

**PANJAB UNIVERSITY
CHANDIGARH**

**SYLLABUS
Bachelor of
Architecture**

PANJAB UNIVERSITY
SYLLABUS FOR B. ARCHITECTURE COURSE
(For the session 2024-2025)

Philosophical Background: In simple terms, training of an architect deals with the complex relationship of Art, Daily Life and Techniques and the interpretation of this relationship in spatial and physical terms. Thus the aim of architectural education is to train the mind and develop skills to perceive the context of man and society. Today, the teaching of architecture has become a principal way of access to the creative professions, all of which - whether they be the construction of a building or town planning, interior design or landscaping - need professional training of the highest order. Wide horizons need to be covered when training architects. From the history of art (and architecture) to the resistance of material, from computer skills to Project Management, from down-to-earth social issues to intelligent buildings.

The B. Architecture Course is, thus, programmed to give an all-round exposure, with subjects delineated in the four streams of Art, Humanities, Science, and Technology. While the arts stream would train the students in creative thinking and skills through subjects such as Architectural Graphics, Architectural Drawing, etc. the humanities stream covering History of Built Environment, Vernacular Architecture, etc. would acquaint the student with the evolution and philosophy of architecture. Subjects in science and technology such as Building Technology, Structure Systems and Design, Building Construction, etc. are incorporated to give sound theoretical and practical knowledge of technical and constructional aspects of building. This is supplemented by practical application of the acquired theoretical and philosophical information

1ST semester examination scheme and contents of syllabus:

FIRST SEMESTER : SCHEME OF TEACHING

Duration of Semester : 18 weeks

Periods per week : 33

Duration of each period : 60 minutes

Note: The course work and assignments in each subject must be completed as prescribed.

Sr. No	Subject	Periods per week	Total periods	Teaching Methodology and Sessional work	Credits
1.	Architectural Design-I	8	144	Design assignments,	

FIRST SEMESTER : SCHEME OF EXAMINATION

PREPARATORY HOLIDAYS
EXAMINATIONS

One week
Approximately three weeks

NOTE : In addition to the University Studio Examination, the subjects of Architectural Design-I, and Building Construction-I will be assessed through a viva-voce by an external examiner appointed by the Panjab University.

Sr. No.	Subject	Duration of exam.(in hours)	Max Marks for Exam	Max. Marks for Sessional Work	Total Marks
1.	Architectural				

Course No.	Course Name	L-T-S	Credits	Marks
CCA-1-101	ARCHITECTURAL DESIGN-I	0-0-8	08	Sessional work : 200 Examination 200
Course Objectives: To learn elements and principles of basic design to architectural design.				

Reference Books :

- Architecture: Form Space and Order, Francis D.K. Ching; Van N. ReinholdCo.,
- Architectural Graphics by Frank Ching
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Course No.	Course Name	L-T-S	Credits	Marks
CCA-1-102	BUILDING CONSTRUCTION-I	0-0-4	04	Sessional work : 100 Examination : 100

Course Objectives: To educate the students with construction

Course No.	Course Name	L-T-S	Credits	Marks
CCA-1-103	BUILDING MATERIAL-I	2-0-0	02	Sessional work : 50 Examination 50
Course Objectives: To make students aware about the importance of Building Science & Materials in Architecture.				
Reference Books :				
<ul style="list-style-type: none"> • Engineering Materials by S.C Rangwala • Civil Engineering Materials by P.D. Kulkarni • Materials of Construction by R.S. Deshpande • Construction Material Reference Book – D.K. Doran • P.C. Varghese, 'Building Materials', Prentice hall of India Pvt Ltd, New Delhi, 2005. • Arthur Lyons – 'Materials for Architects and Builders' - An introduction Arnold, London, 1997. • Hand book of Timber Engineering – BIS 				
Course Contents :				

UNIT-1 - STONES

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uses in construction.

- Properties and architectural uses of mild steel and stainless steel, available sections & other products such as hardware etc.
- Aluminium: Different types of section and uses in construction Copper, Zinc Brass, Stainless steel, tin etc.
- Properties uses, treatment.
- Available Section, Products (Hardware)

End Semester Examination

INSTRUCTIONS TO THE PAPER SETTER

1. The Examiner is required to set at least six questions in all and minimum of one question from each UNIT.
2. The student is required to attempt any five questions by selecting at least one from each UNIT.

Course No.	Course Name	L-T-S	Credits	Marks
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Course No.	Course Name	L-T-S	Credits	Marks
CCA-1-105	ARCHITECTURAL DRAWING-I	0-0-4	04	Sessional work : 100 Examination 100

Course Objectives: To familiarise the students with a basic knowledge of good drafting, lettering techniques and visualization of geometrical forms through plan, elevations & sections.

Reference Books :

- Engineering Drawing by N.D Bhatt
- Engineering Drawing, 1994 by Gill, P.S.

Course Contents :

UNIT-1

- Scales
- Lettering techniques
- Types of lines used in Architectural Drawing
- Basic Geometrical shapes drawings

UNIT-2

- Orthographic projections
- Orthographic projection Definition/meaning
- Planes of projection
- First and third angle projection
- Note: First angle projection to be followed for all exercises.
- Projection of points
- Projection of lines
- Projection of planes
- Projection of solids (Prisms, Pyramids, Cones and Cylinders).

Mid Semester Test

UNIT-3

- Section of solids (Prisms, Pyramids, cones & cylinders)
- Intersection of solids:
- Dev2(w)12(i) /R15 11 Q q j4ntersect(so)-4(l)2(i)2(d)-4u(e)-4(ct)2(l)2(i)2(c822(T)-9(o)6()-4404

Course No.	Course Name	L-T-S	Credits	Marks
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UNIT-4

Buddhist Architecture:-

- Asoka and the beginning of the Buddhist school of Architecture in India. Socio-political factors in selection of sites of Buddhist Architecture.
- Building typology- Stupas, Chaityas and Viharas. For example, The Great Stupa at Sanchi, Chaitya Hall at Karli, Vihara at Ajanta. Suitable examples from each geographical context¹³ to illustrate differences in form, construction methods and ornamentation.

END SEMESTER EXAMINATION

INSTRUCTIONS TO THE PAPER SETTER

1. The Examiner is required to set at least six questions in all and minimum of one question from each UNIT.
2. The student is required to attempt any five questions by selecting at least one from each UNIT.

UNIT-3

- Meaning of Architecture, its purpose and connection to various contexts, what it represents (political statement, cultural icons, social ideals, emotional impact)
- Necessity of theory in the architecture discipline, scope of theorizing in architecture

UNIT-4

- Scale and Proportion Architectural scale, Human scale, Monumental scale, true and forced scale.
- Color Theory
- Light in Architecture

End Semester

Course No	Course name	L-T-S	Credits	Marks
CCA-1-110	HEALTH EDUCATION- I	2-0-0	02	Sessional Work - 50

2nd semester examination scheme and contents of syllabus:
SECOND SEMESTER : SCHEME OF TEACHING

Duration of Semester : 18 weeks
Periods per week 33

Duration of each period : 60 minutes

Note: 1. The course work and assignments in each subject must be completed as prescribed. All these UNITS will be equally represented in the external examination.

Sr. No	Subject	Periods per week	Total periods	Teaching Methodology and Sessional work	Credits
1.	Architectural Design-II	8	144	Design assignments, Time problems	08
2.	Building Construction-II	4	72	Notes, sketches, drawings, tests	04
3.	Building Material-II	2	36	Notes, sketches, tests	02
4.	Structure Systems & Design-II	2	36	Notes & tests, Assignment	02
5.	Architectural Drawing-II	4	72	Drawings, tests, Assignment	04
6.	Architectural Graphics-II	4	72	Sketches, drawing, Tests, Assignment	04
7.	History of Built Environment-II	2	36	Notes, sketches, tests, Assignment	02
8.	Theory of Design-II	2	36	Assignments, Tests	02
9.	Workshop of Model Making-II	3	54	Theory & Practical	03
10.	Health Education-II	2	36	Health and fitness, extra curricular activities	02
	Total	33	594		33

SECOND SEMESTER : SCHEME OF EXAMINATION

PREPARATORY HOLIDAYS **One week**

EXAMINATIONS **Approximately three weeks**

NOTE: In addition to the University Studio Examination, the subjects of Architectural Design-II and Building Construction-II will be assessed through a viva-voce by an external examiner appointed by the Panjab University.

Sr. No.	Subject	Duration of exam.(in hours)	Max Marks for Exam	Max. Marks for Sessional work	Total Marks
1.	Architectural Design-II	12	200	200	400
2.	Building Construction-II	6	100	100	200
3.	Building Material-II	3	50	50	100
4.	Structure System				

Course No.	Course Name	L-T-S	Credits	Marks
CCA-2-201	ARCHITECTURAL DESIGN- II	0-0-8	08	Sessional work :200 Examination 200

- iv. Preliminary Submission
- v. Final Submission.

Course No.	Course Name	L-T-S	Credits	Marks
CCA-2-202	BUILDING CONSTRUCTION-II	0-0-4	04	Sessional work : 100 Examination 100
Course Objectives: To familiarize the students with traditional construction methods of a single storied building in timber with sloping roof.				
Content				
Reference Books: <ul style="list-style-type: none"> • Mckay, WB Building Construction • Rangwala, S.C Engineering Materials • Punmia, B.C. Building Construction • Ching, Francis D.K. Building Construction Illustrated • Construction Technology by Chudley • Construction of Buildings by R.Barry 				
UNIT-1 <ul style="list-style-type: none"> • Joinery work: Various types of doors in timber. • Types of doors & Windows. Single & Double leaf panel doors. • Battened, ledged and braced doors; Battened, braced & framed doors; Flush doors, etc. • Sliding and sliding folding doors. • Windows in timber. • Workshop practice for joints in timber used above. 				
UNIT-2 <ul style="list-style-type: none"> • Introduction to the nature and characteristics of wood construction, its advantages and limitations. • Walls in timber: Various types of timber frame walls, with details of joints and cladding, <i>D</i> walls construction. Windows and doors in Frame walls. • Cladding with Timber and Timber products in Interior and Exterior (Wall paneling, Timber partitions, counters etc.) • Design, detailing and construction of wardrobes and Shop/Bank counters. • Foundations of Timber Posts. 				
Mid Semester Test				
UNIT-3 <ul style="list-style-type: none"> • Flooring: Various types of timber floors & their construction methods. • Floor finishes for timber floors. • Staircases in timber. 				
UNIT-4 <ul style="list-style-type: none"> • Roofing: Types of timber roofs • Introduction to different types of timber Roofs e.g. Flat, Couple, Close Couple, Collar, Lean to roof and Double Lean-to roofs, mansard roof. • King Post and Queen Post trusses. • North Light truss in Timber. • Roof coverings using AC/CGI sheets. Eaves, Gutters, Ridge and Valley detail. 				
End Semester Examination				
INSTRUCTIONS TO THE PAPER SETTER <ul style="list-style-type: none"> • The examiner is required to set a total of six questions, at least one from each UNIT • The student is required to attempt any four question from each UNIT. 				

Course No.	Course Name	L-T-S	Credits	Marks
CCA-2-203	BUILDING MATERIALS-II	2-0-0	02	Sessional work : 50 Examination : 50

Course Objectives: Upon completion of the curriculum, the student shall have acquired the concept of various components of buildings & materials used and methods of construction. The student shall acquire knowledge in both conventional as well as contemporary building practices.

Reference Books :

- Engineering Materials by S.C Rangwala
- Civil Engineering Materials by P.D.Kulkarni
- Materials of Construction by R.S.Deshpande
- Construction Material Reference Book – D.K. Doran
- Construction Handbook for Civil Engg. And Architectur

Course No.	Course Name	L-T-S	Credits	Marks
CCA-2-204	STRUCTURE SYSTEMS & DESIGN – II	2-0-0	02	Sessional work : 50 Examination : 50
Course Objectives: To understand the principles of structural design of Steel Structures.				
Reference Books :				
<ul style="list-style-type: none"> • Building Systems Reference Guide 1987 by Tyler G. Hicks • Standard Handbook of Civil Engineering by Gurcharan Singh 				
Course Contents :				

UNIT-1

- Simple bending theory, Section modulus, Radius of gyration
- Principle of superposition
- Determinate and Indeterminate structures
- Basic Data (IS: 800 and Steel tables) for design of steel structures
- Analysis & Design of Simply supported restrained roof steel beams subjected to uniformly distributed load.
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Course No.	Course Name	L-T-S	Credits	Marks
CCA-2-205	ARCHITECTURAL DRAWING-II	0-0-4	04	Sessional work : 100 Examination 100
Course Objectives: To enable the students to have a better understanding of the 3-D through isometric/axonometric views, perspective drawing and sciography.				
Reference Books :				
<ul style="list-style-type: none"> • Engineering Drawing, 1994 by P.S Gill • Engineering Drawing By N.D Bhatt 				

Course No.	Course Name	L-T-S	Credits	Marks
CCA-2-206	ARCHITECTURAL GRAPHICS-II	0-0-4	04	Sessional work : 100 Examination : 100
Course Objectives: To appreciate the role of colour in presentation and rendering techniques in architectural design.				
Reference Books : <ul style="list-style-type: none"> • Drawing A Creative Process calling Francs, D.K Ching • Francis D. K Ching ; Architectural Graphics • Architecture in Water colour by Thomas IN Schaller 				
Course Contents: Introduction of transparent water colours, poster colours, pastel colours and their tonal values. Study of primary, secondary and intermediate colours in the form of geometric compositions. Introduction to Colour Theory.				
UNIT-1 <ul style="list-style-type: none"> • Outdoor sketching of buildings, huts, group of trees, different kinds of trees and foliage and vegetation in colour. 				
UNIT-2 <ul style="list-style-type: none"> • Colour rendering of blocks. • Use of overlapping effects in water colour and poster colour in mural composition based on geometric elements. 				
UNIT-3 <ul style="list-style-type: none"> • Exercises on human figures and vehicles in colour. • Rendering of stone & brick wall in colour. 				

Mid Semester Test

INSTRUCTIONS TO THE PAPER SETTER

1. The Examiner is required to set at least six questions in all and minimum of one question from each UNIT.
2. The student is required to attempt any five questions by selecting at least one from each UNIT

Course No.	Course Name	L-T-S	Credits	Marks
CCA-2-208	THEORY OF DESIGN-II	2-0-0	02	Sessional work : 50 Examination 50

Course Objectives: Build the fundamentals of Space Planning, Perception and visualization of spaces, and introduce building typologies as a theoretical concept.

Reference Books :

- Petervon Meiss-Elements of architecture-from form to place, Spon Press1992.
- Architecture: Form Space and Order; Francis D.K. Ching; Van Nostrand Reinhold Co.,1979.
- OpeningSpaces(DesignasLandscapeArchitecture)–HansLoidlStefanBernard
- Conditional Design: An Introduction to Elemental Architecture, by Anthony Di Mari
- Hearn, M. F. (2003). Ideas that shaped buildings. Cambridge: MIT Press.
- Tsurumaki, M., Lewis, P., Lewis, D. J. (2016). Manual of Section.
- Warke, V., Simitch, A. (2014). The Language of Architecture: 26 Principles Every Architect Should Know. United Kingdom: Rockport Publishers.
- Alexander, C. (1977). A Pattern Language: Towns, Buildings, Construction . United States
- Roenisch, R., Conway, H. (2005). Understanding Architecture: An Introduction to Architecture and Architectural History. United Kingdom: Routledge.
- Hillier, B; (2007) Space is the machine: a configurational theory of architecture. [Book]. Space Syntax: London, UK
- Tigges , F. Janson , A.(2014) . Fundamental Concepts of Architecture: The Vocabulary of Spatial Situations . Switzerland: Birkhäuser.

Course Contents :

UNIT-1

- Brief understanding of theories in architecture
- Examples – Vitruvius's *fr* *s* *i* *s* *en* *s* *s* *o* *e* *d* *c* *r* *o* *n* *d* *e* *s* *n* *e* *o* *d* *d* *e* *s* *n* *s* *e* *p* *o* *r* Le Corbusier's Five Points of Architecture , Form follows function, 21st Century tropes

UNIT-2

- Space planning within a building, rationale for sequencing and flow of spaces
- Analysis and classification :space usage, Inter-relationship of different spaces within a building.
- Inter dependence of function,structure,and form in architectural design

Mid Semester Examination

UNIT-3

UNIT-4

- Architectural program :analysis and classifications
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Course No.	Course Name	L-T-S	Credits	Marks
CCA-2-209				

Course No.	Course name	L-T-S	Credits	Marks
CCA-2-210	HEALTH EDUCATION- II	2-0-0	02	Sessional work : 50

Course objective: To make the students to learn the basic concepts related to fitness

Reference Books:

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