40	2	External Viva Voce
SEC	8	UC/BARCH-408/19	Mentoring and Professional Development-II	-	-	2	-	02	100:0	Non-Credit	No Exam
	9	UC/BARCH-409/19	Constitutional Law	2	-	-	-	02	40:60	2	03
	10	---	*Education Tour II / Summer Training II /Vacation Assignment II	-	-	-	-	-	-	-	The evaluation will be done in 5 <sup>th</sup> sem
<b>Total</b>				13	4	4	8	29		26	

\*NOTES: Educational Tour of 1-2 week duration during or after the II<sup>nd</sup> year of studies (as a measure drawing /Documentation Camp) should be undertaken and Summer Training/ Vacation assignment to be given based on UC/BARCH-408/19. The marking of the same will done in the fifth semester UC/BARCH-518/1

*Jyoti Prakash*

New  
Approved  
vide 21.1

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

Fifth Semester

Course Type	Sr. no	Course Code	Course Title	Load Allocations					Marks Int : Ext	Credits	Duration of Univ. Exam/ Viva-Voce
				L	Sem/ Tut	P/F W	Stu	Total			
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	60:40	2	External Viva Voce
	4	UC/BARCH-504/19	Structure Design-III	2	2	-	-	04	40:60	4	03
	5	UC/BARCH-505/19	Building Services-II	2	1	-	-	03	40:60	3	03
PAECC	6	UC/BARCH-506/19	Theory of Design-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 (A) - 508 (E) /19	Elective- I / MooC	2	1	-	-	03	40:60	3	03
OE	9	UC/BARCH/ /509 (A) - 509 (E) /19	Open Elective- I /MooC	2	-	-	-	02	40:60	2	03
SEC	10	UC/BARCH-510/19	*Educational Tour II/ Summer Training-II/ Vacation Assignment-II	-	-	-	-	-	100	1	No Exam
			<b>Total</b>	15	7		8	30		31	

Note: \* UC/BARCH-510/19 is carried out in the intervening period of 4<sup>th</sup> and 5<sup>th</sup> semester, the evaluation of report to be done in the 5<sup>th</sup> semester.

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

- UC/BARCH/ /508 (A) Green Buildings & Rating System
- UC/BARCH/ /508 (B) Hill Architecture
- UC/BARCH/ /508 (C) Emerging Technologies in Architecture
- UC/BARCH/ /508 (D) Product Design
- UC/BARCH/ /508 (E) Architecture Acoustics

UC/BARCH/PE/MOOC508(F - O) (Ref MOOC Table)

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

- UC/BARCH/ /509 (A) Sociology for Architects / Fundamentals of Sociology
  - UC/BARCH/ /509 (B) Health Education- I
  - UC/BARCH/ /509 (C) Music ( Vocal, Instrumental),
  - UC/BARCH/ /509 (D) Laser/ Printing Technology
  - UC/BARCH/ /509 (E) Creative Writing
- UC/BARCH/MOOC 509 (F - O) (Ref MOOC Table)

Jyoti P. Singh

New approval vide 21-01-21

Sixth Semester

Course Type	Sr.no	Course Code	Course Title	Load Allocations					Marks	Credits	Duration of Univ. Exam/ Viva-Voce
				L	Sem/ Tut	P/F W	Stu	Total			
PC	1	UC/BARCH-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 (Project) -IV	1	-	-	3	04	40:60	4	03
	7	UC/BARCH-607/19	Building Services-III	2	-	-	-	02	40:60	2	03
PAECC	8	UC/BARCH-608/19	Climate & Architecture (Sustainable Design) -III	2	-	-	-	02	40:60	2	03
PE	9	UC/BARCH-609 (A) - 609 (E)/19	Elective- II	2	1	-	-	03	40:60	3	03
OE	10	UC/BARCH-610(A) - 610 (E)/19	Open Elective- II/Mooc Swayam	2	-	-	-	02	40:60	2	03
SEC	11	UC/BARCH-611/19	Mentoring and Professional Development-III	2	-	-	-	02	100	Non-Credit	No Exam
			<b>Total</b>	20	4		8	32		30	

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

- UC/BARCH-609 (A) Sustainable Cities & Communities
- UC/BARCH-609 (B) Vernacular / Rural / Indigenous Architecture/ Mud Arch
- UC/BARCH-609 (C) Architecture Conservation/ Restoration and Preservation
- UC/BARCH-609 (D) Furniture Design

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

- UC/BARCH-610(A) Psychology for Architects
- UC/BARCH-610(B) Health Education- II
- UC/BARCH-610(C) Dance forms ( any form)
- UC/BARCH-610(D) Web designing Management

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UC/BARCH-609 (E)

Lighting and Illumination/ Lighting Design

UC/BARCH-610(E  
)

Advanced HVAC & Design for Fire

UC/BARCH/MOOC  
610 (F - O) (Ref  
MOOC Table)

UC/BARCH/PE/MOOC  
609(F - O)

(Ref MOOC Table)

Jyoti  
R. Singh

# 5<sup>th</sup> Semester 2019

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

Jyoti  
Prasanna  
21-1-21

**IK Gujral Punjab Technical University**  
**Bachelor of Architecture (B. Arch. 5<sup>th</sup> Semester)**

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

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

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

**Detailed Syllabus:-**

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

**UNIT-I Commercial Buildings**

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

**UNIT-II Public buildings**

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

**Evaluation Criteria for Exam / Question Paper Setting:-**

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

**Instructions for the Faculty –**

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

*One project should be on a contoured side preferably.*

**Core References:**

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

*Joshi*      *Prakash*

**IK Gujral Punjab Technical University**  
**Bachelor of Architecture (B. Arch. 5<sup>th</sup> Semester)**

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

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

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

**Detailed Syllabus:-**

**PART – A BUILDING MATERIALS**

**UNIT-I**

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

**UNIT-II**

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

**PART – B BUILDING CONSTRUCTION**

**UNIT-III**

**a) Steel, Aluminium, and PVC**

- Doors and windows
- Frames
- Sliding door

**b) Aluminum, and PVC**

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

**UNIT-IV**

**c) Steel Trusses**

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

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

*Justi*  
*Rush*

### **Evaluation Criteria for Exam / Question Paper Setting:-**

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

### **Instructions for the Faculty –**

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

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

### **Core References:**

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

*Jyoti*  
*Prakash*

**IK Gujral Punjab Technical University**  
**Bachelor of Architecture (B. Arch. 5<sup>th</sup> Semester)**

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

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

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

**Detailed Syllabus:-**

**UNIT-I**

Recapitulation of what has been done in previous semester.

**UNIT-II**

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

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

**UNIT-III**

Surface active Structure System:

- Shells.
- Folded Plates.

**UNIT-IV**

Vertical Structure System for High Rise Buildings.

**Evaluation Criteria for Exam / Question Paper Setting:-**

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

**Instructions for the Faculty –**

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

**Core References:**

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

*Jyoti Prakash*

**IK Gujral Punjab Technical University**  
**Bachelor of Architecture (B. Arch. 5<sup>th</sup> Semester)**

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

**Course Objective**

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

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

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

**Detailed Syllabus:**

**UNIT I**

**COMPRESSION MEMBER**

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

**UNIT II**

**STEEL BEAM**

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

**UNIT III**

**STEEL TRUSS**

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

**UNIT IV**

**RIVETED/WELDED JOINTS**

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

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

**Evaluation Criteria for Exam / Question Paper Setting:-**

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

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

**Instructions for the Faculty –**

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

**Core References:**

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

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**IK Gujral Punjab Technical University**  
**Bachelor of Architecture (B. Arch. 5<sup>th</sup> Semester)**

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

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

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

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

**Detailed Syllabus:-**

**UNIT-I**

**ELECTRICAL SERVICES**

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

**UNIT-II**

**ILLUMINATION**

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

**UNIT-III: FIRE SAFETY**

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

*Jyoti Bhatnagar*



#### **UNIT-IV- MECHANICAL CIRCULATION**

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

#### **Evaluation Criteria for Exam / Question Paper Setting:-**

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

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

#### **Instructions for the Faculty –**

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

Exercises shall be clubbed with Design Studio Project

#### **Core References:**

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

*Jyoti*  
*Rashmi*

**IK Gujral Punjab Technical University**  
**Bachelor of Architecture (B. Arch. 5<sup>th</sup> Semester)**

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

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

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

**Detailed Syllabus:-**

**UNIT- I**

**FOREIGN ARCHITECTS**

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

**UNIT- II**

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

**UNIT- III**

**INDIAN ARCHITECTS**

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

**UNIT- IV**

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

**Evaluation Criteria for Exam / Question Paper Setting:-**

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

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

**Instructions for the Faculty –**

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

**Core References:**

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

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**IK Gujral Punjab Technical University**  
**Bachelor of Architecture (B. Arch. 5<sup>th</sup> Semester)**

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

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

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

**Detailed Syllabus:-**

**UNIT- I**

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

**UNIT- II**

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

**UNIT- III**

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

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

**UNIT- IV**

- Italian Gardens
- French Gardens
- English Gardens

**Evaluation Criteria for Exam / Question Paper Setting:-**

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

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

**Instructions for the Faculty –**

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

**Core References:**

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

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**IK Gujral Punjab Technical University**  
**Bachelor of Architecture (B. Arch. 5<sup>th</sup> Semester)**

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

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

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

**Detailed Syllabus:-**

**UNIT- I**

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

**UNIT- II**

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

**UNIT- III**

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

**UNIT- IV**

- Application of learning in Architecture design studio.

**Evaluation Criteria for Exam / Question Paper Setting:-**

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

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

**Instructions for the Faculty –**

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

**Core References:**

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

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**IK Gujral Punjab Technical University**  
**Bachelor of Architecture (B. Arch. 5<sup>th</sup> Semester)**

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

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

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

**Detailed Syllabus:-**

**UNIT- I**

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

**UNIT- II**

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

**UNIT- III**

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

**UNIT- IV**

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

**Evaluation Criteria for Exam / Question Paper Setting:-**

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

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

**Instructions for the Faculty –**

*Jyoti Prakash*

## Instructions To Faculty

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

### Core References:

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

Jyoti  
Prakash

**IK Gujral Punjab Technical University**  
**Bachelor of Architecture (B. Arch. 5<sup>th</sup> Semester)**

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

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

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

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

**Detailed Syllabus:-**

**UNIT- I (DIGITAL ARCHITECTURE)**

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

**UNIT- II (SERVICES & CONTROL TECHNOLOGIES)**

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

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

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

**UNIT- III (INFORMATION SYSTEMS)**

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

**UNIT- IV (MATERIALS TECHNOLOGY)**

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

*Jyoti Prakash*

**Evaluation Criteria for Exam / Question Paper Setting:-**

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

**Instructions for the Faculty –**

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

**Core References:**

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

Justi

Rachana



**IK Gujral Punjab Technical University**  
**Bachelor of Architecture (B. Arch. 5<sup>th</sup> Semester)**

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

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

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

**Detailed Syllabus:-**

**UNIT- I**

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

**UNIT- II**

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

**UNIT- III**

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

**UNIT- IV**

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

**Evaluation Criteria for Exam / Question Paper Setting:-**

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

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

**Instructions for the Faculty –**

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

**Core References:**

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

*Jyoti*  
*P. Singh*

**IK Gujral Punjab Technical University**  
**Bachelor of Architecture (B. Arch. 5<sup>th</sup> Semester)**

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

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

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

**Detailed Syllabus:-**

**UNIT- I**

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

**UNIT- II**

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

**UNIT- III**

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

**UNIT- IV**

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

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

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

**Evaluation Criteria for Exam / Question Paper Setting:-**

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

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

**Instructions for the Faculty –**

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

*Jyoti Prakash*

Exercises shall be clubbed with Design Studio Project

**Core References:**

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

*John*

*P. Singh,*

**IK Gujral Punjab Technical University**  
**Bachelor of Architecture (B. Arch. 5<sup>th</sup> Semester)**

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

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

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

**Detailed Syllabus:-**

**UNIT- I**

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

**UNIT- II**

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

**UNIT- III**

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

**UNIT- IV**

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

**Evaluation Criteria for Exam / Question Paper Setting:-**

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

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

**Instructions for the Faculty –**

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

**Core References:**

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

*Jyoti*  
*R. Singh*

**IK Gujral Punjab Technical University**  
**Bachelor of Architecture (B. Arch. 5<sup>th</sup> Semester)**

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

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

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

**Detailed Syllabus:-**

**UNIT- I - Mental and Social Health**

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

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

Alcohol's effects on the body

- Long-term risks of alcohol
- Teens and tobacco
- Risks of tobacco use
- Legal and illegal drugs
- Preventing drug abuse

**UNIT- III – Nutrition**

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

**UNIT- IV - Family Life and Human Sexuality**

- Reproductive Anatomy

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

**Evaluation Criteria for Exam / Question Paper Setting:-**

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

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

**Instructions for the Faculty –**

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

Exercises shall be clubbed with Design Studio Project

**Core References:**

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

*Joti*  
*P. S. Singh*

**IK Gujral Punjab Technical University**  
**Bachelor of Architecture (B. Arch. 5<sup>th</sup> Semester)**

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

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

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

**Detailed Syllabus:-**

**UNIT- I**

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

**UNIT- II**

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

**UNIT- III**

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

**UNIT- IV**

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

**Evaluation Criteria for Exam / Question Paper Setting:-**

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

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

**Instructions for the Faculty –**

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

Exercises shall be clubbed with Design Studio Project

**Core References:**

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

*Jyoti*  
*P. Singh*

**IK Gujral Punjab Technical University**  
**Bachelor of Architecture (B. Arch. 5<sup>th</sup> Semester)**

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

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

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

**Detailed Syllabus:-**

**UNIT- I**

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

Pre-Press, Press and Post press operations

**UNIT- II**

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

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

**UNIT- III**

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

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

**UNIT- IV**

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

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

**Evaluation Criteria for Exam / Question Paper Setting:-**

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

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

**Instructions for the Faculty –**

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

Exercises shall be clubbed with Design Studio Project

**Core References:**

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

*Jyoti Prakash*



**IK Gujral Punjab Technical University**  
**Bachelor of Architecture (B. Arch. 5<sup>th</sup> Semester)**

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

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

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

**Detailed Syllabus:-**

**UNIT- I**

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

**UNIT- II**

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

**UNIT- III**

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

**UNIT- IV**

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

**Evaluation Criteria for Exam / Question Paper Setting:-**

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

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

**Instructions for the Faculty –**

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

**Core References:**

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

*Jyoti Prakash*

**IK Gujral Punjab Technical University**  
**Bachelor of Architecture (B. Arch. 5<sup>th</sup> Semester)**

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

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

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

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

*Jyoti*  
*P. Singh*

# 6<sup>th</sup> Semester 2019

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

*Jyoti*

*P. Singh*  
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**IK Gujral Punjab Technical University**  
**Bachelor of Architecture (B. Arch. 6<sup>th</sup> Semester)**

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

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

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

**Detailed Syllabus:-**

**UNIT-I**

Auditorium, Cinemas, Theatres, Multiplex.

**UNIT-II**

Specialized Housing EWS, LIG, MIG and HIG

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

**Evaluation Criteria for Exam / Question Paper Setting:-**

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

**Instructions for the Faculty –**

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

**Core References:**

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

*Jpti* *Rashid*

**IK Gujral Punjab Technical University**  
**Bachelor of Architecture (B. Arch. 6<sup>th</sup> Semester)**

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

**Course Objective**

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

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

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

**UNIT-I**

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

**UNIT-II**

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

**UNIT-III**

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

**UNIT-IV**

- Architecture of Mogul period
- Mughal Architecture buildings

**Evaluation Criteria for Exam / Question Paper Setting:-**

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

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

**Instructions for the Faculty –**

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

**Core References:**

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*Joti Prashant*

**IK Gujral Punjab Technical University**  
**Bachelor of Architecture (B. Arch. 6<sup>th</sup> Semester)**

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

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

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

**Detailed Syllabus: -**

**UNIT- I**

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

**UNIT- II**

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

**UNIT- III**

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

**UNIT- IV**

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

**Evaluation Criteria for Exam / Question Paper Setting:-**

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

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

*Joshi* *Prashant*

**Instructions for the Faculty –**

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

**Core References:**

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Jyoti Prasad Singh

**IK Gujral Punjab Technical University**  
**Bachelor of Architecture (B. Arch. 6<sup>th</sup> Semester)**

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

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

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

**Detailed Syllabus:-**

**UNIT- I**

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

**UNIT- II**

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

**UNIT- III**

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

**UNIT- IV**

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

**Evaluation Criteria for Exam / Question Paper Setting:-**

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

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

**Instructions for the Faculty –**

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

**Core References:**

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

*Yok*  
*Pradyumn*



**IK Gujral Punjab Technical University**  
**Bachelor of Architecture (B. Arch. 6<sup>th</sup> Semester)**

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

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

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

**Detailed Syllabus:-**

**UNIT-I**

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

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

**UNIT-II**

Temporary construction work

- Shoring
- Underpinning
- Scaffolding

**Evaluation Criteria for Exam / Question Paper Setting:-**

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

**Instructions for the Faculty –**

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

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

**Core References:**

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

*Jyoti*  
*P. Singh*

**IK Gujral Punjab Technical University**  
**Bachelor of Architecture (B. Arch. 6<sup>th</sup> Semester)**

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

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

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

**Detailed Syllabus:-**

**UNIT-I**

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

**UNIT-II**

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

**UNIT-III**

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

**UNIT-IV**

Project based on pervious Unit

**Evaluation Criteria for Exam / Question Paper Setting:-**

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

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

**Instructions for the Faculty –**

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

**Core References:**

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

*Jyoti Prakash*

**IK Gujral Punjab Technical University**  
**Bachelor of Architecture (B. Arch. 6<sup>th</sup> Semester)**

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

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

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

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

**Detailed Syllabus:-**

**UNIT- I**

**AIR CONDITIONING**

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

**UNIT- II**

**ACOUSTICS**

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

**UNIT- III**

**BUILDING AUTOMATION/BUILDING MANAGEMENT SYSTEM**

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

*Jyoti*  
*P. Singh*

#### UNIT- IV

##### INTELLIGENT BUILDINGS

- Intelligent Buildings- Concept, applicability and limitations

#### Evaluation Criteria for Exam / Question Paper Setting:-

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

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

#### Instructions for the Faculty –

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

#### Core References:

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

*Jyoti*  
*P. S. Singh*

**IK Gujral Punjab Technical University**  
**Bachelor of Architecture (B. Arch. 6<sup>th</sup> Semester)**

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

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

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

**Detailed Syllabus:-**

**UNIT-I**

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

**UNIT-II**

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

**UNIT-III**

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

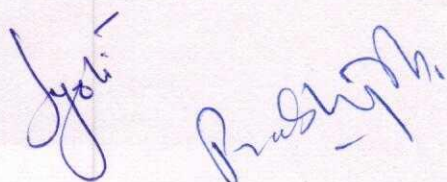
**UNIT-IV**

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

**Evaluation Criteria for Exam / Question Paper Setting:-**

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

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



**Instructions for the Faculty –**

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

**Core References:**

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

*Handwritten signature in blue ink, possibly reading "Jyoti" and "P. Singh".*

**IK Gujral Punjab Technical University**  
**Bachelor of Architecture (B. Arch. 6<sup>th</sup> Semester)**

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

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

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

**Detailed Syllabus:-**

**UNIT-I**

Introduction and Orientation, Expectations Ground rules and Guidelines

**UNIT-II**

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

**UNIT-III**

Transportation, Housing and Construction, Green Design and Architecture

**UNIT-IV**

The Future(s) of Sustainability, Megaprojects and Cities

**Evaluation Criteria for Exam / Question Paper Setting:-**

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

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

**Instructions for the Faculty –**

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

**Core References:**

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

*Jyoti*  
*Anushka*

**IK Gujral Punjab Technical University**  
**Bachelor of Architecture (B. Arch. 6<sup>th</sup> Semester)**

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

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

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

**Detailed Syllabus:-**

**UNIT-I**

Introduction to the field of Vernacular Architecture, traditional architecture

**UNIT-II**

Vernacular Architecture in the eastern, northern eastern India

**UNIT-III**

Vernacular Architecture of northern and western India

**UNIT-IV**

Vernacular Architecture of the Southern India & central India.

**Evaluation Criteria for Exam / Question Paper Setting:-**

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

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

**Instructions for the Faculty –**

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

**Core References:**

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

*Jyoti Prakash*



**IK Gujral Punjab Technical University**  
**Bachelor of Architecture (B. Arch. 6<sup>th</sup> Semester)**

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

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

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

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

**Detailed Syllabus:-**

**UNIT – I**

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

**UNIT – II**

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

**UNIT – III**

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

**UNIT – IV**

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

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

**Evaluation Criteria for Exam / Question Paper Setting:-**

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

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

*Jyoti Prakash*

**Instructions for the Faculty –**

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

**Core References:**

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

*John Prakash*

**IK Gujral Punjab Technical University**  
**Bachelor of Architecture (B. Arch. 6<sup>th</sup> Semester)**

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

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

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

**Detailed Syllabus:-**

**UNIT-I**

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

**UNIT-II**

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

**UNIT-III**

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

**UNIT-IV**

Estimation costing and specifications, software's

**Evaluation Criteria for Exam / Question Paper Setting:-**

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

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

**Instructions for the Faculty –**

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

**Core References:**

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

*Jyoti Prashant*

**IK Gujral Punjab Technical University**  
**Bachelor of Architecture (B. Arch. 6<sup>th</sup> Semester)**

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

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

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

**Detailed Syllabus:-**

**UNIT-I**

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

**UNIT-II**

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

**UNIT-III**

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

**UNIT-IV**

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

**Evaluation Criteria for Exam / Question Paper Setting:-**

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

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

**Instructions for the Faculty –**

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

**Core References:**

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

*(Handwritten signatures)*

**IK Gujral Punjab Technical University**  
**Bachelor of Architecture (B. Arch. 6<sup>th</sup> Semester)**

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

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

*Jyoti*  
*Rashmi*

**IK Gujral Punjab Technical University**  
**Bachelor of Architecture (B. Arch. 6<sup>th</sup> Semester)**

Course Code	Course Name	L, S/T, P/FW, ST	Credits	Duration of Exam
UC/BARCH-619/19	Mentoring and Professional Development-III		Non Credit	No Exam

**The objective of mentoring will be development of:**

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

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

**UNIT – I (Class Activities)**

- Expert and video lectures
- Aptitude Test
- Group Discussion
- Quiz (General/Technical)
- Presentations by the students
- Team building Exercises

**UNIT – II (Outdoor Activities)**

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

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

*Jyoti Prakash*

**4<sup>th</sup> Semester 2019**

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

*Johi*  
*P. Adhyak*  
*21.1.21*

**IK Gujral Punjab Technical University**  
**Bachelor of Architecture (B. Arch. 4<sup>th</sup> Semester)**

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

**Course Objective:**

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

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

**Detailed Syllabus:-**

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

**BUILDINGS**

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

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

**Evaluation Criteria for Exam / Question Paper Setting:-**

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

**Instructions for the Faculty –**

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

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

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

**Core References:**

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

*Jai Prakash*



**IK Gujral Punjab Technical University**  
**Bachelor of Architecture (B. Arch. 4<sup>th</sup> Semester)**

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

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

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

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

**UNIT- I**

Roman Architecture, Christian Architecture

**UNIT- II**

Byzantine Architecture, Romanesque Architecture

**UNIT- III**

Chulkyan and Ashoka period of Hindu Architecture, Dravidian Architecture

**UNIT-IV**

Indo Aryan Architecture, Orissa, Gujrat, Khajuraho

**Evaluation Criteria for Exam Question Paper Setting:-**

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

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

**Instructions for the Faculty –**

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

**Core References:**

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

*Jyoti Prakash*

**IK Gujral Punjab Technical University**  
**Bachelor of Architecture (B. Arch. 4<sup>th</sup> Semester)**

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

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

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

**This subject consists of two parts**

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

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

**Detailed Syllabus:-**

**PART – A BUILDING MATERIALS**

**UNIT-I**

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

**UNIT-II**

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

**PART – B BUILDING CONSTRUCTION**

**UNIT-III**

**Roofs and Trusses (Timber)**

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

**UNIT-IV**

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

*Joshi*  
*Rashmi*

**Evaluation Criteria for Exam / Question Paper Setting:-**

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

**Instructions for the Faculty –**

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

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

**Core References:**

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

*Jyoti*

*P. S. Singh*

**IK Gujral Punjab Technical University**  
**Bachelor of Architecture (B. Arch. 4<sup>th</sup> Semester)**

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

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

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

**Detailed Syllabus: -**

**UNIT- I**

**Beam**

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

**UNIT- II**

**Slab**

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

**UNIT- III**

**Column**

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

**UNIT-IV**

**Footing**

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

**Evaluation Criteria for Exam/ Question Paper Setting: -**

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

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

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

**Core References:**

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

*Jyoti*

*Rudolph*

**IK Gujral Punjab Technical University**  
**Bachelor of Architecture (B. Arch. 4<sup>th</sup> Semester)**

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

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

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

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

**Detailed Syllabus:-**

**UNIT- I**

**WATER SUPPLY**

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

**UNIT- II**

**SANITATION**

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

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

**UNIT- III**

**STORMWATER DISPOSAL**

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

*Jyoti*  
*Prasanna*

#### **UNIT-IV**

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

#### **Evaluation Criteria for Exam Question Paper Setting:-**

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

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

#### **Instructions for the Faculty –**

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

Exercises shall be clubbed with Design Studio Project

#### **Core References:**

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

*Joh*

*P. S. S. S.*

**IK Gujral Punjab Technical University**  
**Bachelor of Architecture (B. Arch. 4<sup>th</sup> Semester)**

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

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

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

**Detailed Syllabus:-**

**UNIT- I**

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

**UNIT- II**

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

**UNIT- III**

**Introduction to Green Building Rating systems**

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

**UNIT-IV**

**Introduction to Codes for Energy Conservation of Building**

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

**Evaluation Criteria for Exam Question Paper Setting:-**

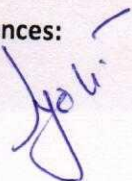
The examiner is required to set eight questions with a minimum of two from each unit. Students are required to attempt five questions with a minimum of one from each unit.

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

**Instructions for the Faculty –**

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

**Core References:**



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

Jyoti  
P. Singh



**IK Gujral Punjab Technical University**  
**Bachelor of Architecture (B. Arch. 4<sup>th</sup> Semester)**

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

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

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

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

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

**UNIT- I**

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

**UNIT- II**

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

**UNIT- III**

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

**Evaluation Criteria for Exam / Question Paper Setting:-**

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

**Instructions for the Faculty –**

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

**Core References:**

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

*Jyoti*

*Pradeep*

**IK Gujral Punjab Technical University**  
**Bachelor of Architecture (B. Arch. 4<sup>th</sup> Semester)**

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

**The objective of mentoring will be the development of:**

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

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

**UNIT – II (Class Activities)**

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

**UNIT – II (Outdoor Activities)**

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

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

*Jyoti*  
*Rashmi*

**IK Gujral Punjab Technical University**  
**Bachelor of Architecture (B. Arch. 4<sup>th</sup> Semester)**

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

**Course Objective**

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

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

**Detailed Syllabus:-**

**UNIT- I :**

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

**UNIT- I A:**

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

**UNIT- II :**

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

**UNIT- II-A:**

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

*Handwritten signatures in blue ink.*

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

#### **UNIT- III :**

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

#### **UNIT- III-A:**

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

#### **UNIT- IV :**

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

#### **UNIT- IV A:**

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

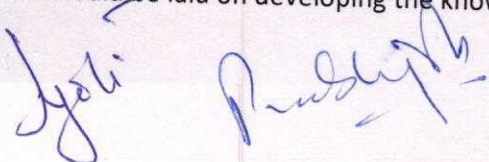
#### **Evaluation Criteria for Exam / Question Paper Setting:-**

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

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

#### **Instructions for the Faculty –**

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



**Core References:**

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

Jyoti

Anandkumar

**7<sup>th</sup> Semester 2019**

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

Jyoti

Deena

Dr. Namal

Mukherjee

Raushan

**IK Gujral Punjab Technical University**  
**Bachelor of Architecture (B. Arch. 7<sup>th</sup> Semester)**

Course Code	Course Name	L, S/T, P/FW, ST	Credits - 12	Duration of Exam
UC/BARCH- 701/19	Practical Training	18 to 22 Weeks	Int : Ext 60:40	No Exam/ Only Univ. Viva-Voce

**Course Objective:** The students are required to undergo Practical Training in a qualified, registered and competent Architect's Office. Students will be trained in the various practical aspects of Architecture, Construction & Professional practice.

**Course Outcomes:** At the end of the course, the students will able to learn the intricacies of Architectural Profession by joining and working with practicing Architects/Architectural firms for one complete semester.

**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**

- **University (External) Marks** - 150
- **(a) Univ. Viva – Voce** - 100  
(to be conducted by the external expert appointed by University)
- **c) Marks awarded by the employer -50**  
( to be sent in original to the University)
- **Internal Marks** - 350  
(to be sent by PTC in the format given below)

**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/ HoD, before it is implemented. The intention will be to update the program on regular basis, incorporating new details, with focus on making continuous qualitative improvements of the practical training.

**Evaluation Criteria for Exam / Question Paper Setting:-** No Exam/ Only Univ. Viva-Voce.

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Je Hand

R. Singh



**8<sup>th</sup> Semester 2019**

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

*Yoti*

*Neeraj*

*Navaj*

*gc*

*Mukta*

*Prabhu*

**IK Gujral Punjab Technical University**  
**Bachelor of Architecture (B. Arch. 8<sup>th</sup> Semester)**

Course Code	Course Name	L, S/T, P/FW, ST	Credits - 7	Duration of Exam
UC/BARCH-801/19	Architectural Design -VII	1 L, 6 ST	Int: Ext 60:40	Portfolio viva voce

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

**Course Outcomes:** At the end of the course, the students will be able to design complex health care academic projects, design for pandemics situations, design Terminals of air/railway/bus, design Light Industrial buildings for different uses.

**Detailed Syllabus:-**

**Design of complex projects with a focus on Universal approach and movement.**

**UNIT-I Commercial Buildings**

- Planning and Designing of large Complexes related to **Health care and Academic Institutions-Hospitals cum Medical Colleges** etc.

**UNIT-II Public buildings**

- Planning and Designing of **Traffic Nodes**-Bus Terminal, Railway Station, Airport.
- **Light Industrial Buildings** involving manufacturing, display, etc

**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 answer sheet shall be retained at the institute after the exam for the conduct of viva voce.

**Instructions for the Faculty –**

Design faculty are required to take a well prepared well-researched lecture on the 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 be handled by students from the topic given above. Library and prototype studies should be carried out for the remaining projects. Model and perspective should be made an essential part of project presentation.

**Core References:**

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

Jyoti  
Neeraj K. Neeraj K.  
Neeraj K. Neeraj K.

Prakash

**IK Gujral Punjab Technical University**  
**Bachelor of Architecture (B. Arch. 8<sup>th</sup> Semester)**

Course Code	Course Name	L, S/T, P/FW, ST	Credits - 4	Duration of Exam
UC/BARCH-802/19	Comprehensive Smart Village Development-I	1 L, 3 ST	Int: Ext 60:40	Portfolio viva voce

**Course Objective:** The objective of the studio subjects is to provide the students with higher levels of specialized knowledge in the field of planning the smart village.

**Course Outcomes:** At the end of the course, the students will be able to deal with the environment, policy-making and analysis, governance, and rehabilitation and resettlement issues for smart village development.

**Detailed Syllabus:-**

**UNIT- I**

Village System - Village as an organic entity – physical, social, economic. The administrative structure of village - Administrative framework of rural areas – village administration – district block – panchayats, Rural land use, and morphology – theoretical perspectives, Rural resources – resource mobilization - social and economic implications

**UNIT- II**

Rural Development - Rural development and planning – theories – indicators of development, Rural Infrastructure development and associated issues, Rural community development strategies link with rural planning, Rural entrepreneurship

**UNIT- III**

Problematic of Rural Areas - Rural Poverty – factors and processes – social and economic dimensions, Rural-urban linkages – dichotomy or symbiosis, Rural-urban divide in terms of infrastructure facilities, Challenges faced by rural areas –economic, social, environmental, fiscal

**UNIT- IV**

Rural Policy and Planning - Rural development and planning – experiences of countries from the Global South, Various international, national, and regional policies, Strategies adopted, and rural development programs with special reference to India. Critical appraisal of rural development programs

**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 answer sheet shall be retained at the institute after the exam for the conduct of viva voce.

**Instructions for the Faculty –**

Design faculty are required to take a well-prepared well-researched lecture on the topic and should encourage and motivate the students for taking up live projects of their immediate surroundings (Identifying need, Framing requirements, and solutions for the same, and it should be evaluated as one of the assignment).

**Core References:**

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

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**IK Gujral Punjab Technical University**  
**Bachelor of Architecture (B. Arch. 8<sup>th</sup> Semester)**

Course Code	Course Name	L, S/T, P/FW, ST	Credits - 3	Duration of Exam
UC/BARCH-803/19	Urban Design	2 L, 1T	Int: Ext 40:60	03

**Course Objective:** To make students understand the principles and design on an urban scale.

**Course Outcomes:** At the end of the course, the students will be able to create awareness and promote understanding of the nature, role, and importance of Urban Design in the making of quality Built environments and Human Settlements

**Detailed Syllabus:-**

**UNIT- I**

- Introduction, Role, Scope, and Importance of **Urban Design**
- The distinction between **Urban Design, Architecture and Town Planning**
- **Elements of Urban Design-** Pattern, Grains, Texture, Density, etc, their role and importance.
- **Determinants of Urban Form** – Landform, Climate, Symbolism, Activity Pattern, Socio-cultural Factors, Materials, Techniques, etc. and their role and importance

**UNIT- II**

- **Imageability-** Elements their role and importance including Paths, Nodes, Landmarks, Edges, Districts, etc.
- **Designing Cities-** Role and importance of Communication, Utilities, Landscape Features, Transport, Visual Expression, Size, Contrast, Urban Character, etc.
- **Shapes of the Cities-** Comparative advantages and Disadvantages

**UNIT- III**

- **Urban Spaces-**Typology including Street, Square, Precinct, Piazza, Mall, etc
- **Urban Spaces-** Elements, identification, characteristics, and role in shaping the spaces
- Changing Role, Importance, and Pattern of **Urban Spaces** in historical perspective- **Greek, Romans, Medieval and Contemporary cities.**
- **Design Principles** involving Scale and Enclosures

**UNIT- IV**

- **Development Controls-** Role and Importance in Urban Design.
- **Urban Design study of selected Capital Cities-** Chandigarh, Delhi, and Jaipur
- **Legal and Institutional framework** for Urban Design including Delhi Urban Art Commission- Objectives, Constitution, Role, Importance, Impact, etc

**Evaluation Criteria for Exam / Question Paper Setting:-**

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

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

**Instructions for the Faculty –**

Emphasis shall be laid on understanding the evolution of Cities and Buildings. The 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.

**Core References:**

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

M. K. Gupta  
G. Jyoti  
Deew  
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Prabhu

**IK Gujral Punjab Technical University**  
**Bachelor of Architecture (B. Arch. 8<sup>th</sup> Semester)**

Course Code	Course Name	L, S/T, P/FW, ST	Credits - 3	Duration of Exam
UC/BARCH-804/19	Housing	2 L, 1T	Int: Ext 40:60	03

**Course Objective:** To make students understand the principles and implications of housing & understand the role, importance, and issues related to housing.

**Course Outcomes:** At the end of the course, the students will be able to Analyze what are the housing issues we are facing. Understand how we can contribute to eliminating this housing problem. Know about what our government is doing to provide a basic comfortable environment for the citizens of India.

**Detailed Syllabus:-**

**UNIT-I**

- Role and importance of Housing
- Status of Housing in India
- Housing need, demand, and concept of affordability.
- Housing typologies including plotted and flatted development
- Housing surveys including methods of conducting surveys

**UNIT- II**

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

**UNIT- III**

- National Housing and Habitat Policy 2007
- Institutional framework for Housing Finance

**UNIT- IV**

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

**Evaluation Criteria for Exam Question Paper Setting:-**

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

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

**Instructions for the Faculty –**

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

**Core References:**

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

Mukhtar G. Jyoti  
G. Jyoti  
Secretary

Prabir Singh

**IK Gujral Punjab Technical University**  
**Bachelor of Architecture (B. Arch. 8<sup>th</sup> Semester)**

Course Code	Course Name	L, S/T, P/FW, ST	Credits - 5	Duration of Exam
UC/BARCH-805/19	Building Construction & Materials-VII	1 L, 4 ST	Int : Ext 60:40	03

**Course Objective:** To make students understand the details of finishes , materials and construction work.

**Course Outcomes:** At the end of the course, the students will be able to familiar with special constructional details , finishing & furnishing, extension & expansion joints and basements with details.

**Detailed Syllabus:-**

**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:-**

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

**Instructions for the Faculty –**

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

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

**Core References:**

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

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**IK Gujral Punjab Technical University**  
**Bachelor of Architecture (B. Arch. 8<sup>th</sup> Semester)**

Course Code	Course Name	L, S/T, P/FW, ST	Credits - 3	Duration of Exam
UC/BARCH-806 (A) /19	GIS & Remote sensing	2 L, 1T	Int : Ext 40:60	03

**Course Objective:** To introduce the students to the basic concepts and principles of various components of remote sensing, GIS, and GPS and to provide exposure to its practical applications

**Course Outcomes:** The course will enable the students to understand: The Principles of Remote sensing, satellite images, and Applications of remote sensing. The GIS and its Data models. The Global Navigation Satellite System.

**Detailed Syllabus:-**

**UNIT- I**

Remote Sensing: Physics of remote sensing, Electromagnetic spectrum – wavelength regions important to remote sensing, Spectral reflectance curves, Remote sensing satellites, and their data products, resolution concept, Platforms, and Sensors

**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**

Basic concepts of geographic data, GIS and its components, Data models, Topology, Process in GIS: Data capture, data sources, geospatial analysis, basic components of GIS – standard GIS software's – Data type – Spatial and non-spatial (attribute) data – measurement scales – Data Base Management Systems (DBMS).

**UNIT- IV**

Data Entry, Storage and Analysis - Data models – vector and raster data — data input by digitization and scanning, georeferencing– attribute data analysis, Modelling– Land Information system. GIS Applications, Global Navigation Satellite System (GNSS), GPS, GLONASS, GALILEO, GPS: The space segment, Control segment, User segment, GPS Applications

**Evaluation Criteria for Exam / Question Paper Setting:-**

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

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

**Instructions for the Faculty –**

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

**Core References:**

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

Mukhi  
G. Singh  
20/04/2024

Prashant

**IK Gujral Punjab Technical University**  
**Bachelor of Architecture (B. Arch. 8<sup>th</sup> Semester)**

Course Code	Course Name	L, S/T, P/FW, ST	Credits - 3	Duration of Exam
UC/BARCH-806 (B) /19	Indian Architecture/ Vastu Shastra	2 L, 1T	Int: Ext 40:60	03

**Course Objective:** To develop an understanding of rules and regulations of the Ancient Hindu System, Science of architecture.

**Course Outcomes:** At the end of the course, the students will be able to Analyze the different principles and systems of Vastu shastra.

**Detailed Syllabus:-**

**UNIT- I**

Indian Architecture (Urban) – Banaras, Kashmir, Gujarat,, and North east.

**UNIT- II**

Indian Architecture (Rural) – Vernacular Architecture of India.

**UNIT- III**

Terminology of Vastu- shastra, fundamental concepts, elements of vaastu, designs based on directional alignments, laws of nature, Indian Traditional Vastu shastra and Evolution of Vaastu-shastra in contemporary Architecture, modern Vastu science fundamentals. : Magnetism in the Earth, Magnetic Compass, Magnetic Axis, Magnetic Directions, Natural Directions, Earth Movement - Earth's self-Revolution around its Own Axis. Sun or Solar Movement, Wind Flow Movement, Zones inside the Vastu / Buildings, Clockwise Movement, Slope of Plot - Slope for erecting Vastu, Shape of Plot - Shape for Planning the Vastu.

**UNIT- IV**

Study of Residential and Public buildings and other buildings designed on the basis of Vastu Shastra Example in Architecture based on Vastu Shatra.

**Evaluation Criteria for Exam / Question Paper Setting:-**

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

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

**Instructions for the Faculty –**

Assignments, Site visits, Plates

**Core References:**

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

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Prashant



**IK Gujral Punjab Technical University**  
**Bachelor of Architecture (B. Arch. 8<sup>th</sup> Semester)**

Course Code	Course Name	L, S/T, P/FW, ST	Credits - 3	Duration of Exam
UC/BARCH-806 (C) /19	Advance Building Materials	2 L, 1T	Int : Ext 40:60	03

**Course Objective:** This course deals with some more building materials used in the construction industry. It is aimed to help the student learn and understand the application of advanced building materials.

**Course Outcomes:** At the end of the course, the students will be able to understand various advanced building materials in respect of their, composition, uses, properties and applications in the construction sector.

**Detailed Syllabus:-**

**UNIT- I**

- Advanced building materials - Introduction
- General Building Material trends: Eco-friendly, cost-effective, Nano-technology, aesthetic materials, recycled materials etc.
- Properties of advanced building materials: thermal control, light control, ventilation, illumination, insulation, moisture control, self-cleaning, damp proofing etc.
- Types of advanced building materials, based on composition- cement based, glass based, plastic based, metal based composite materials
- Types of advanced building materials, based on behaviour/ technology- Intelligent building materials, Interactive building materials, eco-friendly building materials

**UNIT- II**

- Cement based composite building materials, Different types of fibres- steel fibre, carbon fibre, natural fibre, Proportioning of fibres and cement, Design and structure of cement composites, uses and application
- Glass based composite building materials, composition, properties and uses
- Plastic based composite building materials, composition, properties and uses
- Metal based composite building materials, composition, properties and uses
- Multiphase materials, composition, properties and uses
- Study of materials like Lotusan, Aerogels, Titanium dioxide facade, bio-concrete, bulk-fullerene, metal foam, liquid granite, magnetic curtains, ETFE, solar cells, solar shingles etc.
- Related Case studies/examples of applications in modern buildings

**UNIT- III**

- Intelligent building materials- types, general composition, uses, application
- Interactive building materials- types, general composition, uses, application
- Eco-friendly building materials- types, general composition, uses, application
- Related Case studies/examples of applications in modern buildings

**UNIT- IV**

- Latest building material, construction technology and market trends of the following applications in buildings:  
Advance Floor and Wall finishes, Ceiling and Roofing materials  
Clay and Cement Products, Building fixtures, Paints & Varnishes  
Ferrous and Non Ferrous Metals

*John*  
*Munir*  
*G. Deew*  
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*Prashant*

**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 of one from each unit.

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

**Instructions for the Faculty –**

Market survey, sample collection of various building materials, the know-how of application, exploring the characteristics of each material Site visits for studying and understanding the application of building materials

**Core References:**

The assigned Faculty is required to provide updated references/E-resources related to the content of the subject by ensuring the availability of the same in the department library, on web portals/online i.e. E-learning.

The Faculty is also advised to keep on updating the reference list and submit the latest one in the Library & Academic department of the Campus.

*P. Singh*

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**IK Gujral Punjab Technical University**  
**Bachelor of Architecture (B. Arch. 8<sup>th</sup> Semester)**

Course Code	Course Name	L, S/T, P/FW, ST	Credits - 3	Duration of Exam
UC/BARCH-806 (D) /19	Retail Design	2 L, 1T	Int: Ext 40:60	03

**Course Objective:** To make students understand the to get known to the students about prevailing, past, and future scenarios of retailing in India

**Course Outcomes:** At the end of the course, the students will be able to design a retail outlet.

**Detailed Syllabus:-**

**UNIT- I**

Introduction – Meaning, nature, scope, importance, growth, and present size. Career options in retailing, Technology induction in retailing, future of retailing in India,

**UNIT- II**

Types of retailing: stores classified by owners, stores classified by merchandising categories. Retailing formats, cash and carry business; Retailing models- franchiser franchisee, directly owned; wheel of retailing and retailing life cycle; cooperation and conflict with other retailers.

**UNIT- III**

Retail planning- importance and process; developing retailing strategies: objectives, action plans, pricing strategies and location strategies, visual merchandising and displays

**UNIT- IV**

Retail Selling Skills: Pre-Check, Opening the Sale, Probing, Demonstration, Trial, Handling Objections, Closing, Confirmations & Invitations. Retail Audits, Online Retailing, changing role of retailing in globalised world

**Evaluation Criteria for Exam / Question Paper Setting:-**

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

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

**Instructions for the Faculty –**

Presentation would be made by the teacher. The students are expected to do library studies and seminars (Reports, Tutorials and PPT's) on varied topics to supplement the information base and make more interactive.

**Core References:**

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

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**IK Gujral Punjab Technical University**  
**Bachelor of Architecture (B. Arch. 8<sup>th</sup> Semester)**

Course Code	Course Name	L, S/T, P/FW, ST	Credits - 3	Duration of Exam
UC/BARCH-806 (E) /19	Advance Structure Systems	2 L, 1T	Int : Ext 40:60	03

**Course objective:** This course addresses advanced structures, exterior envelopes and contemporary technologies. It continues the exploration of structural elements and systems, and expands to include more complex determinate, indeterminate, long-span and high-rise systems.

**Course Outcome:** It addresses the contemporary exterior envelope with an emphasis on their performance attributes and advanced technologies.

**Detailed Syllabus:-**

**UNIT- I**

Pre-fabricated construction & Pre-engineered building. New Material in Construction. Cold form sections, FRP (Fibre Reinforced Polymer)

**UNIT- II**

Primary behaviour of structural systems w.r.t super structure & external envelop, Retrofitting of buildings.

**UNIT- III**

Earth Quake resistant structural systems

**UNIT- IV**

Fire resistant & blast resistant structural systems

**Evaluation Criteria for Exam / Question Paper Setting:-**

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

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

**Instructions for the Faculty –**

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

**Core References:**

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

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**IK Gujral Punjab Technical University**  
**Bachelor of Architecture (B. Arch. 8<sup>th</sup> Semester)**

Course Code	Course Name	L, S/T, P/FW, ST	Credits - 3	Duration of Exam
UC/BARCH-807(A) /19	Ekistics	2 L, 1T	Int : Ext 40:60	03

**Course Objective:** To make students understand the principles and implications of Ekistics & understand the role, importance in architecture and planning.

**Course Outcomes:** This course intends to develop an understanding the evolution of settlement planning.

**Detailed Syllabus:-**

**UNIT- I**

Introduction: Meaning and Scope in Relation to town planning and architecture. • Settlement patterns in later periods of history; Changing form and pattern of human settlements in ancient, medieval, colonial and modern India

**UNIT- II**

Role and contribution of the following towards contemporary town planning thought- Patrick Geddes, Patrick Abercrombie, Daniel Burnham, Soria Y Mata, Frederick Olmstead, Ebenezer Howard, Clarence Perry, Clarence Stein, CA Doxiadis, Le Corbusier, Frank Lloyd Wright

**UNIT- III**

Globalization and its impact on cities – Urbanization, emergence of new forms of developments – self sustained communities – SEZ – transit development – integrated townships – case studies. • Scope and Content of Master plan – planning area, land use plan, and Zoning regulations – zonal plan – need, linkage to master plan and land use plan – planned unit development (PUD) – need, applicability and development regulations -

**UNIT- IV**

Urban Renewal Plan – Meaning, Redevelopment, Rehabilitation, and Conservation – JNNURM – case studies. • Definition and explanation of the concepts of density, FAR, land use, and zoning  
 The emergence of the metropolitan phenomenon; Planning problems of cities and Solutions • Rural and regional Systems: The rural-urban relationships; Problems of rural systems.

**Evaluation Criteria for Exam / Question Paper Setting:-**

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

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

**Instructions for the Faculty –**

The presentation would be made by the teacher. The students are expected to do library studies and seminars (Reports, Tutorials, and PPT's) on varied topics to supplement the information base and make it more interactive.

**Core References:**

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

*Mukta Peery*  
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*Prabir*

**IK Gujral Punjab Technical University**  
**Bachelor of Architecture (B. Arch. 8<sup>th</sup> Semester)**

Course Code	Course Name	L, S/T, P/FW, ST	Credits - 3	Duration of Exam
UC/BARCH-807(B) /19	Art Appreciation	2 L, 1T	Int: Ext 40:60	03

**Course Objective:** To make students understand the principles of art and appreciation. Disseminating a broad overview of Art and Design and enabling students to understand visual awareness, creativity and cultural understanding of Design as a Multidimensional creative Art

**Course Outcomes:** At the end of the course, the students will be able to gain knowledge and understanding of the universal and timeless qualities that identify all great art. To introduce the students to the importance of art in today's world and the purposes art has served from pre - historic through modern times in a variety of cultures both western and oriental. To understand artistic intent and expression through basic element of art and architecture and to increase appreciation of art in today's society.

**Detailed Syllabus:-**

**UNIT- I**

Introduction- Defining the disciplinary differences Introduction to various types of Art, Concept of beauty and Aesthetics. Evolution of art and design. A historical perspective History of Art. Art through ages. Importance of Visual perception, Design elements from nature.

**UNIT- II**

Expression of Art and Design Relationship between Art and Design with man, space and environment. Concept of space. Articulation of form, sense of enclosure, Organisation of spaces.

**UNIT- III**

Introduction to theories Golden proportion, Theories of scale and proportion, Vitruvian theory, Modular man, principles of Design and elements of Architecture.

**UNIT- IV**

Relations in Art, Design and Architecture Factors influencing the process of Art, Design and Architecture. Form and function. Review of selected examples.

**Evaluation Criteria for Exam / Question Paper Setting:-**

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

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

**Instructions for the Faculty –**

Presentation would be made by the teacher. The students are expected to do library studies and seminars (Reports, Tutorials and PPT's) on varied topics to supplement the information base and make more interactive.

**Core References:**

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

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**IK Gujral Punjab Technical University**  
**Bachelor of Architecture (B. Arch. 8<sup>th</sup> Semester)**

Course Code	Course Name	L, S/T, P/FW, ST	Credits - 3	Duration of Exam
UC/BARCH-807(C) /19	Industrial / Prefab Technologies	2 L, 1T	Int : Ext 40:60	03

**Course Objective:** To understand the design principles related to prefabrication elements and to obtain knowledge on the concepts of production, transportation, assembling & erection of precast buildings.

**Course Outcomes:** At the end of the course, the students will be able to describe various structural systems and standard organizing requirements. Identify and differentiate structural behaviour of building elements. Design building elements and applications. Identify and describe working principles of various joints. Design and detail precast and activities by innovation.

**Detailed Syllabus:-**

**UNIT- I**

Introduction -Types of prefabrication, prefabrication systems and structural schemes- Disuniting of structures  
Structural behaviour of precast structures - Specific requirements for planning and layout of prefabrication plant - IS Code specifications

**UNIT- II**

Precast Cast Elements - Handling and erection stresses- Application of prestressing of roof members; floor systems two way load bearing slabs, pre stressed beam , Precast column -precast shear walls Wall panels, hipped plate and shell structures.

**UNIT- III**

Prefabricated Design - Designing and detailing prefabricated units for 1) industrial structures 2) Multistorey buildings and 3) Water tanks, silos bunkers etc., 4) Application of prestressed concrete in prefabrication.

**UNIT- IV**

Prefabricated Buildings - Production, Transportation & erection- Shuttering and mould design Dimensional tolerances- Erection of R.C. Structures, Total prefabricated buildings assembly Process

**Evaluation Criteria for Exam / Question Paper Setting:-**

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

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

**Instructions for the Faculty –**

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

**Core References:**

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

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**IK Gujral Punjab Technical University**  
**Bachelor of Architecture (B. Arch. 8<sup>th</sup> Semester)**

Course Code	Course Name	L, S/T, P/FW, ST	Credits - 3	Duration of Exam
UC/BARCH-807(D) /19	Interior Architecture & Space Programming	2 L, 1T	Int : Ext 40:60	03

**Course Objective:** To appreciate the complexities and constraints in the design and execution of architectural interiors..

**Course Outcomes:** At the end of the course, the students will able the Interior Design principles and their applications in interiors, and to foster creative ability and inculcate skills to understand and conceive architectural design.

**Detailed Syllabus:-**

**UNIT- I**

Introduction to Interior Architectural Design Definition of interior design, Interior architectural design process, vocabulary of design in terms of principles and elements, Introduction to the design of interior spaces as related to typologies and functions, themes and concepts - Study and design

**UNIT- II**

Elements of Interior Architecture - Enclosing Elements Introduction to various elements of interiors like floors, ceilings, walls, staircases, openings, interior service elements, incidental elements etc., and various methods of their treatment involving use of materials and methods of cons

**UNIT- III**

V. Elements of Interior Architecture – lighting accessories & interior landscaping Study of interior lighting, different types of lighting their effects types of lighting fixtures. Other elements of interiors like accessories used for enhancement of interiors, paintings, objects-de-art, etc. Interior landscaping, elements like rocks, plants, water, flowers, fountains, paving, artifacts, etc. their physical properties, effects on spaces and design values.

**UNIT- IV**

Elements of Interior Architecture - Space Programming Study of the relationship between furniture and spaces, human movements & furniture design as related to human comfort. Function, materials and methods of construction, changing trends and lifestyles, innovations and design ideas. Study on furniture for specific types of interiors like office furniture, children's furniture, residential furniture, display systems, etc. Design Projects on Residential, Commercial and Office Interiors.

**Evaluation Criteria for Exam / Question Paper Setting:-**

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

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

**Instructions for the Faculty –**

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

**Core References:**

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



**IK Gujral Punjab Technical University**  
**Bachelor of Architecture (B. Arch. 8<sup>th</sup> Semester)**

Course Code	Course Name	L, S/T, P/FW, ST	Credits - 3	Duration of Exam
UC/BARCH-807(E) /19	Building Information Modelling (BIM)/ Advance Computer Software's	2 L, 1T	Int : Ext 40:60	03

**Course Objective:** To make students understand the principles and implications of Building Information and Modelling (BIM) in Architecture profession.

**Course Outcomes:** At the end of the course, the students will able to Understand that BIM is used to collaboration - between engineers, owners, architects and contractors in a three dimensional environment (common data environment), and it shares information across these disciplines. BIM is the management of information through the whole life cycle of a built asset, from initial design all the way through to construction, maintaining and finally de-commissioning.

**Detailed Syllabus:-**

**UNIT- I**

Introduction to Building Information Modelling. The advantages of using the software. Introduce various software like Revit, ArchiCAD, etc. Special Features of Revit Architecture Understanding Revit Elements Working in one model with many views Using Ribbon & Quick Access Toolbar(QAT) Using Project Browser

**UNIT- II**

WORKING WITH PROJECT: Configure Project UNITS Settings Adding Levels Referring Layout With Temporary Dimensions Adding Columns. MODELLING WALLS, DOORS AND WINDOWS: Adding Walls Wall Properties And Types Using Modifying Tools Adding Doors And Windows All Joints LINKING IN REVIT Linking AutoCAD Drawing Files Import Tips Create A Group

**UNIT- III**

MODELLING ROOF, CEILING & FLOOR Working with Roofs Working with Ceilings Working with Floors WORKING WITH STAIRS Working with Stairs Adding Railings to Stairs

**UNIT- IV**

VIEWS, VISIBILITY & GRAPHIC CONTROLS Hiding and Isolating objects in a model Displaying Objects Above-Below in Plan Views DOCUMENTATION Adding Schedule Views Modifying Schedule Views Exporting to AutoCAD Adding Text

**Evaluation Criteria for Exam / Question Paper Setting:-**

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

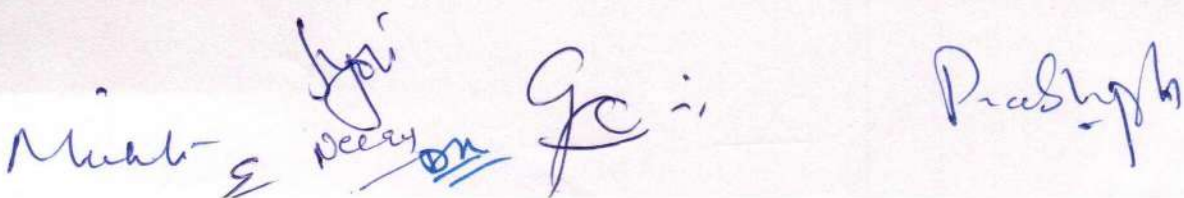
The question bank will be submitted to university within one month of commencement of semester.

**Instructions for the Faculty –**

Focus on the live study and application of the subject into the architecture design. Presentation would be made by the teacher. The students are expected to do library studies and seminars (Reports, Tutorials and PPT's) on varied topics to supplement the information base and make more interactive.

**Core References:**

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



IK Gujral Punjab Technical University  
Bachelor of Architecture (B. Arch. 8<sup>th</sup> Semester)

Course Code	Course Name	L, S/T, P/FW, ST	Credits	Duration of Exam
UC/BARCH-808(A) - 808 (E )/19	Open Elective- III/Mooc Swayam	2L	2	Certificate from concerned/ imparting agency

The list of major domain of MOOC's courses are attached in the preamble & the department will have a MOOC coordinator who will display the list of MOOC in every semester (CPTU guidelines will be followed.)  
The concerned teacher may prepare a detailed syllabus based on the subject selected from the elective while referring to books given or any additional, references. Use of teaching methods to make subject interesting and absorbing is expected. Knowledge application shall be the part of sessional work.

*P. Singh*

*Mukto*  
*Jeera*  
*Ge-i*

# 9<sup>th</sup> Semester

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

*Pushy*

*Munir G. Joti*  
*Secy*

**IK Gujral Punjab Technical University**  
**Bachelor of Architecture (B. Arch. 9<sup>th</sup> Semester)**

Course Code	Course Name	L, S/T, P/FW, ST	Credits - 7	Duration of Exam
UC/BARCH-901/19	Architectural Design -VIII	1 L, 6 ST	Int : Ext 60:40	External viva voce

**Course objective:** To make students understand the complexities of large-scale architectural interventions in specific urban settings, having multiple Dimensions.

**Course Outcome:** To let the students explore how to harmonise and contextualise the architectural design with the immediate built environs and the larger Design criteria's.

**Detailed Syllabus:-**

**UNIT-I Public Buildings**

The design problems will include Public Buildings with diverse activities involving:

- **Higher Order of Office/Commercial complex**, -City Centre, District Centre, Large Exhibition Complexes, Convention Centre Multiplexes

**UNIT-II Urban Design**

- **Campus designing** - University, Professional Institutes, Integrated Campus etc.
- **Capital Complex**-Secretariat, High Court, Assembly

**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 answer sheet shall be retained at the institute after the exam for the conduct of viva voce.

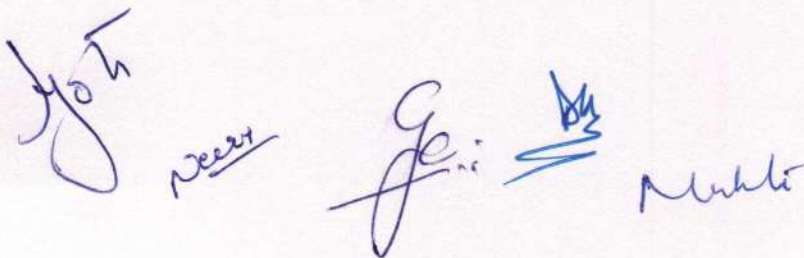
**Instructions for the Faculty –**

Design faculty is required to take a well prepared well researched lecture on the 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

**Core References:**

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



**IK Gujral Punjab Technical University**  
**Bachelor of Architecture (B. Arch. 9<sup>th</sup> Semester)**

Course Code	Course Name	L, S/T, P/FW, ST	Credits - 5	Duration of Exam
UC/BARCH-902/19	Research Methodology & Dissertation	2 L, 3 ST	Int : Ext 60:40	03 Hours Theory exams. The dissertation to be marked by taking viva voce

**Course Objective:** To give an overview of the research methodology and explain the technique of defining a research problem. To explain the functions of the literature review in research. To explain carrying out a literature search, its review, developing theoretical and conceptual frameworks and writing a review.

**Course Outcomes:** At the end of the course, the students will able to – explain key research concepts and issues read, comprehend, and explain research articles in their academic discipline.

**Detailed Syllabus:-**

**UNIT- I**

Introduction and Design of research: Meaning, objectives and significance of research, types and parameters of research, research process, identification and definition of the research problem, definition of construct and variables, pure and applied research design, exploratory and descriptive design methodology, qualitative vs. quantitative research methodology, field studies, field experiments vs. laboratory experiments, research design in social and physical sciences.

**UNIT- II**

Data and Methods of Data Collection: Survey, assessment and analysis: data collection, primary and secondary sources of data, Collection of primary data through questionnaire and schedules. Collection of secondary data, processing and analysis of data. Sample survey, simple random sampling, stratified random sampling, systematic sampling, cluster sampling, area sampling and multistage sampling. Pilot survey, scaling techniques, validity & reliability

**UNIT- III**

Data Analysis: Procedure for testing of hypothesis, the null hypothesis, determining levels of significance, type i and ii errors, grouped data distribution, measures of central tendency, measures of spread/dispersion, normal distribution, analysis of variance: one way, two way, chi square test and its application, students 'T' distribution, non-parametric statistical techniques, binomial test. Correlation and regression analysis – discriminate analysis – factor analysis – cluster analysis, measures of relationship.

**UNIT- IV**

Research report preparation and presentation: Review of literature: historical survey and its necessity, layout of research plan, meaning, techniques and precautions of interpretation, types of report: technical report, popular report, report writing – layout of research report, mechanics of writing a research report. Writing bibliography and references.

*Prashant*

*Mehta*      *Go*      *Go*

**Evaluation Criteria for Exam Question Paper Setting:-**

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

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

**Instructions for the Faculty –**

Teaching in the subject will be a combination of Expert lectures and application based study

**Core References:**

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

*Prashant*

*Mukhi*

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*Prashant*  
*Prashant*

*Go*

**IK Gujral Punjab Technical University**  
**Bachelor of Architecture (B. Arch. 9<sup>th</sup> Semester)**

Course Code	Course Name	L, S/T, P/FW, ST	Credits - 3	Duration of Exam
UC/BARCH-903/19	Construction Management	2 L, 1T	Int : Ext 40:60	03 Hours Theory exams

**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 able to do cost analysis of construction work and understand the role of architect and aware about the measures to be adopted for the safe and quality construction.

**Detailed Syllabus:-**

**UNIT- I**

**Project Management-** Concept, Background, Purpose, Aim, Objectives, Scope and Significance

**Role of Architect** in Construction/Project Management

**Resources** of Construction Industry.

**Construction** stages, Construction team, Equipment Management

**UNIT- II**

**Project Management Techniques-** CPM, PERT

**CPM Analysis-** Critical Path, Float Computation Result Sheet etc

**UNIT- III**

**Financing of Project,** Depreciation and Break even Cost analysis

**Cost Control-** Budget, Accounting System, Problems

**Computer Application** in Construction Management

**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 a minimum of two from each unit. Students are required to attempt five questions with a minimum of one from each unit.

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

**Instructions for the Faculty –**

Teaching in the subject 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 an ongoing construction project

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**IK Gujral Punjab Technical University**  
**Bachelor of Architecture (B. Arch. 9<sup>th</sup> Semester)**

Course Code	Course Name	L, S/T, P/FW, ST	Credits - 5	Duration of Exam
UC/BARCH-904/19	Building Construction & Materials-VIII	1 L, 4ST	Int : Ext 60:40	04 Hours

**Course Objective:** To make students aware and learn about advance construction techniques and preparing project drawings.

**Course Outcomes:** At the end of the course, the students will able to prepare a set of working drawings for a high rise large span/ specialized building project, by using advanced constructional & structural building techniques.

**Detailed Syllabus:-**

**UNIT-I**

- Complete Set of Working Drawing of a major design project of 8th semester including Site plan , Foundation plans, Elevations and Sections
- Commercial Kitchen- Study, designing and working drawing
- Introduction to Pre- stressing and Post- Tensioning

**UNIT-II**

- Materials used in building façade with construction details.
- 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
- Elevators, Escalators, Travellators, Refuse Chutes- The study and details of Construction.

**Evaluation Criteria for Exam / Question Paper Setting:-**

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

**Instructions for the Faculty –**

All efforts must be directed to make the learning an enriching experience. 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. Market Survey to study complete range of products available in the market under different trade names with their manufacturing details, specifications and performance. Field visit to study the complete process of construction.

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

*Jyoti*      *Deery*      *G*      *SK*      *Mukta*      *Prashant*



**IK Gujral Punjab Technical University**  
**Bachelor of Architecture (B. Arch. 9<sup>th</sup> Semester)**

Course Code	Course Name	L, S/T, P/FW, ST	Credits - 03	Duration of Exam
UC/BARCH- 905 (A)	Town & Country Planning	2 L, 1T	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 be aware and familiar with Town Planning concepts, Methodologies, Norms, case studies.

**Detailed Syllabus:-**

**UNIT-I**

- Introduction, Role, Importance and Scope of **Town Planning**
- Planning Principals of Human Settlement in **Nile Valley, Greek and Roman Periods.**
- **Town Planning in India-** Vedic period, Indus Valley, Islamic, Medieval and Colonial Period.
- **Classification of Human Settlements** based on Road Pattern, Form, Use, Scale/ Population etc.

**UNIT-II**

- **Master Plan** – Objectives, Role, Importance and Methodology.
- **Regional Plan** - Objectives, Role, Importance and Methodology

**UNIT-III**

- **Planning Concepts-** Garden City, Linear City, Industrial City and Sustainable City and Neighbourhood
- **Existing Towns and Cities in India-** Problems, Remedies etc.
- **Urbanization** – Causes, Pattern and Effect in India.

**UNIT-IV**

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

**Evaluation Criteria for Exam / Question Paper Setting:-**

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

**Instructions for the Faculty –**

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

**Core References:**

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



**IK Gujral Punjab Technical University**  
**Bachelor of Architecture (B. Arch. 9<sup>th</sup> Semester)**

Course Code	Course Name	L, S/T, P/FW, ST	Credits - 03	Duration of Exam
UC/BARCH- 905 (B)	Art & Architecture	2 L, 1T	Int : Ext 40:60	03 Hours

**Course Objective:** · The knowledge and understanding of the universal and timeless qualities that identify all great art. To introduce the students to the importance of art in today's world and the purposes art has served from pre - historic through modern times in a variety of cultures both western and oriental. To understand artistic intent and expression through basic element of art and architecture and to increase appreciation of art in today's society.

**Course Outcomes:** At the end of the course, the students will able to – explain key research concepts of Art in Architecture.

**Detailed Syllabus:-**

**UNIT- I**

Introduction & Terminology Grammar of the language of art - Natural, Realistic, Symbolic, Abstract, Modern and Contemporary.

**UNIT- II**

Ideologies of Aesthetics in Art Complete understanding of Ideologies of aesthetics in art while discussing the art of Western and Oriental. Plato, Aristotle, Baumgartan, I.A. Richards, Leo Tolstoy, Sigmund Freud. Shading: Six limbs of Indian painting. Rasa theory of 'Bharat Muni'. Iconography.

**UNIT- III**

Development of Art Development of art over the period of time. Tracking the progress in art in aspects of the Functional diversity of styles, Art as form of social consciousness, Impact of Cultural and Religion on art, Understanding the role of art in contemporary society.

**UNIT- IV**

Building Crafts: Craft and technology and its role in enhancing Interior Architecture, Best studies related to craft sector from Gujarat, Rajasthan, Uttarakhand, Etc. , Continuity and revival of craft, , Interventions : Process /product design/ technology/marketing based.

**Evaluation Criteria for Exam Question Paper Setting:-**

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

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

**Instructions for the Faculty –**

Presentation would be made by the teacher. The students are expected to do library studies and seminars (Reports, Tutorials and PPT's) on varied topics to supplement the information base and make more interactive.

**Core References:**

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

*Prabir Singh*

*for*

*Neeraj*

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*Mehta*

**IK Gujral Punjab Technical University**  
**Bachelor of Architecture (B. Arch. 9<sup>th</sup> Semester)**

Course Code	Course Name	L, S/T, P/FW, ST	Credits - 03	Duration of Exam
UC/BARCH- 905 (C)	Building Maintenance	2 L, 1T	Int : Ext 40:60	03 Hours

**Course Objective:** · To make student understand the role and importance of the building maintenance in built environment and learn about all aspects of building defects. This subject will exposure the Architect's role to pressure the building from deterioration.

**Course Outcomes:** At the end of the course, the students will able to acquire basic knowledge to carry out short daily inspections to detect the building maintenance problems and suggest remedies to preserve the building.

**Detailed Syllabus:-**

**UNIT- I**

- Maintenance- Introduction, Need, Scope, Importance & Role of an Architect.
- Maintenance-Economic and Social significance
- Maintenance - Problems and issues related to materials, design and detailing.

**UNIT- II**

- Climate- Effect on the life cycle of buildings.
- Deterioration and Decay of buildings- Typology, Reasons, Prevention
- Deterioration and Decay- Causes, Effect, Remedies

**UNIT- III**

- Defects in Buildings-Efflorescence, Dampness, Settlement, Cracks, Corrosion etc - causes, effects, preventive and remedy
- Retrofitting of Buildings for Structural safety

**UNIT- IV**

- Building service and maintenance -- water supply, sewerage, and Sanitation system.
- Case study of any existing building

**Evaluation Criteria for Exam Question Paper Setting:-**

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

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

**Instructions for the Faculty –**

Teaching in the subject 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

**Core References:**

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

*Yoj*      *G. N. Mehta*      *Rashmi*

**IK Gujral Punjab Technical University**  
**Bachelor of Architecture (B. Arch. 9<sup>th</sup> Semester)**

Course Code	Course Name	L, S/T, P/FW, ST	Credits - 03	Duration of Exam
UC/BARCH- 905 (D)	Graphics & Communication Design	2 L, 1T	Int : Ext 40:60	03 Hours

Note - Detailed syllabus for the subject shall be finalized on year to year basis depending upon the expertise available. The experts in the field will deliver lectures and demonstrate the latest techniques for development of skills.

*P. Singh*

*Munshi Jyoti  
Secretary GC*

**IK Gujral Punjab Technical University**  
**Bachelor of Architecture (B. Arch. 9<sup>th</sup> Semester)**

Course Code	Course Name	L, S/T, P/FW, ST	Credits - 03	Duration of Exam
UC/BARCH- 905 (E)	Advance Digital Architecture	2 L, 1T	Int : Ext 40:60	03 Hours

**Course Objective:** To introduce the concept of digital design and fabrication. To introduce the concept of energy modelling and analysis in design.

**Course Outcomes:** At the end of the course, the students will able to – understand the fundamental of digital architecture with the help of application to software.

**Detailed Syllabus:-**

**UNIT- I**

Fundamentals • Introduction, History and Scope of Digital Technologies in Architecture • Digital design media • CAD Models: Presentation, visualization, drafting, modelling • CAD vs. BIM

**UNIT- II**

Computational Design • Roles of Computing in Architectural Design • Study of Computational models • Foundations in computational geometry • Design models: Formation models, Generative models, Performance model • Computation design styles, parametrises • Scripting and Algorithms: principles of algorithmic design, visual programming • Artificial Intelligence

**UNIT- III**

Fabrication • Prototyping, Additive and subtractive manufacturing • Materiality • Digital production and fabrication

**UNIT- IV**

Performance Models • Concepts in energy modelling and analysis of sources, such as electricity, HVAC, Acoustics, day lighting, wind etc. • Green Building Concepts, LEED, BREEAM, IGBC, GRIHA • ECBC and its application in Indian Buildings

**Evaluation Criteria for Exam Question Paper Setting:-**

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

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

**Instructions for the Faculty –**

Teaching in the subject will be a combination of Lectures, presentations, Assignments, live project work.

**Core References:**

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

*Prabhjot*

*Munir* *JS* *Neeraj* *Ge*

**IK Gujral Punjab Technical University**  
**Bachelor of Architecture (B. Arch. 9<sup>th</sup> Semester)**

Course Code	Course Name	L, S/T, P/FW, ST	Credits - 03	Duration of Exam
UC/BARCH- 906 (A)	Traffic & Transportation	2 L, 1T	Int : Ext 40:60	03 Hours

**Course Objective:** To make the students conversant with methods, techniques of traffic and transportation, the socio-economic 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 – Exposure to basic understanding of transport planning and management in urban areas.

**Detailed Syllabus:-**

**UNIT- I**

- Need, Role and Importance of traffic and transportation planning
- Urban & regional transport systems, Comparative advantages and disadvantages
- Role of Bicycle as a preferred mode of transport including planning for Bi-cycles
- Understand transport and socioeconomic activities, future developments.

**UNIT- II**

- Problems encountered in inter and intra-city transport system
- Accidents: Causes and remedial measures
- Traffic control devices
- Signage: Function and classification

**UNIT- III**

- Geometric design of roads and intersections, Rotaries, over bridges, underpasses, flyovers
- Roads design elements: Functional classification and alignment, Intersections
- Urban traffic and transport problems

**UNIT- IV**

- Traffic Survey: Volume, speed and delay, origin and destination
- Parking survey
- National Transport Policy

**Evaluation Criteria for Exam Question Paper Setting:-**

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

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

**Instructions for the Faculty –**

Teaching in the subject will be a combination of Expert lectures and visits to areas of high traffic. Students should be made to do a small traffic survey in a congested area.

**Core References:**

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

*P. Singh*

*Jyoti*

*GC*

*Neeraj*

*Mukesh*

**IK Gujral Punjab Technical University**  
**Bachelor of Architecture (B. Arch. 9<sup>th</sup> Semester)**

Course Code	Course Name	L, S/T, P/FW, ST	Credits - 03	Duration of Exam
UC/BARCH- 906 (B)	Contemporary Indian Architecture (Current Trends)	2 L, 1T	Int : Ext 40:60	03 Hours

**Course Objective:** Introduce the initiation and development of Modern Architecture in the subcontinent and contemporary architecture in India and the world.

**Course Outcomes:** At the end of the course, the students will able to – Ability to understand the role of societal developments as predicators of change in architectural paradigms through the study of Modern Architecture in the sub-continent and contemporary architecture of India and the world

**Detailed Syllabus:-**

**UNIT- I**

- The initiation and development of Modern Architecture in the sub-continent. Critical Regionalism revisited in the context of the sub-continent.
- Impact of globalization, energy crisis and climate change on architecture.

**UNIT- II**

- Overview of post-independence architecture with the help of selected examples of master architects of the period.
- Contemporary world architecture to include notions of the Post-modern City, Deconstruction, Globalization, Post-modern Tradition, Revisiting of Tradition, Cradle to cradle Design, Post-modern Ecology etc. through selected examples.

**UNIT- III**

**Contemporary Building Materials**

- Study the needs ultra-performance materials in building design as a substitute for special performance, thermal/sound/moisture protection, fitting, equipment and furnishing.
- The types of advanced concrete - bendable concrete, light transmitting concrete, translucent concrete, pervious concrete, eco-cement etc. and types of reinforcement materials, properties and performance in concrete reinforcement. Aramid fibres, bio-steel, Carbon / Graphite Fibres and fibre-glass etc.
- Use of composite materials namely Polymer Matrix Composites (PMCs), Fibre Reinforced Polymers (FRPs) along with cement, steel, aluminium, wood, glass for thermal insulation, fire protection, coating and painting and structural monitoring etc.

**UNIT- IV**

- Contemporary current trends

**Evaluation Criteria for Exam Question Paper Setting:-**

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

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

**Instructions for the Faculty** – Teaching in the subject will be a combination of Expert lectures and application based study

**Core References:**

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

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**IK Gujral Punjab Technical University**  
**Bachelor of Architecture (B. Arch. 9<sup>th</sup> Semester)**

Course Code	Course Name	L, S/T, P/FW, ST	Credits - 03	Duration of Exam
UC/BARCH- 906 (C)	Building System Integration & Management	2 L, 1T	Int : Ext 40:60	03 Hours

**Course Objective:** To understand intelligent building systems and its relevance in modern times and to develop an understanding of automated buildings systems and sensors.

**Course Outcomes:** At the end of the course, the students will able to – Understanding of approach for effective energy management in building through automated systems and sensors.

**Detailed Syllabus:-**

**UNIT- I**

- Study of automated buildings, responsive buildings.
- Introduction to facility management. Study of management of facilities, planning and operational techniques in various models of building intelligence.

**UNIT- II**

- Study development of various control systems, computer-integrated building (from single function systems to integrated solutions).
- Use building intelligence in energy management.

**UNIT- III**

- Case study of intelligent building systems in India with issues related to site, shell, skin, services and technology, intelligent design and construction, effective space utilization, expectations of user, effective communication of architectural concepts to user, locating people and information.

**UNIT- IV**

- Introduction to Building automation in general and understanding the issues related to the control system in a building.
- Basic concept of computerized control systems, network designed to monitor and control various systems for lighting, ventilation, alarms & security, communication, etc.
- Issues related to illumination and lighting. Systems to allow / control Natural light. Aperture/openings and shading devices control systems based on automated systems.
- Issues related to systems of communication (mechanical systems).

**Evaluation Criteria for Exam Question Paper Setting:-**

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

**Instructions for the Faculty –**

Teaching in the subject will be a combination of Expert lectures and should conduct live projects.

**Core References:**

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

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**IK Gujral Punjab Technical University**  
**Bachelor of Architecture (B. Arch. 9<sup>th</sup> Semester)**

Course Code	Course Name	L, S/T, P/FW, ST	Credits - 03	Duration of Exam
UC/BARCH- 906 (D)	Cost effective Construction	2 L, 1T	Int : Ext 40:60	03 Hours

**Course Objective:** To make the students aware of the use of conventional and non-conventional resources for low cost construction and to understand the various low cost design systems and to understand use of materials, construction and execution techniques in design of low cost buildings.

**Course Outcomes:** At the end of the course, the students will able to – understand the Low Cost Building Techniques in architecture.

**Detailed Syllabus: -**

**UNIT- I**

- An introduction to the subject to understand the various building techniques adopted in different climatic zones of the country, which resulting in varied vernacular expressions.
- Use of cost effective technologies through the use of local materials, up gradation of traditional technologies, prefabrication etc.

**UNIT- II**

- Need for low cost construction, both in the rural, the urban sectors and related issue and challenges.
- Low-cost building construction systems, methods & techniques. Introduction to low-cost buildings, building components influencing cost of buildings.
- Study Modular coordination in building design, prefabrication- total and partial, and impact of prefabrication on employment.

**UNIT- III**

- Study of usages pattern of low cost buildings by the habitants.
- Comparative analysis of building materials and costing.
- Research and development by various organizations in the country and foreign countries to reduce the cost.

**UNIT- IV**

- Works of Laurie Baker, Hassan Fathy , Revathi kamath, Nari Gandhi etc
- Case study of low-cost building projects in India with issues related to site, material, services, technology, and construction, and expectations of user. Post-occupancy evaluations of such projects.

**Evaluation Criteria for Exam Question Paper Setting:-**

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

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

**Instructions for the Faculty –**

Market survey, sample collection of various building materials of cost effective, know-how of application, exploring the characteristics of each material Site visits for studying and understanding application of low cost building materials.

**Core References:**

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

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**IK Gujral Punjab Technical University**  
**Bachelor of Architecture (B. Arch. 9<sup>th</sup> Semester)**

Course Code	Course Name	L, S/T, P/FW, ST	Credits - 03	Duration of Exam
UC/BARCH- 906 (E)	Building Industry	2 L, 1T	Int : Ext 40:60	03 Hours

**Course Objective:** To give the knowledge and awareness of building industry

**Course Outcomes:** At the end of the course, the students will able to gain the knowledge of building industry.

**Detailed Syllabus:-**

**UNIT- I**

**Introduction :** Review of the nature of building Industry within socio-economic, technological & developmental factors in rural and urban sectors. **Component of Building Industry :** Various segments of building industry and their inter play. Housing as an integrated industry. National policy for building industry.

**UNIT- II**

**Rural Building Industry :** Need and demand of rural building industry within the socio-economic and cultural set up. Role of Rural Building Industry in national policy of Rural Development.

**Research & Development :** Role of professional bodies, research organisation, programmes of extension and development of public & private sectors. Design Techniques i.e. coordination, standardisation, prefabrication, system design etc. together with constructional & operational management for the development of development of building industry.

**UNIT- III**

**Building Material Industry :** Importance of Building material industry. Production and stock of indigenous & modern materials to meet national and individual needs for speed & economy.

**UNIT- IV**

**Finances and Building Industry :** National allocation, financial organisation, Govt. incentives, self-help, community participation, cooperative & individual efforts.

**Evaluation Criteria for Exam Question Paper Setting:-**

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

**Instructions for the Faculty –**

Teaching in the subject will be a combination of Expert lectures and application based study

**Core References:**

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

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**IK Gujral Punjab Technical University**  
**Bachelor of Architecture (B. Arch. 8<sup>th</sup> Semester)**

Course Code	Course Name	L, S/T, P/FW, ST	Credits	Duration of Exam
UC/BARCH- 907 (A)- 907 (E )/19	Open Elective- IV/Mooc Swayam	2L	2	Certificate from concerned/ imparting agency

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

The concerned teacher may prepare a detailed syllabus based on the subject selected from the elective while referring to books given or any additional, references. Use of teaching methods to make subject interesting and absorbing is expected. Knowledge application shall be the part of sessional work.

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IK Gujral Punjab Technical University  
Bachelor of Architecture (B. Arch. 9<sup>th</sup> Semester)

Course Code	Course Name	L, S/T, P/FW, ST	Credits - 03	Duration of Exam
UC/BARCH- 908/19	Educational Tour III/Summer Training III/ Vacation Assignment-III	2 L, 1T	100 Marks	

The education tour to one day to one or two week duration be encouraged to be undertaken by the students under faculty supervision . During or after the semester the term report shall be submitted to the class coordinator for assessment.   
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The students be encourage to undertake approx. 04 week summer training in a design / construction office. alternatively student should also be encouraged to do any online course of similar duration during the summer vacation.

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

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**10<sup>th</sup> Semester 2019**

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

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**IK Gujral Punjab Technical University**  
**Bachelor of Architecture (B. Arch. 10<sup>th</sup> Semester)**

Course Code	Course Name	L, S/T, P/FW, ST	Credits - 18	Duration of Exam
UC/BARCH-1001/19	Architectural Design (Thesis Project) -IX	18 ST	Int : Ext 60:40	External Jury Viva Voce

**Course Objective:** The Architectural Thesis is the culmination of the development of the acquired knowledge, attitudes and skills over the course of studies in architecture. The scope and extent of the thesis work shall be substantial and realisable in application or concept as appropriate to the selected area of work.

**Course Outcome:** It is an opportunity for exercising skilled options in the field, based on the personal knowledge and inclinations, and for testing design ability. Its expected to demonstrate ability through practical approach, in our built environment.

**Detailed Syllabus:-**

**A. 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.

**B. 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.

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## 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 include 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.

## C. SCHEDULE OF SUBMISSIONS/EXAMINATION

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

Stages of work	Time allocated	Max. Marks
<b>1. Sessional Work</b>		
<b>(a) Rough report</b>	<b>6 weeks</b>	<b>100</b>
(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>(b) Evolution of Design</b>	<b>5 weeks</b>	<b>150</b>
(i) Design Criteria and Concept		25
(ii) Design Proposal Stage-1		25
(iii) Design Proposal Stage-2		50
(iv) Pre-final Design		50
<b>(c) Draft Final Report with drawings.</b>	<b>5 week</b>	<b>50</b>
(Incorporating improvements suggested in Rough Report, Design Criteria and explanatory Sketches of Evolution of Design)		
<b>2. External Examination</b>		<b>250</b>

## 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.

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- 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 University.

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**IK Gujral Punjab Technical University**  
**Bachelor of Architecture (B. Arch. 10<sup>th</sup> Semester)**

Course Code	Course Name	L, S/T, P/FW, ST	Credits - 3	Duration of Exam
UC/BARCH-1002/19	Professional Practice	2L, 1 S/T	Int : Ext 40:60	03

**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 be able to understand about the professional and legal aspects of architectural practice in India. Understand the duties and liabilities of an architect, his client and the contractor with respect to the various issues of the architectural practice.

**Detailed Syllabus:-**

**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 a minimum of two from each unit. Students are required to attempt five questions with a minimum of one from each unit. The question bank will be submitted to the university within one month of the commencement of the semester.

**Instructions for the Faculty –**

Teaching in the subject 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.

**Core References:**

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

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**IK Gujral Punjab Technical University**  
**Bachelor of Architecture (B. Arch. 10<sup>th</sup> Semester)**

Course Code	Course Name	L, S/T, P/FW, ST	Credits - 3	Duration of Exam
UC/BARCH-1003/19	Disaster Management	2L, 1 S/T	Int : Ext 40:60	03

**Course Objective:** To make the students to understand the various types of disaster, to create awareness about natural disasters, factors their cause and to foster knowledge about strategies for disaster prevention and management.

**Course Outcomes:** At the end of the course, the students will able to – understand various types of disasters their causes, significance and effects. Students will gain an understanding of various Disaster Preparedness, Response, management and mitigation. The students will enable to carried out the design and planning solutions for reduction of risk and damages caused shall be exposed through case studies.

**Detailed Syllabus:-**

**UNIT-I**

Introduction to Hazards & Disasters , What is Disaster? Their Causes, consequences and after effects of disasters like various types of Natural hazards and disasters- Earthquake, cyclone, floods, droughts, landslides, lightning, tsunami etc. & Man induced hazards & disasters- Introduction to disaster management - Indian scenario, understanding of disaster, hazard and its classification, vulnerability, capacity, risk.

**UNIT- II**

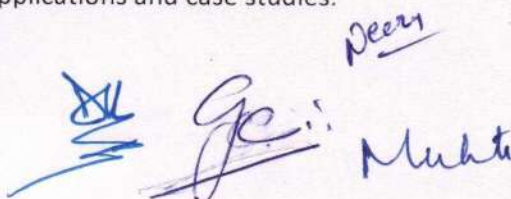
Disaster Preparedness, Response and Mitigation : Disaster management Act and policy, Guidelines, NDMA, Disaster Management Mechanisms: national, state and district levels; select global practices; disaster and development; physical planning and disaster management plans; various role players in disaster management, relief measures of pre and post disaster – NGOs / CBOs and Armed Forces; Community Based Disaster Preparedness (CBDP), Disaster Risk Mitigation; Preparing hazard zone maps, Predictability/ forecasting & warning, Community preparedness.

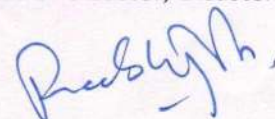
**UNIT- III**

Shape and form of building and their services to undertake the disaster Building shapes, Architectural features and design of building in seismic zones. Affects of Earthquake on buildings. Indian Seismic Codes. Different types of Building such as structures of - Brick Masonry, Stone Masonry, Reinforced concrete etc. Elements to make buildings Earthquake Safe. Fire: Causes and precautions for fire safety in different type of building. BIS code for fire safety. Flood: Design of building for flood zones. Design, construction and detailing of buildings, materials and methods to be adopted for different disasters discussed in unit 1 and retrofitting of disaster affected buildings.

**UNIT- IV**

GIS & Information Technology in disaster management, Role of GIS and Information Technology Components in Preparedness, Risk Assessment, Response and Recovery Phases of Disaster; Disaster Damage Assessment; applications and case studies.

  
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**Evaluation Criteria for Exam Question Paper Setting:-**

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

**Instructions for the Faculty –**

Teaching in the subject 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, IOE etc. on Disaster resistant buildings.

**Core References:**

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

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**IK Gujral Punjab Technical University**  
**Bachelor of Architecture (B. Arch. 10<sup>th</sup> Semester)**

Course Code	Course Name	L, S/T, P/FW, ST	Credits - 3	Duration of Exam
UC/BARCH-1004 (A)	Building Economics	2L, 1 S/T	Int : Ext 40:60	03

**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 understand the use of conventional and non- conventional construction techniques for making the building having' value for money'.

**Detailed Syllabus:-**

**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

**UNIT- II**

- **Cost Management**- Aims, Objectives, Need , Principles, Procedure, Cost Analysis.
- Analysis of Comparative Economics of **Low Rise and High Rise Buildings**

**UNIT- III**

- **Technology** – Role, Importance, Use, Up-gradation of local Technologies to make buildings cost- effective.
- **Materials**- Role, Importance, Innovative building materials ,up-gradation of local materials, Comparative analysis of available building materials
- **Construction Techniques**- Study of Innovative Building Techniques for cost reduction with comparative merits and Demerits

**UNIT- IV**

- Introduction, Role and Importance of **Modular construction, Pre- Engineered Buildings, Mass Production, Standardization** etc in cost effectiveness
- **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.

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**Evaluation Criteria for Exam Question Paper Setting:-**

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

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

**Instructions for the Faculty –**

Teaching in the subject 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.

**Core References:**

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

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**IK Gujral Punjab Technical University**  
**Bachelor of Architecture (B. Arch. 10<sup>th</sup> Semester)**

Course Code	Course Name	L, S/T, P/FW, ST	Credits - 3	Duration of Exam
UC/BARCH-1004 (B)	Contemporary World Architecture	2L, 1 S/T	Int : Ext 40:60	03

**Course Objective:** Develop an awareness of contemporary architecture. Update their comprehensive knowledge of architecture

**Course Outcomes:** At the end of the course, the students will able to – Knowledge about contemporary phase of architecture . Understandings of current trends and styles in architecture.

**Detailed Syllabus:-**

**UNIT- I**

Evolution through the formal and the informal built-form, forces that shaped both. Cross connections showing form determining factors. Manifestations and significant theories, pragmatic and the abstract. Theories seen independently of the styles as classified later in history. Brief review of state of art of designing and the theories of Design and Architecture studied during the B. Arch. degree program, with emphasis on 20th century up to present period.

**UNIT- II**

Influencing factors in the shaping of contemporary world architecture , study of examples of modern structures in this period and analyze the influences with respect to Advances in Construction Technology and new materials of construction.

**UNIT- III**

Influencing factors in the shaping of contemporary world architecture ,study of examples of modern structures in this period and analyze the influences with respect to ,Architectural expression influenced by vernacular and regional Architecture.

**UNIT- IV**

Influencing factors in the shaping of contemporary world architecture , study of examples of modern structures in this period and analyze the influences with respect to, Architectural expression influenced by world as a global village.

**Evaluation Criteria for Exam Question Paper Setting:-**

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

**Instructions for the Faculty –**

Teaching in the subject 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.

**Core References:**

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

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**IK Gujral Punjab Technical University**  
**Bachelor of Architecture (B. Arch. 10<sup>th</sup> Semester)**

Course Code	Course Name	L, S/T, P/FW, ST	Credits - 3	Duration of Exam
UC/BARCH-1004 (C)	High Rise Buildings	2L, 1 S/T	Int : Ext 40:60	03

**Course objective:** To make students aware and 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 Outcome:** Students are expected to acquire in depth knowledge about services, safety, security, transport, etc regarding High rise buildings

**Detailed Syllabus:-**

**UNIT- I**

- **High Rise Buildings-** Introduction, Historical perspective, Origin, Definition, Role, Importance , Limitations, Advantages and Disadvantages
- **Planning /Designing** of High Rise Building
- **Construction** of High Rise Buildings

**UNIT- II**

- **Building Technologies** used in the Construction
- **Building Materials** used in the Construction
- Study of **Building Services** in the High Rise Buildings

**UNIT- III**

- **Fire Safety and Structural safety** of High Rise Buildings
- Study of **Legal Framework** governing the High Rise Buildings

**UNIT- IV**

- Study of **National Building Code, 2005**
- Study of famous **High Rise Buildings**-Burj Khalifa, Sears Towers, Empire State Building, World Trade Centre, Imperial Towers and Orchid Woods Mumbai .

**Evaluation Criteria for Exam Question Paper Setting:-**

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

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

**Instructions for the Faculty –**

Teaching in the subject will be a combination of invited lectures , visit to Multi- Storeyed/ High Rise Buildings and library studies/power point presentations of High Rise Buildings mentioned above.

**Core References:**

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

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**IK Gujral Punjab Technical University**  
**Bachelor of Architecture (B. Arch. 10<sup>th</sup> Semester)**

Course Code	Course Name	L, S/T, P/FW, ST	Credits - 3	Duration of Exam
UC/BARCH-1004 (D)	Architecture Journalism & Photography	2L, 1 S/T	Int : Ext 40:60	03

Note - Detailed syllabus for the subject shall be finalized on year to year basis depending upon the expertise available. The experts in the field will deliver lectures and demonstrate the latest techniques for development of skills.

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**IK Gujral Punjab Technical University**  
**Bachelor of Architecture (B. Arch. 10<sup>th</sup> Semester)**

Course Code	Course Name	L, S/T, P/FW, ST	Credits - 3	Duration of Exam
UC/BARCH-1004 (E)	Futuristic Architecture	2L, 1 S/T	Int : Ext 40:60	03

**Course Objective:** To gain the knowledge and awareness of futuristic material and architecture.

**Course Outcomes:** At the end of the course, the students will be able to use the knowledge of futuristic material and architecture in the projects

**Detailed Syllabus:-**

**UNIT I**

Future concepts envisioned by earlier theorists and architects like Antonio Sant'Elia and F.L. Wright

**UNIT II**

Emerging architectural paradigms such as programme generated architecture, dynamic architectural systems, virtuality, Trans architecture, data driven structures and 'glocal' approach through the study of relevant projects.

**UNIT III**

Evolution of contemporary architectural concepts-historical revival biomimicry adaptive reuse and low cost buildings; Futuristic building materials: Buildings; Futuristic building materials: Building tectonics and systems

**UNIT IV**

Study of specific building types-houses, office spaces, public buildings, skyscrapers and transportation hubs through various projects. Sustainable buildings including energy efficiency, Zero Energy and Energy Plus buildings and resource conservation

**Evaluation Criteria for Exam Question Paper Setting:-**

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

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

**Instructions for the Faculty –**

Teaching in the subject will be a combination of invited lectures, visit to Multi- Storeyed/ High Rise Buildings and library studies/power point presentations of High Rise Buildings mentioned above.

**Core References:**

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

*Prasanna*

*Mukta*  
*Prasanna*  
*Prasanna*

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

**Third Semester**

Course Type	Sr. no	Course Code	Course Title	Load Allocations					Marks Int : Ext	Credits	Duration of Univ. Exam/ Viva-Voce
				L	Sem/ Tut	P/F W	Stu	Total			
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	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
	6	UC/BARCH-306/19	Climate & Architecture-I	2	2	-	-	04	40:60	3	03
PAECC	7	UC/BARCH-307/19	Computer Application-I	1	-	2	-	03	100	2	External Viva Voce
SEC	8	UC/BARCH-308/19	* Educational Tour I/ Summer Training-I / Vacation Assignment-I	-	-	-	-	-	100	1	Internal Assessment by jury Viva-voce
<b>Total</b>								<b>27</b>		<b>24</b>	

Note: \* UC/BARCH-308/19 is carried out in the intervening period of 2<sup>nd</sup> and 3<sup>rd</sup> semester, the evaluation of report/s to be done in the 3rd semester.

*Prasanth*

*Mukti*

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Ramesh*

*gopi*

# 3<sup>rd</sup> Semester

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

*Jyoti*

*Prabhu*

**IK Gujral Punjab Technical University**  
**Bachelor of Architecture (B. Arch. 3<sup>rd</sup> Semester)**

Course Code	Course Name	L, Sem/Tut, P/FW, Stu	Credits	Duration of Exam
UC/BARCH-301/19	Architectural Design -III	1L, 5 stu	6	06 Hours + External Viva Voce

**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. And to create awareness about the role and Importance of physical factors in Architectural Design e.g. orientation, ventilation, adequate protection from natural elements, and human dimensions in various postures (in applied form), their relation to everyday utilities including table, chair, bed etc. Introduction to barrier free buildings at a small scale.

**Course Outcomes:** At the end of the course, the students will able understand the nuances of house, school, cafeteria and post office design. They will also be well versed with various physical factors of architecture design and equipped with the norms of barrier free design.

**Detailed Syllabus:-**

**UNIT-I**

Design of House, Primary School, without urban regulatory controls with emphasis on environmental and ecological issues.

**UNIT-II**

Design of Cafeteria, Post Office etc,

**Evaluation Criteria for Exam / Question Paper Setting:-**

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

**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.

**Core References:**

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

*Prashant*  
*Namaf*  
*Jyoti*  
*ge::*  
*Mukta*

**IK Gujral Punjab Technical University**  
**Bachelor of Architecture (B. Arch. 3<sup>rd</sup> Semester)**

Course Code	Course Name	L, Sem/Tut, P/FW, Stu	Credits	Duration of Exam
UC/BARCH-302/19	Building Construction & Materials-III	1 L, 3 Stu	4	03

**Course Objective:** To make students understand and appreciate, various methods of building construction in coordination with the building materials and science related to them. Students will gain knowledge on the various applications of timber products and Glass in buildings.

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

**This subject consists of two parts**

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

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

**Detailed Syllabus:-**

**PART – A: BUILDING MATERIAL**

**UNIT-I**

(a) **Glass**

- Glass as a building material, Classification, Composition, Properties and Use of Glass.
- Character and uses of various types of Glass and their application in buildings

**UNIT-II**

(b) **Timber Products**

- Manufacturing process and qualities of Decorative and Commercial timber product used in buildings

Note: All contemporary uses must be studied of glass and timber products.

**PART – B: BUILDING CONSTRUCTION**

**UNIT-III**

- (a) Section of a Double Storeyed Building through Toilet and Stair case showing the details of Foundation, D.P.C, Floor, Window, Lintel, Chhajja, R.C.C Roof, Terrace and Parapet.
- (b) Types of Staircases-- Design and detailing of RCC and Timber Staircases.
- (c) R.C.C. Form work and Shuttering details for- Column (square and round), Slab and Beam, Wall, Staircase etc.

**UNIT-IV**

(a) **Flooring**

- Construction of PCC, Terrazzo, (Cast-in-situ and tiles) and various types of Stone flooring. Contemporary floor must also be studied.

(b) **Cladding**

- Cladding of interior and exterior facades in various commonly used materials

*Prashant*

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**Evaluation Criteria for Exam / Question Paper Setting:-**

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

**Instructions for the Faculty –**

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

**Core References:**

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

R. Singh

Joshi

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Naman

**IK Gujral Punjab Technical University**  
**Bachelor of Architecture (B. Arch. 3<sup>rd</sup> Semester)**

Course Code	Course Name	L/ Sem/Tut, P/FW, Stu	Credits	Duration of Exam
UC/BARCH-303/19	Structure Systems-II	1 L, 1 Tut	2	Ext Viva Voce

**Course Objective:** To make students learn basics principles of structure systems 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 able to gain ability to comprehend the Design erection process and application of large span structures. To understand the need and importance of prefabricated components and structures as an alternative to cast in situ construction process. To understand the needs, requirements, and selection for various types of structures systems.

**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;
  - a) Space frames.
  - b) Trusses (Timber & Steel).
  - c) Domes (Ribbed & Geodesic)

**UNIT-II**

- Structure acting mainly through axis:
  - a) Lattice structure
  - b) Polyhedron structure
  - c) Tree type

**Evaluation Criteria for Exam / Question Paper Setting:-**

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

**Instructions for the Faculty –**

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

**Core References:**

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

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*Ge. Hamed*

*Mukto*



**IK Gujral Punjab Technical University**  
**Bachelor of Architecture (B. Arch. 3<sup>rd</sup> Semester)**

Course Code	Course Name	L, Sem/Tut, P/FW, Stu	Credits	Duration of Exam
UC/BARCH-304/19	Structure Design-I	2 L, 2 Tut	03	03

**Course Objective:**

The aim and objective of the course on structure design-I 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 codal provisions, Design Masonry foundation and retaining walls, Analyse indeterminate structures and to calculate shear force and bending moment in determinate structures.

**Detailed Syllabus: -**

**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: -**

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

**Instructions for the Faculty-**

The students of architecture must be made clear about the design concepts and tutorials be made an integral part of learning.

**Core References:**

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

*Joshi*

IK Gujral Punjab Technical University

*Prakash*

*Mishra*  
*Ge. Ranjan*

**Bachelor of Architecture (B. Arch. 3<sup>rd</sup> Semester)**

Course Code	Course Name	L, Sem/Tut, P/FW, Stu	Credits	Duration of Exam
UC/BARCH-305/19	Surveying & Leveling	2 L, 2 FW	3	03

**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 chain surveying, compass survey, plane table survey, levelling, contouring. Students will have knowledge of survey instruments also.

**Detailed Syllabus: -**

**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, Two point and three-point problems and their solutions.

Levelling: Methods of levelling, Sensitivity of bubble tube, setting out grade lines, permanent adjustment of levelling instruments.

**UNIT-III**

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

**UNIT-IV**

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

**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.

**Instructions for the Faculty –**

Faculty should conduct survey on ground. All concepts in theory must be put in practical site.

**Core References:**

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

*P. Ashish*  
*Jyoti Nikte*

*Ge. Namdeo*

**IK Gujral Punjab Technical University**  
**Bachelor of Architecture (B. Arch. 3<sup>rd</sup> Semester)**

Course Code	Course Name	L, Sem/Tut, P/FW, Stu	Credits	Duration of Exam
UC/BARCH-306/19	Climate & Architecture-I	2 L, 2 Tut	3	3

**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 be able to understand the fundamental of climatology as an important consideration in architecture design and it will orient his/ her proposal accordingly. Like thermal comfort, design sensitivity towards climate and climatic zones.

**Detailed Syllabus:-**

**UNIT-I Fundamentals**

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

**UNIT-II Movement of Sun**

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 Thermal Comfort**

Definition and explanation of Thermal Comfort, Human Heat Balance and Physical Comfort, Relationship of Climatic Elements with Thermal Comfort, Thermal Stress Index.

**UNIT-IV Climatic Zones**

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.

**Instructions for the Faculty –**

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

**Core References:**

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

*P. Singh*

*M. K. Mehta*

*Dr. J. S. Jindal*

**IK Gujral Punjab Technical University**  
**Bachelor of Architecture (B. Arch. 3<sup>rd</sup> Semester)**

Course Code	Course Name	L, Sem/Tut, P/FW, Stu	Credits	Duration of Exam
UC/BARCH-307/19	Computer Application-I	1, -, 2, -,	2	Ext 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 be able to understand 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..

**Detailed Syllabus:-**

**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/3D such as Photoshop, Revit, and Sketch up etc.

**Evaluation Criteria for Exam / Question Paper Setting:-**

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

**Instructions for the Faculty –**

Emphasis should be laid on developing the skill pertaining to 2-D on the Software's and basic introduction to 3-D Software's.

*P. Singh*

*Jain*

*Dr. Namay Mukta*

**IK Gujral Punjab Technical University**  
**Bachelor of Architecture (B. Arch. 3<sup>rd</sup> Semester)**

Course Code	Course Name	L, Sem/Tut, P/FW, Stu	Credits	Duration of Exam
UC/BARCH-308/19	* Educational Tour I/Summer Training-I / Vacation Assignment-I		1	Int. Viva Voce

The education tour is encouraged to be undertaken by the students under faculty supervision. During or after the semester the tour report shall be submitted to the class coordinator for assessment.

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

Vacation assignment is to 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.

*P. Singh*

*J.P.*

*Ge.::* *Waman* *Mehra*

# Master in Architecture (Architectural Education & Research)

## Objective, Teaching Scheme & Syllabus

### Nature of Study:

Master of Architecture (Architectural Education & Research), abbreviated as M. Arch (AER), is a Master's level degree course in architecture offered by the department of architecture, School of Built Environment, IKGPTU Mohali Campus-II. It offers specialization in architectural education & research.

This course aims to develop an effective, passionate, and motivated teachers in the field of Architectural Education, who demonstrate an innovative, reflective, and research-based approach to teaching. The course focuses on the development of holistic learning among future educators. Architecture Education is expected to feed the society with a human resource that is not just trained in Architecture Skills, but contextual and proficient for being a step ahead in steering the dynamics of creating a built environment for better living.

### Vision

The vision of M. Arch (AER) prepares students as a better teacher and help architectural institutions to produce quality architects.

### Mission

M. Architecture in Education and research is specially designed for a number of B.Arch students who are interested in teaching and want to contribute to expanding knowledge discipline of architecture education. Our mission is to equip our students with the best of pedagogy skills.

### Program Objectives:

The objective is to offer a professional course to Architects who wish to be associated with teaching, also the course is to impart professional training in strengthening their expertise in studio-based & theory-based subjects in addition to attitude values in the students & bridge the gap between theory and practice.

### Learning Outcomes:

The objectives of the program are translated into a number of learning outcomes. M. Arch (AER) Course address the Physiological, Philosophical, and Social aspects of Architecture education.

- Students will develop a good understanding of architectural pedagogy. This course is an integration of inputs from Architecture as well as from the field of education.
- To fill the gap between academics and the profession.

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- Problem-solving skills, professional judgment, and ability to take the initiative and make appropriate decisions in complex and unpredictable circumstances.
- An ability to evaluate research and a variety of types of information and evidence critically.
- During the course, the students will be provided with ample opportunities to interact with the subject experts, relevant organizations.
- The course enables the students to gain real-time experience through their involvement in the ongoing or live classroom experience.

## Highlights of the Scheme

M. Arch (AER) is a two-year course consisting of four semesters in regular mode & three years consisting of six semesters in the part-time mode & mix mode.

- I. Regular mode - 02 years ( PG Diploma Exit after 01 years)
- II. Part-time mode - 03 years ( PG Diploma Exit after 1.5 years)
- III. Mix Mode - PG Diploma after 01 years of study in regular mode and M. Arch (AER) in another 1.5 years in Part-Time mode. the second year in part-time mode.

The teaching curriculum involves a thorough understanding of fundamentals, contemporary trends, and teaching methods in Architecture Pedagogy, with an enhanced emphasis on design. The curriculum helps to develop aspects of critical thinking & inquiry, creativity & innovation, research and investigation, collaboration & civic engagement, and environmental awareness among others. Students learn under supervised teaching experience, engagement through an active and diverse curriculum, and independent research projects in consultation with faculty members. Rigorous exercises are carried out on current trends in Architecture, Research, and Pedagogical processes so that the students develop a knowledge base and a personality well equipped to train the budding Architects.

*The broad course structure is as follows:*

The **first semester** is focused on the Architecture education scenario in India. It introduces the fundamentals of various aspects of architecture education, such as contemporary architecture, educational technology, research methodology-I, professional electives, and provision of MOOC'S courses. The studio focuses on understanding the current status of architecture education & its background and also focusing on social perception towards architects and architecture.

The **second semester** focuses on curriculum design and consists of related subjects, such as contemporary architecture II, the psychology of teaching and learning, architecture research methodology. It offers electives as well as MOOCs out of which students are expected to choose one. (as recommended by UGC under choice-based credit system).

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*G. N.*

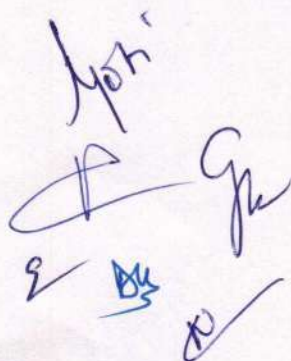
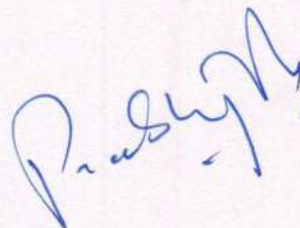
*P. Singh*

The **third semester** focuses on the Role & Responsibility of Statutory Bodies related to education. Subjects offered in this semester are dissertation – I, instructional methods, professional electives, and open electives.

In the **fourth semester**, students would be required to undertake a thesis and institutional internship.

Each course is divided into four sections consisting of the detail, objective, units, and suggested readings. The subject syllabus is broken into progressive sections through the units, However, it may be noted that the syllabus covered is not exhaustive and the individual subject teacher may augment the syllabus as per the requirement. It is kept dynamic intentionally to address the changing needs of the program. In such cases, prior concurrence of the Head of the Department is necessary. However, the focus of teaching will revolve around looking critically and objectively at the 'Best Practices' being used at the local and global level

The syllabus is designed to develop the strong communication, interpersonal, advocacy, and analytical skills of the student. The subject faculty are encouraged to assess the student's progress throughout the semester through seminars, debates, group discussion /individual presentations, term papers, written exams (open or closed book), take-home exams, report submissions, viva voce, etc.





Options of delivering M.Arch (AER) Course in various mode

- A- In regular mode
- B- In Part time mode
- C- In mix mode

(Note- The academic regulation for PG Program in Architecture defines the mid level exit and re-entry options to the students)

Sr. No.	Subject	Credit	A						B						C					
			Regular mode			Part Time mode			PG diploma in Regular mode and Stage-II in Part time mode											
			1	2	3	4	1	2	3	4	5	6	1	2	3	4	5			
			July	Jan	July	Jan	July	Jan	July	Jan	July	Jan	July	Jan	July	Jan	July			
1	Studio	18	6	6	6	-	4	4	4	3	3	-	-	-	-	6	6	3	3	-
2	Contemporary Arch	3	-	-	-	-	3	-	-	-	-	-	-	-	-	3	-	-	-	-
3	Architecture Appreciation	3	-	-	3	-	-	-	-	-	3	-	-	-	-	-	-	-	3	-
4	Education Technology	3	-	-	-	-	3	-	-	-	-	-	-	-	-	3	-	-	-	-
5	Research Method	3	-	-	-	-	-	3	-	-	-	-	-	-	-	3	-	-	-	-
6	Psychology of Teaching	3	-	3	-	-	-	-	3	-	-	-	-	-	-	-	3	-	-	-
7	Arch Research Method	3	-	3	-	-	-	-	-	3	-	-	-	-	-	-	3	-	-	-
8	Instruction Methods	3	-	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	3	-
9	Professional Elective / MOOC	9	3	3	3	-	3	3	3	-	-	-	-	-	-	3	3	3	3	-
10	Open Elective / MOOC	3	-	-	3	-	-	-	-	-	-	-	3	-	-	-	-	-	-	3
11	Education Tour/ summer training/Vacation work	1	-	-	1	-	-	-	1	-	-	-	-	-	-	-	-	-	1	-
11	Teaching / institution Practice	5	-	-	-	5	-	-	-	-	5	-	-	-	-	-	-	-	-	5
12	Dissertation-I (Term Paper)	3	-	3	-	-	-	-	3	-	-	-	-	-	-	-	-	3	-	-
13	Dissertation-II (Thesis)	12	-	-	-	12	-	-	-	-	-	-	2	10	-	-	-	-	-	2
	<b>Total</b>	<b>72</b>	<b>18</b>	<b>18</b>	<b>19</b>	<b>17</b>	<b>13</b>	<b>10</b>	<b>14</b>	<b>11</b>	<b>14</b>	<b>10</b>	<b>14</b>	<b>10</b>	<b>18</b>	<b>18</b>	<b>13</b>	<b>13</b>	<b>10</b>	<b>13</b>

*Prakash*

*Number 6, 9/10/2015*

**IK Gujral Punjab Technical University Kapurthala**

**FIRST YEAR**

**1<sup>st</sup> and 2<sup>nd</sup> SEMESTER MASTER OF ARCHITECTURE (ARCHITECTURAL EDUCATION AND RESEARCH)**

**1<sup>st</sup> SEMESTER**

Course Type	S. No	Course Code	Course Title	Load Allocations					Marks %	Credits	Duration of Univ. Exam/ Viva-Voce
				L	Sem / Tut	P/ FW	Stu	Total			
PC	1	UC/MARCH-101/20	Studio-I	2	-	-	4	06	60:40	6	Viva Voce/ Ext. Jury
	2	UC/MARCH-102/20	Contemporary Architecture-I	2	2	-	-	04	40:60	3	
Edu. & Res	3	UC/MARCH-103/20	Educational Technology	2	2	-	-	04	40:60	3	03
	4	UC/MARCH-104/20	Research Methodology-I	2	2	-	-	04	40:60	3	03
PE (Choose one)	5	UC/MARCH/ PE-106-10/20	Professional Elective- I	2	2	-	-	04	40:60	3	03
	5	UC/MARCH/ MOOC-111-20	MOOC-I						-		Certificate from concerned/ imparting agency
<b>Total</b>								<b>22</b>		<b>18</b>	

**2<sup>nd</sup> SEMESTER**

Course Type	S. No	Course Code	Course Title	Load Allocations					Marks %	Credits	Duration of Univ. Exam/ Viva-Voce
				L	Sem / Tut	P/ FW	Stu	Total			
PC	1	UC/MARCH-201/20	Studio – II	2	-	-	4	06	60:40	6	Viva Voce/ Ext. Jury
	2	UC/MARCH-202/20	Dissertation - I	2	2	-	-	04	40:60	3	
Edu. & Res	3	UC/MARCH-203/20	Psychological of Teaching Learning	2	2	-	-	04	40:60	3	03
	4	UC/MARCH-204/20	Architecture Research Methodology-II	2	2	-	-	04	40:60	3	03
PE (Choose one)	5	UC/MARCH-206-10/20	Professional Elective- I	2	2	-	-	04	40:60	3	03
	5	UC/MARCH-211-20/20	MOOC-II						40:60		Certificate from concerned/ imparting agency
SEC	6	----	*Educational Tour/ Summer Training/ Vacation Assignment	-	-	-	-	-	-	-	Evaluation will be done in 3rd sem
<b>Total</b>								<b>22</b>		<b>18</b>	

Elective I: 1. Fundamentals of built environment and resource conservation    2. Recent trends in sustainable architecture    3. Architectural Software  
 Elective II: 1. Architecture appreciation    2. Geomatics techniques for architects    3. Building Industry

*Rashmi*

*Mukta*

*Dr. Jyoti Puri*  
*Dr. Pooja*  
*Dr. G*

**IK Gujral Punjab Technical University Kapurthala**

**SECOND YEAR**

**3<sup>rd</sup> and 4<sup>th</sup> SEMESTER MASTER OF ARCHITECTURE (ARCHITECTURAL EDUCATION AND RESEARCH)**

**3<sup>rd</sup> SEMESTER**

Course Type	S. No	Course Code	Course Title	Load Allocations					Marks %	Credits	Duration of Univ. Exam/ Viva-Voce
				L	Sem / Tut	P/ FW	Stu	Total	Int : Ext		
PC	1	UC/MARCH-301/20	Studio – III	2	-	-	4	06	60:40	6	Viva Voce/ Ext. Jury
	2	UC/MARCH-302/20	Architecture Appreciation	2	2	-	-	04	60:40	3	Viva Voce/ Ext. Jury
	3	UC/MARCH-303/20	Instructional methods	2	2	-	-	04	40:60	3	03
Edu. & Res.		UC/MARCH-304/20	*Educational Tour/ Summer Training/ Vacation Assignment	-	-	-	-	-	100	1	Viva Voce/ Int. Jury
	4	UC/MARCH-305-10/20	Professional Elective- I (Ref Table-)	2	2	-	-	04	40:60	3	03
PE (Chos & one)		UC/MARCH-321-30/20	MOOC-III (Ref Table-)						-		Certificate from concerned/ imparting agency
OE (Chos & one)	6	UC/MARCH-311-15/20	Open Elective- I (Ref Table-)	2	2	-	-	04	40:60	3	03
		UC/MARCH-331-40/20	MOOC-IV (Ref Table-)						-		Certificate from concerned/ imparting agency
<b>Total</b>								<b>22</b>	<b>-</b>	<b>19</b>	

**4<sup>TH</sup> SEMESTER**

Course Type	S. No	Course Code	Course Title	Load Allocations					Marks %	Credits	Duration of Univ. Exam/ Viva-Voce
				L	Sem / Tut	P/ FW	Stu	Total	Int : Ext		
	1	UC/MARCH-401/20	Teaching Practice (Institutional Internship)	-	2	-	6	8	60:40	5	Viva Voce/ Ext. Jury
	2	UC/MARCH-402/20	Dissertation-II	-	2	-	10	12	60:40	12	Viva Voce/ Ext. Jury
<b>Total</b>								<b>20</b>		<b>17</b>	
<b>Grand Total</b>										<b>72</b>	

*Prabhjot*

*Mudita*  
*Jyoti*  
*9/2*

Note: Table-1 (Abbreviation Used)

Abbreviation Used in the teaching scheme			
PC	Professional Core	L	Lecture
Edu. Research	Education & Research	Sem/Tut	Seminar/ Tutorial
SEC	Skill Enhancement Courses	P/FW	Practical/ Field Work
PE	Professional Electives	Stu	Studio
OE	Open Elective	Int.	Internal
MOOC	Massive Open Online Courses	Ext.	External

*Pradyumn*

*Mukhtar*  
*S*

*Jan*  
*AK* *Q*

Table no-1 Codes assigned to MOOC's of M. Architecture (AER).

Sr. No.	Track	MOOC (Stream)	1 <sup>st</sup> SEM UC/MARCH/ MOOC-	2 <sup>nd</sup> SEM UC/MARCH/ MOOC	3 <sup>rd</sup> SEM UC/MARCH/ MOOC-	
			MooC-I	MooC-II	MooC-III	MooC-IV
1	T1	Education/Teaching	111	211	321	331
2	T2	Allied Architecture/Design / Arts /Planning	112	212	322	332
3	T3	Energy/Environment	113	213	323	333
4	T4	Building Science & Applied Engineering / Building Services / Building Technology	114	214	324	334
5	T5	Computer Science/ Programming/ Data Sciences/ Software's/ Interruptive Technologies	115	215	325	335
6	T6	Management/ Business/ Entrepreneurship	116	216	326	336
7	T7	Humanities/Social Sciences	117	217	327	337
8	T8	Journalism/Mass Communication / Media	118	218	328	338
9	T9	Finance/Commerce/Economics Accounts	119	219	329	339
10	T10	Legal Services/Administration/ Personal Development / Health & Happiness / Miscellaneous	120	220	330	340

*P. Singh*

*Mukta*

*Jyoti*

Table no-2 Codes assigned to Professional/Open Electives in M. Architecture (AER).

	PROFESSIONAL ELECTIVE-I UC/MARCH	PROFESSIONAL ELECTIVE -II UC/MARCH	PROFESSIONAL ELECTIVE -III UC/MARCH	OPEN ELECTIVE-I UC/MARCH
	Traditional Indian Architecture	Climate & Architecture Climatology	Futuristic Architecture	Creative Writing – I
Code	105	205	305	311
	Ecology	Fundamental of Built environment & Resource Conservation	Green Buildings & Rating Systems	Health Education – I
Code	106	206	306	312
	Principles of Human Settlement	Smart Cities	Housing Policies	Human resource development & organization behavior
Code	107	207	307	313
	Building Industry	Geo special Technologies	Risk Management	Sociology & Psychology V/S Architecture
Code	108	208	308	314
	Architecture Appreciation & Criticism	Guidance & Counseling	E- Resources/ E- Learning	Thought Processes/ Mind Management
Code	109	209	309	315
	Digital Architecture/Advance Computer software	Environment & social issues in Architecture	Architecture Journalism & Photography	Life Skills
Code	110	201	310	316

*R. Singh*

*M. Singh*  
*2*

*J. Singh*  
*P. Singh*  
*9*

**Syllabus of**  
**Masters of Architecture AER**  
**(Architecture Education & Research)**

**Batch 2020 onwards**



By

**Masters of Architecture AER**  
**IK Gujral Punjab Technical University**

Mukht

Gesri

Mani

Neeraj

Ma

P. Singh

# IK Gujral Punjab Technical University

## Masters of Architecture AER (M. Arch. AER 1st Semester)

Course Code	Course Name	L/S, T, P	Credits	Exam Duration
UC/MARCH-101/20	Studio I	L-2, S-4	6	Viva only

### Course Objective:

The syllabus has been designed to attain the following objectives:

- Understand the Architectural Education system in India & its future scope.
- To make the students understand the diversity and fast-paced dynamics of the Architecture profession to be adopted and incorporated in Architecture Education.
- To understand the social work environments of architects.

### Course Outcomes:

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

- Have a fairly good idea of the scenario of architecture education in the country
- Understand the basic issues and challenges of imparting Architecture Education in India
- They will also be clear about the perception of society (general public) about the Architecture and architect and the role and responsibility & the need to update Architecture education continuously to cope with dynamic practice.

### Instruction to the Faculty

Stress must be laid on individual/ collective research & its presentation in the form seminar in the class & finally getting it published.

### Detailed Syllabus:

#### **UNIT-I** (Architecture Education)

- Review of Architecture Education in India:  
A self-learning exercise is to be introduced in the 'Architecture education scenario in India'. The students encouraged through group discussions to raise the issues and then chose any specific issue and do deeper investigation/research on it. The literature available needs to be reviewed and presented in the class during group discussion.
- Nature and Future scope of Architecture Education in the country

#### **UNIT- II**

Society's perception of Architecture and Architect: A survey needs to be conducted with a proper sample size to understand the core issues. Related to and presented in the lass.

Classroom research on improving the teaching-learning methods(Understand the traits of a good teacher and fundamentals of Classroom management).

### Evaluation Criteria for Examination/ Question Paper Setting:

Selection of topic and its Understanding (introduction and submission of Synopsis) Preliminary Seminar, Final Seminar, Report Submission Only Seminar Presentations, and written reports to be evaluated for internal/external assessment.

Note: Students would be required to choose one topic from each Unit in consultation with the subject In-charge & thoroughly research it before presenting it in the class as a seminar & try to publish it thereafter. A book review on the topic of architecture education and related issues should be undertaken as part of an internal assessment.



**IK Gujral Punjab Technical University**  
**Masters of Architecture AER (M. Arch. AER 1st Semester)**

Course Code	Course Name	L/S, T, P	Credits	Exam Duration
UC/MARCH-103/20	Educational Technology	2 - L, 2 - T	3	03 Hours

**Course Objective:**

To introduce the students to the importance of Education Technology in Architecture Education. To understand Architecture Education with technology and digitization and the way it has revolutionized Architectural thinking.

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

- Incorporate innovative instructional technologies through project-based activities.
- Collaborate in online discussions about the field of educational technology.
- Synthesize information from various texts and online sources.
- Deliver oral presentation through collaborative, online learning software applications.
- Be equipped to prepare MOOC'S

**Detailed Syllabus:**

**UNIT-I (Introduction)**

- Educational Technology and its Components
- Systems approach & Multimedia approach in Educational Technology
- Definition, the distinction between hardware and software approach, combination approach, Technology of education, and technology in education.

**UNIT-II (Smart Classroom Interaction)**

- Concept, Process, and Elements of Communication
- Psychology of Communication and its application in Educational Technology
- Models of Communication, Factors, and Barriers
- Classroom Interaction, Classroom Interaction Analysis -Flander Interaction category system.

**UNIT-III (Latest Trends in Educational Technology)**

- Personalized system of instruction (PSI) -Programmed Learning
- CCTV, Computer Assisted Instruction (CAI)
- Modern trends in multimedia
- Virtual Reality & Virtual Environments/classroom
- Educational Satellite, Interactive Video, Tele and Video conferencing - Web 2.0 in Education, E-learning, e-teaching, digital conferences
- Course management soft wares

**UNIT-IV (Digital Architecture)**

- Virtual Classrooms and laboratories: Concepts and consideration for the virtual classroom and virtual laboratories.
- Use of Digital Resources: Open courseware- NPTEL, MIT, YouTube, courses, etc. National Knowledge networks, E-Repository, Digital libraries.
- Effective Integration of Digital Courses, Digital Tools

*Mukta G. J. Mohi*

*Rudolph*

**IK Gujral Punjab Technical University**  
**Masters of Architecture AER (M. Arch. AER 1st Semester)**

Course Code	Course Name	L/S, T, P	Credits	Exam Duration
UC/MARCH-102/20	Contemporary Architecture- I	L-2, S-2	3	03 Hours

**Course Objectives:**

Study the contemporary architecture of India in general & northern region in particular & the role of materials and technological know-how on the outcome.

The architecture of Chandigarh will also be understood

**Course Outcome:**

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

- Understand various trends of contemporary architecture in their immediate surroundings.
- It will be possible
- To identify & point out various influences (social, political, cultural, etc) on the architecture of India in general & northern region in particular.
- They will understand the impact of globalization and the contribution of material & new technologies in shaping the architecture.

**Methodology:**

Stress must be laid on individual/ collective research & its presentation in the form seminar in the class & finally getting it published.

**Detailed Syllabus:**

Overview of Indian architecture in terms of major factors & drivers of architectural form, space, climate & cultural, social, political influences, and use of materials and construction techniques related to it.

**UNIT-I**

Medieval Architecture, Islamic Period, Colonial Period/ Pre-independence period  
Post Colonial Period/ Post-independence era

**UNIT-II**

Vernacular/ Tradition Indian Architecture and their impact on a contemporary scenario.

**UNIT-III**

Globalization & its impact of architecture through case/net/library studies of eminent architects work.

**UNIT-IV**

Live study of contemporary buildings of the immediate surroundings: the focus on the architecture of the northern region in general & Chandigarh in particular

Assignment

Students would be required to choose one topic from each Unit in consultation with the subject In-charge & thoroughly research it before presenting it in the class as a seminar & try to publish it thereafter.

Mukta  
G. Singh  
M. Singh

Rudhraj

**Core References:**

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

**Evaluation Criteria for Exam / Question Paper Setting:**

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

*Rashid*



*Muhammad Ghani*

**Core References:**

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

**Evaluation Criteria for Exam / Question Paper Setting:**

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

*P. S. Singh*

*Mukherjee* *G. J. Singh* *S. Singh*

**IK Gujral Punjab Technical University**  
**Masters of Architecture AER (M. Arch. AER 1st Semester)**

Course Code	Course Name	L/S, T, P	Credits	Exam Duration
UC/MARCH-104/20	Research Methodology - I	3 - L, 1- T	3	03 Hours

**Course Objective:**

- To develop an understanding of the basic framework of the research process
- To develop an understanding of various research designs and techniques
- To identify various sources of information for literature review and data collection
- To develop an understanding of the ethical dimensions of conducting applied research
- Appreciate the components of scholarly writing and evaluate its quality

**Course Outcomes:**

At the end of the course, the students will able to –

- Design framework/ techniques for the research process
- Demonstrate knowledge of research processes (reading, evaluating, and developing)
- Perform literature reviews using print and online databases
- Explain the rationale for research ethics
- Formulate the research in the form of thesis/ report

**Detailed Syllabus:**

**UNIT- I**

- **Introduction to Research Methodology:** Research problem and research design; formulation of hypotheses and statement of the research problem; ethical issues in research – authenticity, plagiarism, manipulation of data in research.
- **Research Methods:** Research techniques and tools; types of research methods: quantitative and qualitative; interpretive-historical; descriptive – survey analysis, case study, content analysis, co-relational, ex-post-facto, experimental, simulation, logical argumentation.

**UNIT- II**

- **Data Analysis:** Statistical methods - sampling techniques – probability sampling (simple random sampling, systematic sampling, stratified random sampling, cluster, and multi-stage sampling) and non-probability sampling (convenience of incidental, volunteer sampling, judgment or purposive sampling, quota or chunk sampling, snowball sampling); tools for collection of data – questionnaires, observation schedules, interview schedules, standardized tests, focused group discussion; Computer Processing.

**UNIT- III**

- **Data Interpretation:** Interpretation and presentation of results; overview of descriptive statistics (Measures of central tendency and dispersion); overview of inferential statistics (Co-relational Techniques - rank-order correlation, Karl Pearson's correlation coefficient, chi-square)

**UNIT-IV**

- **Developing a Research Proposal:** Format of the research proposal; individual research proposal; institutional proposal
- **Report writing:** Structure and components of scientific & technical report and thesis – different steps in the preparation, layout, language, quality of illustrations, and tables (bibliography, referencing, and footnotes).

*Muhammad G. Jothi*

*Rudolph*

**Core References:**

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

**Evaluation Criteria for Exam / Question Paper Setting:**

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

*P. Ashish*



*Munshi* *EG* *Jyoti* *PK* *DK*

**IK Gujral Punjab Technical University**  
**Masters of Architecture AER (M. Arch. AER 1<sup>st</sup> Semester)**

Course Code	Course Name	L/S, T, P	Credits	Exam Duration
UC/MARCH/ PE-106-10/20	Fundamentals of the built environment and resource conservation	2 - L, 2 - S	3	03 Hours

**Course Objective:**

This course provides an introduction to the environment and sustainable development. Understanding of the principles of design for sustainable development. Understanding of the social, cultural, global, and environmental responsibilities of professionals. concepts, theories, and research in the psychology of learning and teaching. This course will help the students to set goals and plan each goal specifically for the class.

**Course Outcomes:**

At the end of the course, the students will able to –

- Ability to identify the sustainability of the built environment.
- Ability to identify the best practice in sustainable development.
- Ability to evaluate and form a proposal of an existing urban development based on the concept of sustainable development.

**Detailed Syllabus:**

**UNIT- I (Fundamentals of Built Environment)**

- Built Environment definition and context
- Urban and Rural context of Built Environment
- Regenerative Development
- Review of Urban forms, Patterns, and spaces in different periods of history viz ancient river valley civilization, Greek, Roman, Medieval, Renaissance, Baroque, in India, and their influencing factors.
- Elements of urban Environment –urban form, townscape, urban spaces, streetscapes, and building forms.

**UNIT-II (Application of Software )**

- Application of Software of Arc GIS and other software for spatial planning and study.

**UNIT- III (Concept and need for conservation)**

- Concept and need for conservation.
- Conserving land, water, flora, and fauna in Indian traditional system and architecture, Understanding the traditional technologies and method of conservation in Indian Context and their implication

*Muhammad G. Jhari*  
*PK* *AS*

*Rashidh.*

#### **UNIT-IV** (Fundamental of planning and design)

- Fundamental of planning and design of resources conserving architecture.
- Innovative and appropriate design concepts, architecture and construction technologies with case studies of Indian and foreign context

#### **Core References:**

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

#### **Evaluation Criteria for Exam / Question Paper Setting:**

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

*P. Singh*

*Mukul G. Jyani*  
*PK*



**IK Gujral Punjab Technical University**  
Masters of Architecture AER (M. Arch. AER 1<sup>st</sup> Semester)

Course Code	Course Name	L, Sem/Tut, P/FW, Stu	Credits	Duration of Exam
UC/MARCH/ 111-20	MOOC- MOOC - I		3	Certificate from concerned/ imparting agency

The list of Approved MOOC courses is attached for reference.

*Rashidh*

*Mukht*  
*IK Gujral*

# 2<sup>nd</sup> Semester

**IK Gujral Punjab Technical University  
Masters of Architecture AER**

*P. Singh*

*Jyoti*  
*GA*  
*BL*

**IK Gujral Punjab Technical University**  
**Masters of Architecture AER (M. Arch. AER 2<sup>nd</sup> Semester)**

Course Code	Course Name	L/S, T, P	Credits	Exam Duration
UC/MARCH-201/20	Studio II	L-2, S-4	6	Viva Only

**Course Objective:**

- To create an understanding of the diversities of Architecture Education in National and International context.
- To understand the Management of Architecture Education and related government policies
- To develop skills in the use of fundamental teaching procedures, techniques, and methods of teaching.

**Course Outcomes:**

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

- Differentiate between various models of architecture education prevalent world over.
- Thoroughly understand the broad curriculum of major Indian schools of Architecture institutes of national repute and also understand the different philosophies applied based on world models.
- Understand Pedagogy and establish its relation with Architecture.

**Instruction to the faculty**

- Stress must be laid on individual/ collective research & its presentation in the form seminar in the class & finally getting it published.

**Detailed Syllabus:**

**UNIT-I**

Various models of architecture education prevalent world over.

Creative Teaching: An exercise to expose the students to understand the basic teaching methodologies suitable for Architecture, schools (formal or informal) at the National and International levels for enhancing creativity. The literature available needs to be reviewed and presented in the class.

Analysis of the curriculum of any major school of thought in architecture education at national as well as international levels needs to be undertaken and understood.

**UNIT-II**

Pedagogical analysis of a unit from B. Arch syllabus to make the teaching-learning process efficient and effective - meaning & definition, phases of pedagogical analysis, importance/significance in Architecture Pedagogy, merits/demerits, practical on pedagogy.

Programming the teaching schedule - meaning & definition, need & importance, preparing teaching schedule process, merits/demerits, practical planning of teaching lessons for

- Professional Core Subjects
- Building Science and Applied Engineering subjects
- Elective subjects

Planning and assessment methods

Assessment and Evaluation Technique.

*Mukht*

*S*

*Joshi*

*P. abhy*

### Evaluation Criteria for Examination/ Question Paper Setting:

Finally, assignments are to be presented in the form of a seminar in the following stages:

Selection of topic and it is Understanding (introduction and submission of Synopsis) Preliminary Seminar, Final Seminar, Report Submission. Only Seminar Presentations, and written reports to be evaluated for internal/external assessment.

Students would be required to choose topics from each Unit in consultation with the subject in In charge & thoroughly research it before presenting it in the class as a seminar & try to publish it thereafter.

A book review on the topic of architecture education and related issues should be undertaken as part of an internal assessment.

Mukto  
G

Joshi  
B

P. S. Kulkarni

**IK Gujral Punjab Technical University**  
**Masters of Architecture AER (M. Arch. AER 2<sup>nd</sup> Semester)**

Course Code	Course Name	L/S, T, P	Credits	Exam Duration
UC/MARCH-202/20	Dissertation- I	L-2, S-2	4	VIVA-VOCE/ EXTERNAL  JURY

**Course Objective:**

The dissertation is intended to develop the habit of exploring any subject. Topic in detail, make relevant inquires & interpret the outcome in the form of the report.

This course requires students to apply critical and analytical skills to produce a substantial piece of a research report. It provides an opportunity for students to engage in an area of architectural inquiry, including history and theory, technology and environmental science, professional practice, and related topics: developed and presented as coherent, eloquent, and well-illustrated documents.

**Course Outcome:**

**Able to formulate any research project & present it in the standard format.**

The student internal work shall be evaluated under different headings as detailed below:-

- |                                   |                          |
|-----------------------------------|--------------------------|
| 1. Preliminary Report             | 20% of Internal Marks    |
| 2. Draft Report                   | 30% of Internal Marks    |
| 3. Final Report + Published Paper | 50% of Marks (40% + 10%) |

**Instruction to the faculty**

Orientation and Research, along with discussions with the supervisor and site visits as required

**Evaluation Criteria for Exam / Question Paper Setting:-**

Students coming up with the publication of the papers during the course shall be considered for additional weighted out of the 10% marks result as a part of the final report.

The student work shall be evaluated through a system work done by the student along the presentation made at the end of the semester by an external evaluation jury. The detailed system of the dissertation shall be worked out separately.

*Mukh*  
*GC*  
*Jain*  
*TO*  
*PK*

*P. Aditya*

**IK Gujral Punjab Technical University**  
**Masters of Architecture AER (M. Arch. AER 2<sup>nd</sup> Semester)**

Course Code	Course Name	L/S, T, P	Credits	Exam Duration
UC/MARCH-203/20	Psychology of Learning and Teaching	2 -L, 2 - S	3	03 Hours

**Course Objective:**

This course provides an introduction to concepts, theories, and research in the psychology of learning and teaching. This course will help the students to set goals and plan each goal specifically for the class.

**Course Outcomes:**

At the end of the course, the students will able to –

- To equip the students with the psychological theories and techniques of learning, motivation, and creativity, hence adding to teaching skills.
- Apply learning theories and models to classroom situations.
- Compare and contrast the various factors that cognitive, behavioural, and humanistic theorists believe influence the learning process

**Detailed Syllabus:**

**UNIT-I (Teaching Models)**

- Fundamental Teaching Model: Theory of teaching; Psychological teaching models; Historical teaching models
- Instructional Objectives: instructional and behavioural objectives; Task analysis
- Entering Behaviour: definition of entering behaviour; Classes of entering behaviour; instructional use of entering behaviour

**UNIT-II (Learning )**

- Varieties Of Learning And Conditions Of Learning: Gagne varieties of learning: verbal information; intellectual skills- discrimination, concepts principles and problem-solving; Conditions of learning.
- Meaning and Definition, Domains of Learning: Cognitive, Affective and Psychomotor
- Learning Process and Its Aspects, Factors Affecting Learning
- Learning Theories and Their Educational Implications: Behaviourist, Cognitivist and Humanist

**UNIT-III (Motivation)**

- Motivation: A definition of motivation: the concept of motivation; types of motivation - intrinsic and extrinsic.
- Theories of motivation; Maslow needs hierarchy; Herzberg two factor theory; McClelland three need theory; vroom's expectancy theory; Adam equity theory.
- Techniques of motivating students

*Munshi*  
*G. Joti*  
*BM*

*Rashid*

#### **UNIT-IV (Creativity)**

- Meaning nature and concept of creativity, Constitutes of creativity, Characteristics of creativity, Originality, Flexibility, Creativity & Intelligence.
- Theories of creativity, traditional and modern views of creativity, Creativity techniques
- Assessment of creativity, Encouraging and promoting creativity- Nickerson creativity technique, Creativity, and architecture: trends and scope.

#### **Core References:**

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

#### **Evaluation Criteria for Exam / Question Paper Setting:**

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

Munshi  
S. G. Joshi  
P. Singh

P. Singh

**IK Gujral Punjab Technical University**  
**Masters of Architecture AER (M. Arch. AER 2<sup>nd</sup> Semester)**

Course Code	Course Name	L/S, T, P	Credits	Exam Duration
UC/MARCH-204/20	Architecture Research Methodology - II	2 - L, 2 - S	3	03 Hours

**Course Objective:**

To introduce the students to the importance of critical inquiry as a way of gaining knowledge and adding to it through research. To expose the students to the various forms of research and research methodologies/ processes. To engage this understanding in the specific field of architectural research.

**Course Outcomes:**

At the end of the course, the students will able to –

- The student will develop the skill to identify, translate, and interpret issues relating to an architecture based on research inquiry methods.
- The student will gain knowledge of different methods of conducting research and research writing.
- An ability to craft a thesis statement and produce an appropriate program of inquiry.
- An ability to evaluate and apply information.

**Detailed Syllabus:**

**UNIT-I (Introduction)**

- Basic research issues and concepts
- Orientation to research process Types of research
- Historical, qualitative, correlational, experimental, simulation and modeling, Logical and argumentation, case study and mixed methods
- Illustration using research samples

**UNIT-II (Research Process)**

- Elements of the Research process:
- Finding a topic- writing an introduction
- Stating a purpose of study identifying key research questions and hypotheses
- Reviewing the literature, using theory defining, delimiting and stating the significance of the study,
- Advanced methods and procedures for data collection and analysis
- Illustration using research samples

**UNIT-III (Researching & Data Collection)**

- Library and Archives
- Internet: New information and the role of the internet
- Finding and evaluating sources
- Methods of data collection - From primary sources

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- Observation and recording, interviews, structured and unstructured, questionnaires, open-ended and closed-ended questions, and the advantages, sampling, Survey.
- Problems encountered in collecting data from secondary sources.

#### **UNIT-IV (Report Writing)**

- Research writing in general
- Components: referencing
- writing the bibliography
- Developing the outline
- presentation.

#### **Core References:**

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

#### **Evaluation Criteria for Exam / Question Paper Setting:**

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

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**IK Gujral Punjab Technical University**  
**Masters of Architecture AER (M. Arch. AER 2<sup>nd</sup> Semester)**

Course Code	Course Name	L/S, T, P	Credits	Exam Duration
UC/MARCH-206-10/20	Elective I (Architecture Appreciation)	L-2, S-2	3	03 Hours

**Course Objective:**

Is to make the students appreciate Architecture as an Art and Science of building beautiful and everlasting pieces of human habitation.

**Course Outcomes:**

After the completion, of course, the students will be able to:

- Explore and understand the traditional architecture in the Indian context regarding the six major climatic zones prevalent in the country and appreciate the centuries-old wisdom of creating a Human Responsive Built Environment.
- Generate and utilize the information for use in design decisions.

**Detailed Syllabus:**

**UNIT-I**

- To understand and appreciate the basic philosophy and Influence of socio-cultural factors in the architecture of the Traditional Indian buildings which influenced the architecture of their respective regions for a significant period.
- Context of building and organization of space, about the function and climatic factors in various zones in India.
- To study and comprehend traditional Indian Architecture created in response to Geological and Geographical need in the past and their impact on the local Architecture.

**UNIT-II**

- To understand and appreciate the **various building materials** in the traditional Indian architecture in context to the function and climatic needs and its influence on the human psyche. Stress should be laid on understanding the features of the building that survived through the test of time.
- To understand and comprehend the various **construction technologies** used for the traditional Indian buildings, about the change in function and scale of the building.

**UNIT-III**

- To study, understand, and appreciate the basic philosophy in architectural designing of **historical buildings in the world** which has influenced the architecture of their

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respective regions for a significant period. The context of building and organization of space, about the function and climatic factors should be analysed.

- To study and comprehend **traditional world Architecture** created in response to Geological and Geographical needs in the past.

#### **UNIT-IV**

- To study, understand, and appreciate the **contemporary buildings** which have influenced the architecture of their respective area. The context of building and organization of space, about the function and climatic factors should also be analysed.

#### **Methodology:**

All exercises, as far as possible should be conducted through case studies.

#### **Core References:**

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

#### **Evaluation Criteria for Exam / Question Paper Setting:**

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

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**IK Gujral Punjab Technical University**  
Masters of Architecture AER (M. Arch. AER 2<sup>nd</sup> Semester)

Course Code	Course Name	L, Sem/Tut, P/FW, Stu	Credits	Duration of Exam
UC/MARCH-211-20 /20	MOOC-II		3	Certificate from concerned/ imparting agency

The list of Approved MOOC courses is attached for reference.

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**IK Gujral Punjab Technical University**  
**Masters of Architecture AER (M. Arch. AER 2<sup>nd</sup> Semester)**

Course Code	Course Name	Credits	Int: Ext	Duration of Exam
	* Educational Tour I/Summer Training-I / Vacation Assignment-I			Int. Viva Voce

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

The students are encouraged to undertake summer training in a design/construction office. alternatively, students should also be encouraged to do an online course of similar duration during the summer vacation.

Vacation assignments are being assigned by the HoD in consultation with the class coordinator before the commencement of the vacation and submitted in the following semester to the class coordinator for assessment.

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# 3<sup>rd</sup> Semester

**IK Gujral Punjab Technical University  
Masters of Architecture AER**

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**IK Gujral Punjab Technical University**  
**Masters of Architecture AER (M. Arch. AER 3<sup>rd</sup> Semester)**

Course Code	Course Name	L/S, T, P	Credits	Exam Duration
UC/MARCH-301/20	Studio - III	L-2, S-4	6	VIVA-VOCE/ EXTERNAL JURY

**Course Objective:** The syllabus has been designed to attain the following objectives:

- To thoroughly understand the knowledge level of students at entry as well as culmination level of B. Architecture and the conduct of various aptitude test & their relevance.
- To study the Higher Education Scenario with a special focus on Technical / Arch Education in view of the Nation educational policies Government of India issued from time to time.
- To understand the skill sets required for the successful practice of the architecture

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

- They will have a fairly good idea of the scenario of architecture education in the country.
- To create an understanding of Architecture Curriculum prescribed as [per CoA regulations and compare them in detail for various types of architecture institute.
- Understand the basic issues and challenges Higher Education Scenario with special focus on Technical / Arch Education because of the Education Policy of Government of India.

**Instruction to the faculty**

Stress must be laid on individual/ collective research & its presentation in the form seminar in the class & finally getting it published.

**Detailed Syllabus:-**

**UNIT-I**

To carry out a detailed study to understand the student's knowledge at the entry-level in architecture subjects offered by Various boards of secondary education at Union/ State level must be studied for this purpose in light of eligibility criteria as laid down by the CoA.

Study the process & validity of various Architecture Aptitude Tests in India (the study must focus on the outcome & suitability of such tests).

To understand Architecture Education as part of the broader education system in the country and also to view it concerning the Global scenario.

Role & Responsibility of Statutory Bodies related to education such as

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- Ministry of Human Resource Development.
- University Grant Commission (UGC)
- All council of Technical Education (AICTE).
- Council of Architecture (CoA) etc.
- Global bodies regulating Arch Education/Profession.

## UNIT- II

Study of various Govt. initiatives in the context of National Skill Development & Make in India flagship programs & how Architecture Institutions can contribute in this direction.

The study of entrepreneurship by the architecture graduates must also be looked upon along with the diversity they opt for. success stories are discussed.

To make students understand the fast-paced dynamics of the architecture profession, which needs to be incorporated in Architectural Education.

To identify the skill sets of students at the culmination of the course. Research must be carried out to identify the crucial skill for successful practice.

### Evaluation Criteria for Examination/ Question Paper Setting:

Assignments carried out during the semester to be presented in the form of Research Report / Seminar using various aids which will be evaluated for internal evaluation.

External / Final Evaluation will be done through jury viva voce of the work done during the semester.

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**IK Gujral Punjab Technical University**  
**Masters of Architecture AER (M. Arch. AER 3<sup>rd</sup> Semester)**

Course Code	Course Name	L/S, T, P	Credits	Exam Duration
UC/MARCH-302/20	Architecture Appreciation	L-2, T-2	4	03 Hours

**Course Objective:** is to make the students appreciate Architecture as an Art and Science of building beautiful and everlasting pieces of human habitation.

**Course Outcomes:** After the completion of course, the students will be able to:

1. Explore and understand the traditional architecture in Indian context with reference to the six major climatic zones prevalent in the country and appreciate the centuries old wisdom of creating Human Responsive Built Environment.
2. Generate and utilize information for use in design decisions.

**Detailed Syllabus:-**

**UNIT-I**

- To understand and appreciate the basic philosophy and Influence of socio-cultural factors in architecture of the Traditional Indian buildings which influenced the architecture of their respective regions for a significant span of time.
- Context of building and organisation of space, with reference to the function and climatic factors in various zones in India.
- To study and comprehend traditional Indian Architecture created in response to Geological and Geographical need in the past and their impact on the local Architecture.

**UNIT- II**

- To understand and appreciate the **various building materials** in the traditional Indian architecture in context to the function and climatic needs and its influence on the human psyche. Stress should be laid on understanding the features of the building that survived through the test of time.
- To understand and comprehend the various **construction technologies** used for the traditional Indian buildings, with reference to the change in function and scale of the building.

**UNIT-III**

- To study, understand and appreciate the basic philosophy in architectural designing of **historical buildings of the world** which have influenced the architecture of their respective regions for a significant span of time. Context of building and organisation of space, with reference to the function and climatic factors should be analysed.

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- To study and comprehend **traditional world Architecture** created in response to Geological and Geographical need in the past.

#### UNIT- IV

- To study, understand and appreciate the **contemporary buildings** which have influenced the architecture of their respective area. Context of building and organisation of space, with reference to the function and climatic factors should also be analysed.

**Methodology:** All exercises, as far as possible should be conducted through case studies.

#### **Evaluation Criteria for Exam Question Paper Setting:-**

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

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**IK Gujral Punjab Technical University**  
**Masters of Architecture AER (M. Arch. AER 3<sup>rd</sup> Semester)**

Course Code	Course Name	L/S, T, P	Credits	Exam Duration
UC/MARCH-303/20	Instructional methods	2 - L, 2 - T	3	03 Hours

**Course Objective**

The course aims to familiarize the students with the fundamentals of curriculum design. The main objective is to make them understand various instruction methods to be used to develop desired competency and proficiency levels.

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

- Incorporate innovative instructional technologies through project-based activities.
- Develops methods/strategies that encourage self-directed thinking and learning in nurturing and supportive learning environments.
- Deliver oral presentation through collaborative, online learning software applications.
- To make the students learn the techniques and skill of conducting teaching in the formal classroom

**Detailed Syllabus:-**

**UNIT- I**

- The paradigm shift in curriculum. Model of curriculum Management.
- Learning Process. Shift from Traditional Teaching to Producing competency bases learning.
- Learning Environment Classroom Management.
- Teacher as a manager of the learning process. Designing strategies to minimize role conflict.
- Use of Technology in teaching.

**UNIT- II**

- Teaching Strategies for Direct Instruction-Events of Instruction.
- Methods of Teaching: Lecture Methods and Question-Answer Sessions. Guidelines for conducting Question Answer sessions.
- Team Teaching.
- Demonstration Method: Guidelines to use Demonstration Method for producing learning.

**UNIT-III**

- Panel Discussion.
- Learning in Group Buzz Group. In Basket. Organizing in basket exercises.
- Case study: Guidelines for writing a case study.
- Seminar and Symposium.
- Self Directed Learning: Teacher Mediation. Reciprocal Teaching. Social Dialogue vs Class Discussion.

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#### UNIT-IV

- Learning produced through Role Play: Role of a teacher in Organising and conducting a simulation.
- Designing and Conducting Games.
- Forced filed Analysis.
- Tutorial Method. Assignment Method: Guidelines for designing Assignments.
- Assessing Learners. Preparing Tests and Item Writing. Marks and Grading Systems.

#### Core References:

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

#### Evaluation Criteria for Exam / Question Paper Setting:-

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

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**IK Gujral Punjab Technical University**  
**Masters of Architecture AER (M. Arch. AER 3<sup>rd</sup> Semester)**

Course Code	Course Name	Credits	Int : Ext	Duration of Exam
UC/MARCH-304/20	* Educational Tour I/Summer Training-I / Vacation Assignment-I	1	100	Int. Viva Voce

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

The students are encouraged to undertake summer training in a design/construction office. alternatively, students should also be encouraged to do an online course of similar duration during the summer vacation.

Vacation assignments are being assigned by the HoD in consultation with the class coordinator before the commencement of the vacation and submitted in the following semester to the class coordinator for assessment.

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**IK Gujral Punjab Technical University**  
**Masters of Architecture AER (M. Arch. AER 3<sup>rd</sup> Semester)**

Course Code	Course Name	L/S, T, P	Credits	Exam Duration
UC/MARCH-305-10 /20	Professional Elective- I Guidance and Counselling	2 – L, 2- T	3	03 Hours

**Course Objective**

- Explain the concept of guidance and counselling.
- Explain various guidance services.
- Explain approaches of counselling and their relevance.
- Explain the techniques and skills of counselling.

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

- Develop the skill of administration and interpretation of psychological tests.

**Detailed Syllabus:-**

**UNIT- I**

- Concept, Purpose, Assumptions, Need, and Principles of Guidance and Counselling.
- Individual and group counselling and guidance.
- Approaches to counselling: Directive, Non-directive, and eclectic counselling.
- Counsellor – Characteristics, Functions, and Ethics.
- Skills of Counselling – Building trust, Listening, Observation, and Empathy.
- Various theories of Counselling

**UNIT- II**

- Educational guidance with special emphasis on underachievers and drop-outs, Learning Disabilities.
- Vocational guidance, Occupational information, Placement and follow up Services, aptitude, and personality testing.
- Personal Guidance.
- Importance of non-testing techniques for student appraisal.
- Interview, Observation, Case Study, Anecdotal record, and cumulative record as techniques of student appraisal.

### UNIT-III

- Organization of guidance services at various levels of education.
- Problems of organizing guidance services in India.
- Evaluating the guidance program.
- Recent trends of Guidance and Counselling in India.

### UNIT-IV

- Characteristics of a good test. Importance of Psychological testing, standardization of test.
- Intelligence, Personality, Aptitude, and interest tests for student appraisal.
- Administration and Interpretation of Psychological tests: Intelligence tests – Verbal, Non-verbal and performance, Personality, Interest Inventory, and Attitude/Value scale
- Administration and interpretation of the Teaching Aptitude Test.
- Practical work and case studies will be done in Practical Training during the fourth semester.

### Core References:

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

### Evaluation Criteria for Exam / Question Paper Setting:-

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

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**IK Gujral Punjab Technical University**  
**Masters of Architecture AER (M. Arch. AER 3<sup>rd</sup> Semester)**

Course Code	Course Name	L/S, T, P	Credits	Exam Duration
UC/MARCH-311-15 /20	Open Elective- I Life Skill /Soft Skill	2 - L, 2 - S	3	03 Hours

**Course Objective**

To enable students to cope with the challenges of today's world and live a life that is socially and emotionally enriching.

**Course Outcomes:** At the end of the course, the students will able to Develop an awareness of the self and apply well-defined techniques to cope with emotions and stress. Use appropriate thinking and problem-solving techniques to solve new problems

**Detailed Syllabus:-**

**UNIT- I**

Decision Making

**UNIT- II**

Critical thinking

**UNIT- III**

Communication and Interpersonal skills

**UNIT-IV**

Self-awareness and empathy, Coping with emotions and stress

**Evaluation Criteria for Exam / Question Paper Setting:-**

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

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

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- Green Building and wellness – Indoor Air Quality
- Landscaping – Role, importance, and approach for landscaping
- Building Materials and Green Buildings
- Life Cycle Assessment
- Future of Green Buildings, Global Trends, Government policies, and programs

**Evaluation Criteria for Exam / Question Paper Setting:-**

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

**Core References:**

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

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**IK Gujral Punjab Technical University**  
**Masters of Architecture AER (M. Arch. AER 3<sup>rd</sup> Semester)**

Course Code	Course Name	L/S, T, P	Credits	Exam Duration
UC/MARCH-309/19	Open Elective- I Digital Architecture	1 - L, 3 - S	3	03 Hours

**Course Objective**

The objective of this subject is to expose students to various advanced CAD technologies and analysis and understanding of Various software and its proper utilization.

**Course Outcomes:** At the end of the course, the students will able to develop an understanding of the various digital software used in Architecture.

**Detailed Syllabus:-**

**UNIT- I**

Introduction, History, and Scope of Digital Technologies in Architecture, Digital design media

**UNIT- II**

CAD Models: Presentation, visualization, drafting, modelling

**UNIT- III**

CAD vs. BIM

**UNIT- IV**

Roles of Computing in Architectural Design and Architecture Education.

**Evaluation Criteria for Exam / Question Paper Setting:-**

The evaluation of students shall be based on the written questions to be set from the course and the practical conducted based on a specific problem given to know the students' understanding of the Computers related to course content.

**Core References:**

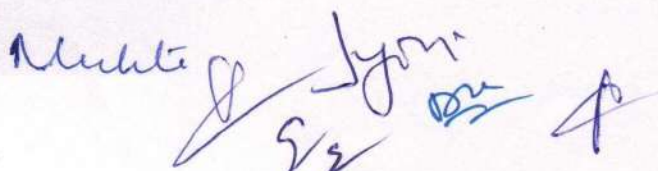
The assigned Faculty is required to provide updated references/E-resources related to the content of the subject by ensuring the availability of the same In the department library, on web portals/online i.e. E-learning. The Faculty is also advised to keep on updating the reference list and submit the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

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**IK Gujral Punjab Technical University**  
**Masters of Architecture AER (M. Arch. AER 3<sup>rd</sup> Semester)**

Course Code	Course Name	L, Sem/Tut, P/FW, Stu	Credits	Duration of Exam
UC/MARCH-321-30 /20	MOOC-II		3	Certificate from concerned/ imparting agency

The list of Approved MOOC courses is attached for reference.



**IK Gujral Punjab Technical University**  
**Masters of Architecture AER (M. Arch. AER 3<sup>rd</sup> Semester)**

Course Code	Course Name	L, Sem/Tut, P/FW, Stu	Credits	Duration of Exam
UC/MARCH-331-40 /20	MOOC-IV		3	Certificate from concerned/ imparting agency

The list of Approved MOOC courses is attached for reference.

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# 4<sup>th</sup> Semester

**IK Gujral Punjab Technical University  
Masters of Architecture AER**

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**IK Gujral Punjab Technical University**  
**Masters of Architecture AER (M. Arch. AER 4<sup>th</sup> Semester)**

Course Code	Course Name	L/S, T, P	Credits	Exam Duration
UC/MARCH-401/20	Teaching Practice (Institutional Experience)	4 S, 4 P	8	VIVA-VOCE/ EXTERNAL  JURY

**Course Objective:**

Understand the Architectural Education system in India in general & north region in particular. In an internship, the student is supposed to apply the knowledge and the skill sets acquired during the entire course.

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

The subject aims to culminate all teaching procedures, techniques, and experiences learned and practiced in an array of subjects undertaken during the course.

**Instruction to the faculty**

The students will engage themselves in full-fledged teaching experience and academic works within or outside the institute with simultaneously working on their thesis dissertation II

**Evaluation Criteria for Exam / Question Paper Setting:-**

The students will be assessed according to the teaching tool preparations, teaching content, teaching style, innovative methods used, and overall impact as a teacher. The students will have to maintain a logbook to keep track of works done and will be assessed based on every class by their respective supervisors. The feedback may also be looked upon.

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**IK Gujral Punjab Technical University**  
**Masters of Architecture AER (M. Arch. AER 4<sup>th</sup> Semester)**

Course Code	Course Name	L/S, T, P	Credits	Exam Duration
UC/MARCH-402/20	Dissertation-II	4 S, 8 P	10	VIVA-VOCE/ EXTERNAL  JURY

**Course Objective:**

This course requires students to apply critical and analytical skills to produce a substantial piece of written research that sits alongside the project. It provides an opportunity for students to engage in an area of architectural inquiry, including history and theory, technology and environmental science, professional practice, and related topics: developed and presented as coherent, eloquent, and well-illustrated documents.

The student internal work shall be evaluated under different hands as detailed below:-

- |                                   |                          |
|-----------------------------------|--------------------------|
| 4. Preliminary Report             | 20% of Internal Marks    |
| 5. Draft Report                   | 30% of Internal Marks    |
| 6. Final Report + Published Paper | 50% of Marks (40% + 10%) |

**Methodology:**

Orientation and Research, along with discussions with the supervisor and site visits as required

**Evaluation Criteria for Exam / Question Paper Setting:-**

Students coming up with the publication of the papers during the course shall be considered for additional weighted out of the 10% marks result as a part of the final report.

The student work shall be evaluated through a system work done by the student along the presentation made at the end of the semester by an external evaluation jury. The detailed system of the dissertation shall be worked out separately.

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