



# **D. Y. Patil College of Engineering and Technology**

Kasaba Bawada, Kolhapur

An Autonomous Institute

## **Structure & Syllabus**

**Third Year B. Arch. (Autonomous)**

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**(School of Architecture)**

**2022-2023**

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**D.Y.PATIL COLLEGE OF ENGINEERING & TECHNOLOGY**

**KASABA BAWADA, KOLHAPUR-416006**

**An Autonomous Institute**

**Third Year B. Arch.**

**Curriculum w.e.f. 2022-2023**

**Syllabus structure - Semester-V**

Sr. No	Course Code	Course Type	Name of the Course	Teaching Scheme Per Week			Credits	Total Marks	Evaluation scheme			
				Lecture Hours	Tutorial Hours	Practical/ Studio Hours			Type	Max. Marks	Min. Marks for Passing	
											Individual Course	Aggregate
1	201AR301	PC	Architectural Design –V	1	-	6	7	200	ISE	100	50	100
									MSE	-	-	
									ESE(OE)	100	45	
									ESE(TH)	-	-	
2	201AR302	PC	History of Architecture– III	2	-	-	2	100	ISE	20	25	50
									MSE	30		
									ESE(OE)	-	-	
									ESE(TH)	50	23	
3	201AR303	PC	Estimation Costing & Specifications –I	1	-	2	3	100	ISE	20	25	50
									MSE	30		
									ESE(OE)	-	-	
									ESE(TH)	50	23	
4	201AR304	PC	Working Drawing– I	1	-	3	4	100	ISE	100	50	50
									MSE	-	-	
									ESE(OE)	-	-	
									ESE(TH)	-	-	
5	201AR305	PC	Landscape Architecture	1	-	2	3	100	ISE	50	25	50
									MSE	-	-	
									ESE(OE)	50	23	
									ESE(TH)	-	-	
6	201AR306	BS&AE	Building Construction & Materials – V	2	-	2	4	150	ISE	20	25	75
									MSE	30		
									ESE(OE)	50	23	
									ESE(TH)	50	23	
7	201AR307	BS&AE	Structural Engineering For Architecture - III	2	-	-	2	100	ISE	20	25	50
									MSE	30		
									ESE(OE)	-	-	
									ESE(TH)	50	23	

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Sr. No	Course Code	Course Type	Name of the Course	Teaching Scheme Per Week			Credits	Total Marks	Evaluation scheme			
				Lecture Hours	Tutorial Hours	Practical/ Studio Hours			Type	Max. Marks	Min. Marks for Passing	
											Individual Course	Aggregate
8	201AR308	BS&AE	Building Services- III	2	-	-	2	100	ISE	20	25	50
									MSE	30		
									ESE(OE)	-	-	
									ESE(TH)	50	23	
9	201AR309	PE	Professional Elective- IV	1	-	2	3	100	ISE	50	25	50
									MSE	-	-	
									ESE(OE)	50	23	
									ESE(TH)	-	-	
<b>Total</b>				<b>13</b>		<b>17</b>	<b>30</b>	<b>1050</b>		<b>1050</b>		<b>525</b>

ISE-In Semester Evaluation

MSE-Mid Semester Examination

ESE-End Semester Examination

OE-Oral Examination

TH-Theory

NOTE:-As per CoA Gazette 2020 norms, minimum passing percentage for each individual course to be minimum 45%.

**LIST OF PROFESSIONAL ELECTIVE COURSES**

PROFESSIONALELECTIVES (PE)			
Sr. No.	Subject Code	Name of the Subject	Semester
1		<b>PROFESSIONALELECTIVE-IV</b>	V
	201AR309A	Digital Architecture	
	201AR309B	Architectural Design with Steel	



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**Syllabus structure - Semester-VI**

Sr. No	Course Code	Course Type	Name of the Course	Teaching Scheme Per Week			Credits	Total Marks	Evaluation scheme			
				Lecture Hours	Tutorial Hours	Practical/ Studio Hours			Type	Max. Marks	Min. Marks for Passing	
											Individual Course	Aggregate
1	201AR310	PC	Architectural Design –VI	1	-	6	7	300	ISE	100	50	150
									MSE	-	-	
									ESE(OE)	100	45	
									ESE(TH)	100	45	
2	201AR311	PC	History of Architecture –IV	2	-	-	2	100	ISE	20	25	50
									MSE	30		
									ESE(OE)	-	-	
									ESE(TH)	50	23	
3	201AR312	PC	Estimation Costing & Specifications–II	1	-	2	3	100	ISE	20	25	50
									MSE	30		
									ESE(OE)	50	23	
									ESE(TH)	-	-	
4	201AR313	PC	Working Drawing– II	1	-	3	4	200	ISE	100	50	50
									MSE	-	-	
									ESE(OE)	100	45	
									ESE(TH)	-	-	
5	201AR314	BS&AE	Building Construction & Materials – VI	2	-	2	4	150	ISE	20	25	75
									MSE	30		
									ESE(OE)	50	23	
									ESE(TH)	50	23	
6	201AR315	BS&AE	Structural Engineering For Architecture-IV	2	-	-	2	100	ISE	20	25	50
									MSE	30		
									ESE(OE)	-	-	
									ESE(TH)	50	23	
7	201AR316	BS&AE	Building Services– IV	2	-	1	3	100	ISE	20	22	50
									MSE	30		
									ESE(OE)	-	-	
									ESE(TH)	50	23	

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Sr. No	Course Code	Course Type	Name of the Course	Teaching Scheme Per Week			Credits	Total Marks	Evaluation scheme			
				Lecture Hours	Tutorial Hours	Practical/ Studio Hours			Type	Max. Marks	Min. Marks for Passing	
											Individual Course	Aggregate
8	201AR317	OEL	Open Elective-I	3	1	-	4	100	ISE	50	25	50
									MSE	-	-	
									ESE(OE)	50	23	
									ESE(TH)	-	-	
9	201ARM C 318	Mandatory Course	Entrepreneurship Skills for Architects	2	-	-	-	-	ISE	50	25	-
									ESE (TH)	-	-	
									ESE(OE)	50	23	
									ESE(TH)	-	-	
<b>Total</b>				<b>14</b>	<b>1</b>	<b>14</b>	<b>29</b>	<b>1150</b>		<b>1150</b>		<b>525</b>

ISE-In Semester Evaluation

MSE-Mid Semester Examination

ESE-End Semester Examination

OE-Oral Examination

TH-Theory

NOTE:-As per CoA Gazette 2020 norms, minimum passing percentage for each individual course to be minimum 45%

\*Means combine passing for &amp;ESE (OE) &amp;ESE ( TH)

\*\*Means combined passing for ISE &amp; MSE &amp; ESE( OE) &amp;ESE( TH) as applicable.

#One lecture means period of One Hour (60Minutes) and One Studio means studio period of One Hour(60 Minutes)

Total weeks-14 weeks per semester

**ABBREVIATIONS**

<b>PC</b>	Professional Core
<b>BS&amp;AE</b>	Building Sciences And Applied Engineering
<b>PE</b>	Professional Elective
<b>OEL</b>	Open Elective
<b>PAECC</b>	Professional Ability Enhancement Core Courses
<b>SEC</b>	Skill Enhancement Courses

**LIST OF MANDATORY COURSES**

1	Entrepreneurship Skills for Architects	Introduction to entrepreneurship, leadership skills and self-motivation, starting a small business, social entrepreneurship and its relevance to the practice of architecture
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**LIST OF OPEN ELECTIVE COURSES**

<b>OPEN ELELECTIVES (OEL)</b>			
<b>Sr. No.</b>	<b>Subject Code</b>	<b>Name of the Subject</b>	<b>Semester</b>
1		<b>OPEN ELELECTIVE</b>	VI
	201AR317A	Role of Art and Technology in Interior Design	
	201AR317B	Residential Gardening	



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Curriculum w.e.f. 2022-2023

Course Plan

Course Title: <b>Architectural Design- V</b>	
Course Code: 201AR301	Semester: <b>V</b>
Teaching Scheme: L-T-P: <b>1-0-6</b>	Credits: 7
Evaluation Scheme: ISE Marks: 100	ESE(OE)Marks: 100

### Course Description:

The course emphasizes on creative and rational thinking skills for designing multi-level and multi-functional buildings viz. public/religious/healthcare/leisure/institutional, with built up area approximately between 1500 to 2000 sq.mt. Design proposal will be dealt as a contextual comprehensive thought with integration of universal Design, basic services, structural systems and construction details along with landscape and site planning.

### Course Objectives:

1	To understand the process of designing buildings with multi levels and multiple functions.
2	To understand integration of advanced technology, materials and services in architectural design.
3	To understand the aspects of campus planning in architectural design.

### Course Outcomes (COs):

COs	At the end of successful completion of course, the students will be able to...
1	Design the complex buildings with multi levels and multiple functions.
2	Apply appropriate materials, construction technology and services in designing and planning.
3	Design the buildings with due consideration to campus planning aspects.

**Prerequisite:** Knowledge of designing a small-scale contextual building with basic services and construction technology.

### Course Articulation Matrix: Mapping of Course Outcomes (COs) with Program Outcomes (POs) and Program Specific Outcomes (PSOs)

Course Outcomes (COs) / Program Outcomes (POs) / Program Specific Outcomes (PSOs)	1	2	3	4	5	6	7	8	9	10	11	12	(PSOs)		BTL
													1	2	
CO-1	2	2	2	2	1				2			2			4
CO-2	2	2	2	2	1				2			2			3
CO-3	2	2	2	2	1				2			2			3



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Curriculum w.e.f. 2022-2023

Unit No.	Course Content	Hrs.
<b>Unit 1</b>	<b>Literature Study</b>	<b>14</b>
1.1	Literature study related to given design assignment. Study of prevailing building by laws and NBC. Book case study/ Net case study of similar design problem	
1.2	Group discussions & group presentation.	
<b>Unit 2</b>	<b>Case Study</b>	
2.1	Data collection of the proposed design assignment through relevant live case studies.	<b>14</b>
2.2	Comparative analysis of Case studies, presentation and report.	
<b>Unit 3</b>	<b>Architectural Design</b>	<b>56</b>
3.1	Study of site, site analysis (topography, ground surface and 3 dimensional aspects - manmade and natural features). Zoning and inter relationship of spaces through matrix. Conceptual design and Preliminary design with study models.	
3.2	Final Design presentation with drawings, supporting sketches, models and views.	

### Sessional Work:

#### 1. Major design Assignment:

- Students should deal with one major design project with approximate built up area of 1500-2000 sq.mt.
- Design assignment may include essence of all subjects learnt in previous years.

**Note:** Design portfolio for major project should be completed with the help of scaled drawings, the process of drawings, with supporting sketches, models and views.

### Reference Books:

1	Julius Panero , Martin Zelnik, Human Dimension & Interior Space: A Source Book of Design Reference Standards, Watson-Guption Publications
2	D. K. Ching , Third edition - Form, Space & Order, John Wiley & Sons, Inc
3	Charles Harris, Time saver standards for landscape architecture, Second edition, McGraw Hill Education
4	National Building Code of India 2016- Vol -1/2/3
5	Fred Hall & Roger Greeno : Building Services Handbook-Students corner .
6	Michael Herz, Campus Landscape Planning & Design, Design Media Publishing (UK) Limited; Sew edition

### Video/ Audio Link's:

1	<a href="https://youtu.be/d-GzKyK0iw4">https://youtu.be/d-GzKyK0iw4</a>
2	<a href="https://youtu.be/f4HAMuBmJms">https://youtu.be/f4HAMuBmJms</a>





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Curriculum w.e.f. 2022-2023

Course Plan

Course Title : <b>History of Architecture – III</b>	
Course Code :201AR302	Semester :V
Teaching Scheme : L-T-P: <b>2-0-0</b>	Credits : <b>02</b>
Evaluation Scheme : ISE Marks : <b>20</b> +MSE Marks: <b>30</b>	ESE(TH) Marks :- <b>50</b>

### Course Description:

This course offers study of Architectural development in chronological manner in western countries with respect to historical periods within the restraints of social and religious customs, geography, climate, building materials and construction techniques, structural complexity and technology available at that time.

### Course Objectives:

1	To introduce evolution of settlement patterns.
2	To explain intervention of various impacts on development of buildings in the particular time era.
3	To explain architectural characteristics of particular era with relevant illustrations.
4	To study architecture inspired by Western historic buildings.

### Course Outcomes (COs):

COs	<b>At the end of successful completion of course, the students will be able to:</b>
1	Understand development of settlements with respect socio economic, cultural and political context of particular time period.
2	Understand architectural development with respect to impacts of climate, geography, culture, religion, technology etc.
3	Understand architectural ornamentation of particular time period.
4	Appraise a historical structure.

**Prerequisite:** Basic understanding of historical buildings with respect to different eras.

**Course Articulation Matrix: Mapping of Course Outcomes (COs) with Program Outcomes (POs) and Program Specific Outcomes (PSOs)**

Course Outcomes (COs) / Program Outcomes (POs) / Program Specific Outcomes (PSOs)	1	2	3	4	5	6	7	8	9	10	11	12	(PSOs)		B T L
													1	2	
CO-1	2								3	2					2
CO-2	2								3	2					2
CO-3	2								3	2				2	2
CO-4	2								3	2					2

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<b>Unit No.</b>	<b>Course Content</b>	<b>Hrs.</b>
<b>Unit 1</b>	<b>Egyptian Civilization</b>	
1.1	Introduction and study of Architectural characteristic features with respect to typologies like Mastabas, Pyramids, Temples (mortuary and cult), Rock hewn chambers. Development of Indian architecture parallel to Egyptian civilization.	2
1.2	Critical appreciations of structures like Pyramid of Cheops – Gizeh, Stepped Pyramid of Zoser Sakkara, Bent Pyramid of Dashur, Temple of Khons at Karnak, Great temple of Abu simbel.	2
<b>Unit 2</b>	<b>Greek Civilization</b>	
2.1	Introduction and study of architectural characteristic features with respect to typologies like temples and civic building. Development of Indian architecture parallel to Greek period.	1
2.2	Critical appreciation of structures like Acropolis, Agora, Stoas, Theatres, Dwellings	1
2.3	Study of Greek orders- Doric, Ionic, Corinthian	1
2.4	Study of their contributions like optical corrections in architecture, method of column entasis and use of golden section.	1
<b>Unit 3</b>	<b>Roman Civilization</b>	
3.1	Introduction and study of architectural characteristic features with respect to typologies like dwellings, colosseum, Thermae, aqua ducts, Triumphal arches, temples, amphitheatres etc. Development of Indian architecture parallel to Roman period.	2
3.2	Study of column orders – Tuscan and Composite	1
3.3	Study of Roman contribution towards engineering – Discovery of Puzzolona cement and construction of walls, arches, vaults, bridges etc.	1
<b>Unit 4</b>	<b>Early Christian and Byzantine Period</b>	
4.1	Introduction and study of Architectural characteristic features. Development of Indian architecture parallel to Early Christian and Byzantine Period.	2
4.2	Study of parts of Basilican churches – Basilica of St. Peters, Rome, St Clemente Rome.	1
4.3	Study of Byzantine features in Constantinople- St. Hagia Sophia, study of domes and Pendentives.	1
<b>Unit 5</b>	<b>Romanesque Architecture</b>	
5.1	Introduction and study of architectural characteristic features of typologies like Pisa complex- cathedral, campanile baptistery. Development of Indian architecture parallel to Romanesque period.	2
5.2	Study of new concepts of external massing, articulation, crossing, triforium gallery, radiating chapels etc.	2
<b>Unit 6</b>	<b>Gothic Architecture</b>	
6.1	Introduction to development of Gothic period in France, Britain and Italy. Development of Indian architecture parallel to Romanesque period.	1
6.2	Study of architectural features like pointed arch. Vaulting, flying buttresses, frescoes, rose window etc.	1
6.3	Study of ornamental features with examples.	1
6.4	Study of structures like St. Dennis, Notre Dame de Paris.	1



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**Text Book:**

1	Sir Banister Fletcher, A History of Architecture CBS publication 20 <sup>th</sup> Edition 2002
2	Francis D.K. Ching, Mark. M Jarzombek, VikramadityaPrakash, 'Global History of Architecture' John Wiley and sons 2017

**Reference Books:**

1	Sushmaparashar 'Global History of Architecture'
2	Francesca Prina, 'The Story of Romanesque Architecture', Prestel New York 2011
3	Francesca Prina, 'The story of Gothic Architecture' . Prestel New York 2011
4	Daren Yarwood, 'Chronology of western Architecture' , Pover publications Inc, New York 2010
5	Watkin D. 'A history of western Architecture'. Thames and Hudson 1986.

**Video / Audio links:**

1	Egyptian architecture - Pyramids : <a href="https://youtu.be/lotbZQ55SgU">https://youtu.be/lotbZQ55SgU</a> Temples : <a href="https://youtu.be/EabKVN5pAxc">https://youtu.be/EabKVN5pAxc</a>
2	Greek architecture - Acropolis : <a href="https://youtu.be/15vilcnw3BI">https://youtu.be/15vilcnw3BI</a>
3	Roman architecture - Colosseum : <a href="https://youtu.be/7FpQ1CmcPYQ">https://youtu.be/7FpQ1CmcPYQ</a> Aqueducts : <a href="https://youtu.be/BihMQVi5T00">https://youtu.be/BihMQVi5T00</a> Roman baths : <a href="https://youtu.be/h6dkadxtvIY">https://youtu.be/h6dkadxtvIY</a>
4.	Romanesque architecture – Structures : <a href="https://youtu.be/QT0ITLRkNyg">https://youtu.be/QT0ITLRkNyg</a> Churches : <a href="https://youtu.be/-DLI4BPcoq8">https://youtu.be/-DLI4BPcoq8</a>
5.	Byzantine architecture –Istanbul : <a href="https://youtu.be/XfpusWEd2jE">https://youtu.be/XfpusWEd2jE</a> Early Christian Architecture : <a href="https://youtu.be/DdhVEejCbiA">https://youtu.be/DdhVEejCbiA</a>
6.	Gothic architecture -Notre Dame, Paris : <a href="https://youtu.be/5zXtIRI3pkI">https://youtu.be/5zXtIRI3pkI</a> Milan Cathedral, Italy : <a href="https://youtu.be/BnWh2hDF6XI">https://youtu.be/BnWh2hDF6XI</a>

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Curriculum w.e.f. 2022-2023  
Course Plan

Course Title : <b>Estimation costing and Specifications- I</b>	
Course Code : <b>201AR303</b>	Semester : <b>V</b>
Teaching Scheme : L-T-P : <b>1-0-2</b>	Credits : <b>03</b>
Evaluation Scheme : ISE Marks : <b>20</b> + MSE Marks: <b>30</b>	ESE(TH) Marks: <b>50</b>

**Course Description:**

This course deals with tools and techniques of estimation and costing of construction projects. It also involves understanding financial aspects in construction projects. The course cover understanding of terms estimation, costing & specifications, aims and objectives of estimation, various methods of approximate estimates. It also covers types of estimates& types of specifications.

**Course Objectives:**

1	To understand methods of estimation.
2	To understand the methods of rate analysis.
3	To understand concept of specification writing.

**Course Outcomes (COs):**

COs	<b>At the end of successful completion of course, the students will be able to...</b>
1	Prepare bill of quantities
2	Prepare rate analysis.
3	Write specifications

- **Prerequisite:** Basic understanding of construction components and sequence of construction.

**Course Articulation Matrix: Mapping of Course Outcomes (COs) with Program Outcomes (POs) and Program Specific Outcomes (PSOs)**

Course Outcomes (COs) / Program Outcomes (POs) / Program Specific Outcomes (PSOs)	1	2	3	4	5	6	7	8	9	10	11	12	(PSOs)		B T L
													1	2	
CO-1	3	3				2	2	2	2	2					3
CO-2	3	3				2	2	2	2	2					3
CO-3	3	3				2	2	2	2	2			2		2



Curriculum w.e.f. 2022-2023

Unit No.	Course Content	Hrs.
<b>Unit 1</b>	<b>Types of estimates</b>	<b>6</b>
1.1	Definitions and meaning of estimation and costing.	
1.2	Approximate estimates and its types.	
1.3	Detailed estimates and its types.	
<b>Unit 2</b>	<b>Terms of estimation</b>	<b>6</b>
2.1	Revised estimate , supplementary estimate, revised supplementary estimate, annual repairs, Maintenance estimate, Out turn, B.O.Q.	
2.2	Contingencies, Work charge establishment, Lead & lift Provisional items, Provisional quantities, Provisional sum, Spot items	
<b>Unit 3</b>	<b>Method of estimation</b>	<b>9</b>
3.1	Listing of building items and modes of measurements (I.S.1200) of various items of construction.	
3.2	Measurement and abstract forms	
3.3	Principles and methods of taking out quantities	
3.4	Center line method	
3.5	Long wall- Short wall method	
3.6	Rules of deduction	
<b>Unit 4</b>	<b>Rate analysis</b>	<b>9</b>
4.1	Principals of rate analysis, factors affecting rate analysis.	
4.2	Market survey of materials & labor rates	
4.3	Analysis of rates for various items of construction.	
<b>Unit 5</b>	<b>Specifications</b>	<b>6</b>
5.1	Introduction to specification	
5.2	Purpose of specifications	
5.3	Types of specifications	
5.4	Method of drafting specifications.	

**Sessional work:**

- Notebook.
  - Estimates of construction components.( septic tank, water tank, garage, compound wall etc.)
  - Estimate of a load bearing structure (50 sq.m.).
- Market survey of rates of materials' & labour.
- Analysis of rates of various building items.
- Collection and study of sample estimate from an architect's office.

**Text Book:**

1	Estimation and costing in Civil Engineering by B. N. Datta.
2	Estimating, costing, specification & valuation in Civil engineering by M. Chakraborty.

**Reference Books:**

1	PWD-SSR (latest published)
2	I.S. Code 1200



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## Curriculum w.e.f. 2022-2023 Course Plan

Course Title : <b>Working Drawing-I</b>	
Course Code : <b>201AR304</b>	Semester : <b>V</b>
Teaching Scheme : L-T-P : <b>1-0-3</b>	Credits : <b>04</b>
Evaluation Scheme : ISE Marks : <b>100</b>	ESE Marks :- <b>Nil</b>

### Course Description:

The purpose of this course is to develop and transform design into computerized working drawings & municipal drawings as per latest building bylaws. This course deals with preparation of working drawings as a means of communication between architect & contractor/s for execution of buildings.

### Course Objectives:

1	To introduce working drawing and its significance in the construction of buildings.
2	To identify an appropriate structural system for building.
3	To explain content and methodology of municipal drawing.

### Course Outcomes (COs):

COs	At the end of successful completion of course, the students will be able to...
1	Distinguish between architectural drawing & working drawing.
2	Prepare working drawing as per appropriate structural system.
3	Prepare municipal drawing.

**Prerequisite:** Basic knowledge of building construction technology & architectural graphics.

### Course Articulation Matrix: Mapping of Course Outcomes (COs) with Program Outcomes (POs) and Program Specific Outcomes (PSOs)

Course Outcomes (COs) / Program Outcomes (POs) / Program Specific Outcomes (PSOs)	1	2	3	4	5	6	7	8	9	10	11	12	(PSOs)		B T L
													1	2	
													1	2	
CO-1	3	2	2		2				2	2					4
CO-2	3	2	3		3				2	3			3		3
CO-3	3	2	3		3				3	3					3



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Unit No.	Course Content	Hrs.
<b>Unit 01</b>	<b>Introduction to Working Drawing</b>	04
<b>Unit 02</b>	<b>Sub-structure</b>	
	2.1 Centerline plan	08
	2.2 Excavation plan	
	2.3 Foundation plan with footing details	
<b>Unit 03</b>	<b>Super-structure</b>	
	3.1 Ground beam & Plinth beam	28
	3.2 Slab layouts with floor beams	
	3.3 Detail floor plans along with schedule of internal finishes, door & window schedule.	
	3.4 Sections with brief specification min. 4 (Toilet & staircase section compulsory)	
	3.5 All side elevations with brief specifications.	
<b>Unit 04</b>	<b>Municipal submission</b> –municipal drawing and file submission, contents of municipal drawing as per prevailing bylaws for approval.	8

**Text Book:**

1	Robert C. McHugh_1982_ Working Drawing Handbook: A Guide for Architects and Builders, Van Nostrand Reinhold Company.
2	Mantri Institute of Development and Resarch,Pune_1998_Practical building construction & its Management_Third Edition, SatyaPrakashan

**Reference Books:**

1	Francis D.K.Ching_2018_Building Construction illustrated _Fourth edition , Wiley
2	Anirudha Kolhatkar_2015_Building Construction &Materrial_First Edition,

**Video Links:**

1	Complete construction of RCC –DESIGN _ <a href="https://www.youtube.com/watch?v=_A7_tfvt0UY">https://www.youtube.com/watch?v=_A7_tfvt0UY</a>
2	How To Make Building Plan I Sanction Map Drawing I Explain ByArPrashantPardhi _ <a href="https://www.youtube.com/watch?v=5aNOOgNUJpg">https://www.youtube.com/watch?v=5aNOOgNUJpg</a>

**Note :- ESE ( OE ) for the courses Working Drawing-I (Sem.–V) and Working Drawing-II (Sem.–VI) will be conducted at the end of Sem. VI.**



Curriculum w.e.f. 2022-2023  
Course Plan

Course Title : <b>Landscape Architecture</b>	
Course Code : <b>201AR-305</b>	Semester : <b>V</b>
Teaching Scheme : L-T-P : <b>1-0-2</b>	Credits : <b>03</b>
Evaluation Scheme : ISE Marks : <b>50</b>	ESE(OE) Marks :- <b>50</b>

**Course Description:** This course is designed to give students a brief overview of landscape architecture, its importance in site planning and awareness about sustainable practices in landscape. This course shall have a direct application in the design studio of the same semester as well as subsequent semesters for site planning and landscape design of the respective design assignments.

**Course Objectives:**

1	To understand elements, principles, aspects and scope of Landscape Architecture.
2	To identify the role of hardscape and soft scape elements in design of indoor and outdoor environments for various projects.
3	To learn principles of site planning, sustainable practices and technical details of landscape services.
4	To distinguish the characteristics of historic landscapes and the development of modern, contemporary landscape.

**Course Outcomes (COs):**

COs	At the end of successful completion of course, the students will be able to...
1	Use the elements and apply principles of Landscape Architecture in their design assignments.
2	Select appropriate hardscape and soft scape elements for the subsequent design assignments.
3	Apply principles of site planning, sustainable practices and landscape services in their subsequent design assignments.
4	Analyze the sequential development of landscape character from historical to modern era and contemporary landscape developments.

**Pre requisite:** Basic understanding of aesthetics and principles of design.

**Course Articulation Matrix: Mapping of Course Outcomes (COs) with Program Outcomes (POs) and Program Specific Outcomes (PSOs)**

Course Outcomes (COs) / Program Outcomes (POs) / Program Specific Outcomes (PSOs)	1	2	3	4	5	6	7	8	9	10	11	12	(PSOs)		BTL
													1	2	
CO-1	3	3	3	3	2	3	3		2	3			3	3	2
CO-2	3	3	3	3	2	3	3		2	3			3	3	3
CO-3	3	3	3	3	2	3	3		2	3			3	3	2
CO-4	3	3	3	3	2	3	3		2	3			3	3	3



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<b>Unit No</b>	<b>Course Content</b>	<b>Hrs.</b>
<b>Unit 1</b>	<b>Introduction to Landscape Architecture</b>	<b>9</b>
1.1	Need and scope.	
1.2	Aspects of landscape architecture from functional, socio-cultural, ecological, economical, aesthetic point of view.	
1.3	Study of landscape characters, Landscape elements (natural/manmade).	
1.4	Such as land, vegetation, water, geology & climate, etc.	
1.5	Principles of landscape design.	
	Studio - Introduction of Landscape design assignment and its concept development.	
<b>Unit 2</b>	<b>Hardscape and Softscape elements</b>	<b>6</b>
2.1	Hardscapes such as pergolas, garden furniture, water features, fences, rockery, masonry, paving & surfacing, roads& parking lots, walkways & plazas w.r.t. materials and landscape construction details.	
2.2	Softscapes such as plantation, turfing. Design criteria for landscape design such as visual, functional, micro-climatic, ecological and aesthetic. Basic horticultural study of plants, plant selection, planting design and care of plants. Artificial Landscape elements.	
	Studio- Site development w.r.t Zoning and hardscape & soft scape elements of given Landscape design assignment.	
<b>Unit 3</b>	<b>Site planning and site analysis</b>	<b>6</b>
3.1	Lecture - Study of factors affecting landscape design, i.e. context, climate(Macro & Micro)w.r.t. surrounding environment.	
3.2	Site analysis includes study of physical and socio-cultural context, topography, hydrology and vegetation.	
3.3	Introduction to sustainable site planning and sustainable Landscape design. Green practices: Soil protection during and after construction, reduction of hard paving and circulation areas water efficient landscapes, designs to include existing natural features.	
	Studio- Site development w.r.t site planning aspects and Green practices of given Landscape design assignment.	
<b>Unit 4</b>	<b>Landscape design and Services</b>	<b>6</b>
4.1	Lecture - Landscape Services like electrical, surface water drainage, irrigation, soil management techniques and plantation detail.	
	Studio- Site development w.r.t Landscape Services of given Landscape design assignment.	
<b>Unit 5</b>	<b>History of Landscape Architecture</b>	
5.1	Lecture –Brief historic overview of the evolution of the landscape history, origin of garden concept, history of Landscape Architecture including natural & cultural factors of the place, development of landscape architecture through history in different parts of the world such as Persia, Egypt, Greece, Rome ,China, Japan, Italy, France, Spain, England and Ancient India and Mughal Period.	
5.2	Concepts of Modern & Contemporary Landscape architecture.	



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5.3	Study of elements and types through contemporary works of renowned landscape architects – Ravindra Bhan, Mohamed Shahir, Aniket Bhagwat, Jayant Dharap, Varsha and Ravi Gavandi, Nilima and Vikas Bhosekar, Mangesh Prabhugaonkar, Dr. Priyaleen Singh.	6
	Studio- Development of working drawing and plantation plan w.r.t given Landscape design assignment.	
<b>Unit-6</b>	<b>Final presentation &amp; working Drawings</b>	<b>6</b>
6.1	Lecture – Presentation techniques & landscape working drawings.	
	Studio- Final Submission of given Landscape design assignment.	

**Text Book:**

1	Landscape architecture a manual of site planning and design – Symonds Residential landscape architecture, Norman. K. Booth
2	Visual analysis of landscape development, Peter Jacobs and Douglas Way
3	Landscape planning and energy conservation. Gary O. Robinette (ed), Van-Nostrand Reinhold Introduction to landscape architecture, Michael Laurie
4	The landscape of man, Geoffrey and Susan Jellicoe, Thames and Hudson
5	Site planning by Kevin Lynch and Gary Hack.
6	Elke Mertens, publisher Medialis, Berlin - Visualizing Landscape Architecture- functions, concepts, strategies, edition 2010.
7	K.C.Sahni, publisher Oxford University Press - The book of Indian Trees, edition 2000.
8	Shrikant Ingahalikar, Sharvari Barve, publisher Corolla Publications, Pune – Trees of Pune, field guide to 482 Arore plants of Pune city, edition 2010.
9	Bushra Ahmed, Hina Jain, Nidhilekha Mathur, publisher D.K. Penguin Random House – Gardening in Urban India with practical projects for small spaces, edition 2016.
10	Archiworld Co.Ltd - Landscape Space Volumes 1,2,3,4&5
11	Landscape Architecture: History, Ecology and Patterns by I P Singh (Author), Minakshi Jain (Author) Copal Publishing Group.
12	Landscape Architecture In India. by Mohammad Shaheer (Editor), Geeta Wahi Dua (Editor), Adit Pal (Editor) – LA Journal of Architecture.

**Reference Books:**

1	Time saver standards for landscape architecture
2	National building code 2016
3	Trees of Central India by Pradip Kishan.
4	'Landscape Architecture' by JO Simonds, McGrawhill education, Delhi, 1983 and onwards.
5	Griha Manual Volume 2-4 Adarsh.

**Video/ Audio Link's:**

1	How Much Sun A Plant Needs  Gardening Basics  Part1- <a href="https://youtu.be/Neda0goqBRk">https://youtu.be/Neda0goqBRk</a>
2	Home Gardening Tips for Beginners    Lesson - 1 Home/Garden- <a href="https://youtu.be/CyhpDmwzP-w">https://youtu.be/CyhpDmwzP-w</a>
3	How to Make a Terrace Vegetables Garden- <a href="https://youtu.be/feIJXJqNfoc">https://youtu.be/feIJXJqNfoc</a>
4	Grow Plants in small Balcony- <a href="https://youtu.be/nHLTxMojOg8">https://youtu.be/nHLTxMojOg8</a>



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Third Year B. Arch.

## Curriculum w.e.f. 2022-2023 Course Plan

Course Title: <b>Building Construction &amp; Materials - V</b>	
Course Code: <b>201AR306</b>	Semester: <b>V</b>
Teaching Scheme: L-T-P: <b>2-0-2</b>	Credits: <b>4</b>
Evaluation Scheme: ISE Marks : <b>20</b> + MSE Marks: <b>30</b>	ESE Marks: <b>(TH)-50+ (OE)-50</b>

### Course Description:

The course intends to explore process of construction activities, supervision of construction, appropriate use of building materials and preparation of detailed drawings to be used for construction by understanding various structural concepts and properties of building materials. Along with modern construction methods, the course also describes prevailing non conventional construction methods. The course also includes site visits, case studies and measure drawings of various stages of construction.

### Course Objectives:

1	To introduce contemporary construction techniques.
2	To introduce non-conventional building construction methods.
3	To explain construction details through case studies.
4	To explain process of construction and supervision.

### Course Outcomes (COs):

<b>COs</b>	<b>At the end of successful completion of course, the students will be able to...</b>
1	Apply knowledge of contemporary construction techniques during preparation of detailed drawings.
2	Select proper material based on contextual needs.
3	Design details in order to make better buildings.
4	Apply knowledge of construction process for supervision and construction of better buildings.

**Prerequisite:** Understanding of preparing detail construction drawings.

### **Course Articulation Matrix: Mapping of Course Outcomes (COs) with Program Outcomes (POs) and Program Specific Outcomes (PSOs)**

Course Outcomes (COs) / Program Outcomes (POs) / Program Specific Outcomes (PSOs)	1	2	3	4	5	6	7	8	9	10	11	12	(PSOs)		B T L
													1	2	
CO-1	3		2	2			3		2	2				2	3
CO-2	2		1	1			2		2	1				1	2
CO-3	3		2	2			3		3	2				2	3
CO-4	3		2	2			3		2	2				2	3



Curriculum w.e.f. 2022-2023

Unit No.	Course Content	Hrs.
Unit 1	<b>Material</b>	8
1.1	Mastic Sealants, Waterproofing compounds, Additives	
1.2	Various types, their compositions, properties and application.	
1.3	<b>Construction</b>	
	<b>Retaining Walls</b> Masonry retaining walls- gravity retaining walls, mass retaining wall. R.C.C. retaining walls- various types, reinforcement details, formwork details, construction joints, water bars, waterproofing details.	
Unit 2	<b>Material</b>	8
2.1	<b>Ferrous and Non-ferrous materials</b>	
	Introduction, iron ores, selection of iron ores, variation of iron ores <ul style="list-style-type: none"><li>• Cast iron- composition, types, properties, uses.</li><li>• Wrought iron- properties, defects, uses.</li><li>• Zinc- properties, types, uses.</li><li>• Copper- properties, types, uses.</li></ul>	
2.2	<b>Construction</b>	
	<b>Pre-Engineered buildings ( PEB )</b>	
	Concept of pre-engineered buildings, steel stanchions, beams, castellated beam, built up stanchions, built up beams, connection details of stanchion- foundation, stanchion-stanchion, stanchion- beam, beam-beam, flooring connections, haunched connection, connections of steel sections with concrete.	
Unit 3	<b>Material</b>	8
3.1	<b>Soil for rammed earth construction</b>	
	Type of soil, composition of soil, properties of soil, structure of soil, soil identification, soil stabilization methods.	
3.2	<b>Construction</b>	
	<b>Non-Conventional Building Construction methods -Rammed Earth Construction</b>	
	Introduction to rammed earth construction techniques for shallow foundation plinth details, rammed earth walls and its junctions, door and window fixing details in rammed earth.	
Unit 4	<b>Material</b>	8
4.1	<b>Alloys</b>	
	Aluminium alloys, copper alloys, their properties and uses.	
4.2	<b>Construction</b>	
	<b>Claddings</b>	



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		Various cladding materials, construction details of claddings in stone, brick, wood, tiles, aluminium composite panels (ACP), UPVC. Cladding for industrial buildings.	
Unit 5	<b>Material</b>		8
5.1	<b>Glass</b>		
		Classification, composition, and properties of glass, Different types of glass, coloured glass, Available size and thickness of glass,	
5.2	<b>Glass Curtain walls and structural glazing</b>		
		Typical construction details of glass curtain walls and structural glazing, spider fittings, double skin curtain walls, maintenance of curtain walls and structural glazing.	
Unit 6	<b>Material</b>		8
6.1	<b>Thermal insulation materials</b>		
		Introduction, types and uses of thermal insulation materials	
6.2	<b>Construction</b>		
	<b>Vertical transportation</b>		
		Wooden staircase ,Composite staircase- constructional details of staircase with composite materials- steel & plywood/ block board, wood, tile etc., R.C.C and wood etc. Different types of railings. Lifts & Escalators	

### Reference Books:

1	Chudley Roy Advanced Construction Technology–Prentice Hall; 4th edition (13 July 2006)
2	S.P.Arora, S.P. Bindra , A Text-Book of Building Construction - Dhanpat Rai & Co.
3	Building Materials & Construction – Punmia
4	Building Construction- S.C. Rangwala
5	McHenry Paul Graham, Adobe and Rammed Earth Buildings, University of Arizona Press

### Video/ Audio Links:

1	<a href="http://www.earth-auroville.com/index.php">http://www.earth-auroville.com/index.php</a> ( For Rammed Earth construction )
2	<a href="https://www.youtube.com/watch?v=tVScBJE26p8">https://www.youtube.com/watch?v=tVScBJE26p8</a> ( For PEB construction )
3	<a href="https://www.youtube.com/watch?v=qyY9Fx8pNts">https://www.youtube.com/watch?v=qyY9Fx8pNts</a> ( For Curtain Wall construction )



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Curriculum w.e.f. 2022-2023  
Course Plan

Course Title : <b>Structural Engineering For Architecture - III</b>	
Course Code :201AR307	Semester :V
Teaching Scheme : L-T-P : <b>2-0-0</b>	Credits : <b>02</b>
Evaluation Scheme : ISE Marks : <b>20</b> +MSE Marks: <b>30</b>	ESE Marks(TH) :- <b>50</b>

### Course Description:

This course deals with use and application of tools and techniques required to study the behavior of various structural system and feasibility of different structural systems. The course also includes Design process for RCC members. It also develops knowledge about choice of proper section, strength consideration, behavior and response of loads. The site visits will help students to understand the practical difficulties.

### Course Objectives:

1	To understand the behavior of RCC Structural systems.
2	To Analyze feasibility of different structure systems, limitation of forms spans.
3	To study the strength of material and its behavior under the load.
4	To select proper structural section with concept of factor of safety, characteristic strength of material.

### Course Outcomes (COs):

COs	<b>At the end of successful completion of course, the students will be able to...</b>
1	Predict the behavior RCC Structural systems.
2	Select the appropriate structural system.
3	Calculate the sizes of then different structural members.
4	Design proper structural section with concept of factor of safety, characteristic strength of material.

**Prerequisite:** fundamentals of theory of structures and material properties like tensile strength, compressive strength. etc

### Course Articulation Matrix: Mapping of Course Outcomes (COs) with Program Outcomes (POs) and Program Specific Outcomes (PSOs)

Course Outcomes (COs) / Program Outcomes (POs) / Program Specific Outcomes (PSOs)	1	2	3	4	5	6	7	8	9	10	11	12	(PSOs)		B T L
													1	2	
CO-1	3	3				2	2	2	2	2					2
CO-2	3	3				3	2	2	2	2					3
CO-3	3	3				3	2	2	2	2			2		2
CO-4	3	3				2	2	2	2	2			2		3

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<b>Unit No.</b>	<b>Course Content</b>	<b>Hrs.</b>
<b>Unit 1</b>	<b>Introduction to RCC</b>	
1.1	Definition, advantages of RCC, Types of load combinations, limit state method of design	2
1.2	Characteristic strength of materials, factor of safety, practical knowledge about compressive strength of concrete and tensile strength of steel.	
1.3	Laboratory experiment observations expected.	1
<b>Unit 2</b>	<b>Design of singly reinforced beam</b>	
2.1	Limit state of collapse, assumptions, stress-strain relationship, strain diagram, stress block diagram for singly reinforced beam.	1
2.2	Design parameters, neutral axis, lever arm, total tensile and compressive force.	1
2.3	Types of sections, balanced section, under-reinforced section, over-reinforced section, design and analysis of singly reinforced section. Concept of Doubly Reinforced section T Beam and L Beam (Only Theory)	3
<b>Unit 3</b>	<b>Design of shear reinforcement</b>	
3.1	Concept of shear, bond and development length	1
3.2	Design of shear reinforcement.	2
3.3	Site visit to study the reinforcement.	1
<b>Unit 4</b>	<b>Design of short axially loaded RC column</b>	
4.1	Design of short axially loaded RC columns (circular, rectangular, square).	2
4.2	Analysis of RCC columns.	2
<b>Unit 5</b>	<b>Simply supported slab and cantilever slab</b>	
5.1	Concept of one-way and two-way slab.	1
5.2	Design of one-way simply supported slab.	2
5.3	Design of cantilever slab.	1
<b>Unit 6</b>	<b>Design of axially loaded RCC footing</b>	
6.1	Structural action of foundation.	1
6.2	Design of axially loaded RCC footing.	2
6.3	Information about software available to design the components like column and footing.	1

**Sessional work**

- Class notes.
- Assignments based on above topics
- Case study report
- Structural layout for 1st year design problem.



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**Text Book:**

1	S. Ramamrutham ,RCC Design.
2	HR. R. Gadpal and D. J. Khamkar ,Design of steel and RCC Structure.

**Reference Books:**

1	<b>IS 456-2000</b>
2	Hulse, Ray and Chain, Jack (2016) Structural Mechanics, Macmillan International Higher Education.
3	Salvadori, M and Heller , RA (1963), Structure in Architecture,3 <sup>rd</sup> ed. ,prentice Hall
4	Hjelmstad, Keith D.(2005),Fundamentals of Structural Mechanics,2 <sup>nd</sup> ed., Springer

**Video/ Audio Link's:**

1	Design of RCC Structures by limit state method. <a href="https://youtu.be/ebS3r-hmxaM">https://youtu.be/ebS3r-hmxaM</a>
2	Relationship of structure to Architectural Buildings . <a href="https://youtu.be/3uUZt-w-p-l">https://youtu.be/3uUZt-w-p-l</a>

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Course Title : <b>Building Services III</b>	
Course Code : 201AR308	Semester : V
Teaching Scheme : L-T-P : 2-0-0	Credits : 02
Evaluation Scheme : ISE Marks : 20+MSE Marks: 30	ESE (TH) Marks :-50

**Course Description:**

The variety in the Design Projects leads to variation in the Services they contain. In this course, the students are explored to various services needed for different types of projects like hospital, hotels and high rise structures.

**Course Objectives:**

1	To explain various hospital and hotel services
2	To update latest technological concepts of automation used in building services
3	To introduce the various services which are required while designing high rise structures.

**Course Outcomes (COs):**

COs	At the end of successful completion of course, the students will be able to...
1	Understand various hospital and hotel services in the building.
2	Use the latest concepts of building automation in services
3	Understand various services required for high rise structures

**Prerequisite:** Knowledge of basic building services.

**Course Articulation Matrix: Mapping of Course Outcomes (COs) with Program Outcomes (POs) and Program Specific Outcomes (PSOs)**

Course Outcomes (COs) / Program Outcomes (POs) / Program Specific Outcomes (PSOs)	1	2	3	4	5	6	7	8	9	10	11	12	(PSOs)		BTL
													1	2	
CO-1	3	3	3			3			3	2				2	2
CO-2	2	2	2			2			2	1				1	3
CO-3	3	3	2			3			2	2				1	2



Unit No.	Course Content	Hrs.
<b>Unit 1</b>	<b>Hospital gases &amp; CSSD, Bio-medical waste and Incinerator</b>	4
1.1	<b>Hospital gases &amp; CSSD (Central Sterile Supply Department)</b> Types of gases needed for hospitals. Flow chart, tentative plan, location, area and planning of CSSD.	
1.2	<b>Bio-medical waste and Incinerator-</b> Classification, segregation, collection, treatment and disposal of Bio-medical waste along with details of ducts to be provided.	
<b>Unit 2</b>	<b>Laundry &amp; Housekeeping-</b>	4
2.1	<b>Laundry</b> - Location of laundry in building, laundry process, laundry operation, planning and its space requirements, flow process chart, factors to be considered while designing.	
2.2	<b>Housekeeping-</b> Flow chart for housekeeping personnel, coordination of housekeeping with other departments, housekeeping services.	
<b>Unit 3</b>	<b>Pneumatic Medicine distribution system &amp; Infection control system</b>	4
3.1	<b>Pneumatic Medicine distribution system-</b> Introduction, Application for hospital buildings, types, its working and area requirements.	
3.2	<b>Infection control system-</b> Introduction, function, area requirement, space allocation for equipments required, special treatment required.	
<b>Unit 4</b>	<b>Commercial kitchens &amp; Swimming pool services</b>	4
4.1	<b>Commercial kitchens</b> - Function, planning and area requirements for hotel/ restaurant kitchen, diet kitchens for hospitals and community kitchen.	
4.3	<b>Swimming pool Services-</b> Filtration plant, balancing tank, water strainers, water heating, underwater lighting.	
<b>Unit 5</b>	<b>Building Automation System</b>	2
5.1	Automation control from server room, Modern security systems	
5.2	Home Automation, alarm system, intercommunication, monitoring devices	
<b>Unit 6</b>	<b>High rise Building Services &amp; STP</b>	6
6.1	<b>High rise building services-</b> Water supply, drainage & Electrical distribution for high rise buildings. Pneumatic waste collection system, service floors, drainage transfer floors.	
6.2	<b>STP-</b> Working of Sewage/Effluent water treatment plant for hospitals and hotels in order to reuse the water for toilet flushing or gardening. Space requirement, location and capacity of the same.	

#### Sessional work

- Class notes.
- Assignments based on above topics.
- Prepare layout showing allocation of above services into design problems of semester V.



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**Reference Books:**

1	Kunders G. D., Hospitals Facilities Planning and Management, McGraw Hill Education.
2	Kunders G. D., Designing for total quality in health care, Prism
3	Mittal A.K. Electrical and Mechanical Services in High rise Buildings, Design and Estimation manual.
4	Lepik Andres, Skyscraper, Prestel
5	Dutta Subijoy, Environmental Treatment Technologies for Hazardous and Medical Wastes, Remedial Scope and Efficacy, Tata McGraw Hill Education (22 March 2002)
6	Ghose D.N, Operation and maintenance of sewage treatment plant, CBS Pub. & Distri. Delhi
7	Dr. Sharad Gajuryal, Linen and Laundry service
8	Raghubalan and Smritee Raghubalan, Hotel Housekeeping Operations Management, Oxford Higher Education
9	NBC 2016
10	UDCPR 2020

**Video/ Audio Link's:**

1	CSSD- <a href="https://youtu.be/CtVWzU8FG4M">https://youtu.be/CtVWzU8FG4M</a>
2	Hospital Gases- <a href="https://youtu.be/u7H5EEQBra0">https://youtu.be/u7H5EEQBra0</a>
3	Hospital services integration- <a href="https://youtu.be/Xph4w8vo9bI">https://youtu.be/Xph4w8vo9bI</a> , <a href="https://youtu.be/Xph4w8vo9bI">https://youtu.be/Xph4w8vo9bI</a>
4	Laundry- <a href="https://youtu.be/tITG0ckop70">https://youtu.be/tITG0ckop70</a>

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Curriculum w.e.f. 2022-2023

Course Plan

Course Title : <b>Professional Elective - IV – Digital Architecture</b>	
Course Code : <b>201AR309A</b>	Semester : <b>V</b>
Teaching Scheme : L-T-P : 1-0-2	Credits : 3
Evaluation Scheme : ISE Marks :- 50	ESE Marks (OE) :- 50

### Course Description:

Digital Architecture is the revolution in the field of architecture that utilizes digital media in the process of architectural design. The students will be acquainted with the paradigm shift from computerization to computation. It will also help in designing the concept, design development and detail designing of the architectural form. This course will enable students to understand the evolution of digital architecture, scope of digital architecture, apply the knowledge of software to create walkthroughs and models using 3D printing.

### Course Objectives:

1	To understand the potential of digital architecture as future architecture.
2	To develop a conceptual understanding of the software used in digital architecture.
3	To use digital software for the development of concepts and intended design outcomes.
4	To illustrate creative design outcomes with reference to use of appropriate software.

### Course Outcomes (COs):

COs	At the end of successful completion of course, the students will be able to...
1	To understand the scope and evolution of digital architecture.
2	To analyze the difference between conventional and digital working methodologies while creating design outputs.
3	To apply digital software to prepare conceptual models.
4	To prepare design models by using appropriate software.

**Prerequisite:** Creating 2D plans, AutoCAD drafting, 3D modeling

### **Course Articulation Matrix: Mapping of Course Outcomes (COs) with Program Outcomes (POs) and Program Specific Outcomes (PSOs)**

Course Outcomes (COs) / Program Outcomes (POs) / Program Specific Outcomes (PSOs)	1	2	3	4	5	6	7	8	9	10	11	12	(PSO)		BTL
													1	2	
CO1		3		3	3		3		3			3			2
CO2		2		3	3		3		3			3			4
CO3		2		3	3		3		3			3			3
CO4		2		3	3		3		3			3		3	3



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Unit No.	Course Content	Hrs.
<b>Unit- 1</b>	<b>Introduction to Digital Architecture</b>	<b>3</b>
1.1	Aspects of digital architecture	
1.2	Types of digital architecture.	
1.3	Works of prominent architects.	
<b>Unit-2</b>	<b>History and Scope of Digital Architecture</b>	<b>6</b>
2.1	Evolution of digital architecture – Past, Present and Future.	
2.2	Digital Innovations throughout history of architecture – Planning and designing tools, BIM, Artificial Intelligence, Surveying Software, Project Management tools, Environment Simulation tools, 3D printing, Graphic Designing Tools.	
<b>Unit -3</b>	<b>Application of Software</b>	<b>9</b>
3.1	Design of furniture, artifacts, etc. by using Google SketchUp.	
3.2	Rendering using Lumion, walkthroughs, scene settings, presentation drawings using Photoshop, CorelDraw.	
<b>Unit -4</b>	<b>Parametric Software</b>	
4.1	Introduction to Rhino and Grasshopper	<b>9</b>
4.2	Different techniques of using the computer for designing	
<b>Unit -5</b>	<b>Digital Printing</b>	<b>6</b>
5.1	Application of Creality Slicer software.	
5.2	3D printing – Introduction to machine handling, materials required, 3D printing of models.	
<b>Unit- 6</b>	<b>Introduction to Virtual Reality and Augmented Reality</b>	<b>3</b>
6.1	Introduction to VR, AR, MR.	
6.2	Use of VR in Architecture, scope of VR in Architecture, Difference between VR and AR.	

**Text Book:**

1	Author (Paulson E. D.) Computer Aided Drafting and Design - BPB Publisher
2	Author (David L. G) Corel Draw in a Day - Printec Hall Publisher

**Reference Books:**

1	Kolarevick Branko - Architecture in the Digital Age: Design and Manufacturing
2	Kolarevick Branko – Manufacturing Material Effects Rethinking Design and Making in Architecture
3	Oxman Rivka – The New Structuralism - John Wiley & Sons
4	Oxman Rivka and Oxman Robert – Theories of Digital in Architecture - Routledge
5	Iwamoto Lisa – Digital Fabrication and Material Techniques - Princeton Architectural Press

**Video/ Audio Link's:**

1	<a href="https://www.youtube.com/c/DigitalArchitecture">https://www.youtube.com/c/DigitalArchitecture</a>
2	<a href="https://www.youtube.com/watch?v=Lc-Af72EuRY">https://www.youtube.com/watch?v=Lc-Af72EuRY</a>
3	<a href="https://www.youtube.com/watch?v=YR3_8MPz-7c">https://www.youtube.com/watch?v=YR3_8MPz-7c</a>

**NOTE:** Practical examination to be taken during the ESE (OE).



Course Title : <b>Architectural Design with Steel</b>	
Course Code : <b>201AR309B</b>	Semester : V
Teaching Scheme : L-T-P : 1-0-2	Credits : 03
Evaluation Scheme : ISE Marks : 20, MSE Marks: 30	ESE (TH):- 50

**Course Description:**

The subject will help the students to explore the steel as a construction material, its different qualities. It will help the students to learn application of the steel in architectural way. Students can also study different aspects of steel structure over conventional architectural structure. With the help of different case studies the student can analyze the different forms of steel structures and its suitability also they will learn how they can implement this knowledge in their design.

**Course Objectives:**

1	To understand the design potential of steel as a material for architectural design.
2	To inform the various components of steel as a structural and aesthetic design element.
3	To study the different aspect of steel structure over conventional architectural structure.

**Course Outcomes (COs):**

COs	<b>At the end of successful completion of course, the students will be able to...</b>
1	Understand different properties of steel as a construction material
2	Implement different form of steel structures.
3	Understand difference between conventional architectural structure and steel structure.

**Prerequisite:** Knowledge of different structural systems, Current trend of construction, different physical properties of steel.

**Course Articulation Matrix: Mapping of Course Outcomes (COs) with Program Outcomes (POs) and Program Specific Outcomes (PSOs)**

Course Outcomes (COs) / Program Outcomes (POs) / Program Specific Outcomes (PSOs)	1	2	3	4	5	6	7	8	9	10	11	12	(PSOs)		B T L
													1	2	
CO-1	3	3				2	2	2	2	2					2
CO-2	3	3				2	2	2	2	2			2		2
CO-3	2	2				1	1	1	1	1			1		2



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Unit No.	Course Content	Hrs.
<b>Unit-1</b>	<b>Historical Background</b>	
1.1	History of material development from iron to steel	3
1.2	Study of material of steel, structural properties of steel in construction	3
1.3	Industrial revolution and mass fabrication of steel.	4
<b>Unit-2</b>	<b>Forms of Structure</b>	
2.1	Different steel sections, Hollow structural sections, understanding of various typologies of high tech movement- extruded grid/bay, arched/ curved structures.	4
2.2	Tension and compression in diagrid structures connection types (Bolted, Welded and cast connections), member types (tubular and standard sections).	4
<b>Unit-3</b>	<b>Sustainability</b>	
3.1	Introduction to steel as a sustainable material (recycle, reuse) adaptive reuse of steel, low carbon design strategies.	3
<b>Unit-4</b>	<b>Steel and Glass Study</b>	
4.1	Study of technical aspects of combination of steel and glass, various steel and glass envelopes, (Curtain wall system, wind braced support system)	4
4.2	Spider steel connections, simple and complex cable system, Transformation of Architectural design into fabricated elements.	4
<b>Unit-5</b>	<b>Protection of steel</b>	
5.1	Corrosion and fire protection finishes and coating systems of steel.	3
<b>Unit-6</b>	<b>Building Typology</b>	
6.1	Various types of building constructed using steel as construction material. Case studies based on above. (any two)	4

### Sessional work

- Class notes.
- Assignments based on above topics
- Case study report

### Text Book:

1	Structure as architecture by Andrew Charleson.
2	Architectural Iron and Steel and its application in the construction of building by Wm H Birkmire (Birkmire WMH.)
3	The manufacture and properties of structural steel. (Campbell Harry house.)
4	Architectural Design in Steel (Lawson Mark.)
5	Structure and Architecture by Angus. J. Macdonald.



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**Reference Books:**

1	Architecture and Construction in Steel, Alan Blanc, Michael McEvoy, Roger Plank · 1993
2	Structure for Architects, A Case Study in Steel, Wood, and Reinforced Concrete Design By Ashwani Bedi, Ramsey Dabby · 2019

**Video/ Audio Link's:**

1	Steel + Residential Architecture - An Architect's How-to Guide, <a href="https://youtu.be/N08XW9wNRYc">https://youtu.be/N08XW9wNRYc</a>
2	Rock Reach House Framed in 5 Days - Time Lapse, <a href="https://youtu.be/ycTajJov1jI">https://youtu.be/ycTajJov1jI</a>

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## Curriculum w.e.f. 2022-2023 Course Plan

Course Title: <b>Architectural Design VI</b>	
Course Code: <b>201AR310</b>	Semester: <b>VI</b>
Teaching Scheme: L-T-P: <b>1-0-6</b>	Credits: 7
Evaluation Scheme: ISE Marks: 100	ESE (OE) Marks:100

### Course Description:

The studio emphasis is on creative and rational skills for designing industrial buildings viz. manufacturing unit for bakery, textile, dairy, packaging etc. with built up area approximately between 1500 to 2000 sq.mt. considering the safety norms for workers. Design proposal will be dealt as a contextual comprehensive thought considering the emotional and functional aspects with integration of universal design, basic services, structural systems and construction details along with landscape and site planning.

### Course Objectives:

1	To understand the industrial building design with integration of different services.
2	To understand the spatial and structural implications of construction technology and materials.
3	To understand the local building bye laws required for industrial buildings.

### Course Outcomes (COs):

COs	At the end of successful completion of course, the students will be able to...
1	Design a small-scale industrial building.
2	Apply modern materials and construction technology and services in designing and planning.
3	Use the appropriate building bye laws required for designing of industrial buildings.

**Prerequisite:** Students should have knowledge of designing a small-scale contextual building with basic services and construction technology.

### Course Articulation Matrix: Mapping of Course Outcomes (COs) with Program Outcomes (POs) And Program Specific Outcomes (PSOs)

Course Outcomes (COs) / Program Outcomes (POs) / Program Specific Outcomes (PSOs)	1	2	3	4	5	6	7	8	9	10	11	12	(PSOs)		BTL
													1	2	
CO-1	2	2	2	2	1				2			2			4
CO-2	2	2	2	2	1				2			2			3
CO-3	2	2	2	2	1				2			2			3



Unit No.	Course Content	Hrs.
<b>Unit 1</b>	<b>Literature Study</b>	14
1.1	Questionnaire design for case study and site study.	
1.2	Activity mapping - Study of detailed routine (timetable) during weekdays, weekends, resolved through activity mapping in terms of spaces required to perform.	
<b>Unit 2</b>	<b>Time Bound Assignment</b>	7
2.1	Minor time bound assignment of approximate duration to gauge the understanding and creative development of the student.	
<b>Unit 3</b>	<b>Case Study</b>	14
3.1	Data collection of the proposed design assignment.	
3.2	Site visits and site analysis i.e. Topography, building services, structural systems.	
3.3	Live case study/ Book study/ Net study/ similar design problem	
3.4	Case study analysis, presentation and report	
<b>Unit 4</b>	<b>Unit 4 –Architectural Design</b>	49
4.1	Design an industrial building with built up area approximately 2,000 sq.mt. Conceptual design, proper circulation of functional spaces, study of structural systems, detail specifications of materials used. Final Design presentation with supporting sketches, models and views.	

**Sessional Work:**

**Major design Assignment:**

- Students should deal with one major design project with approximate built-up area of 2,000 sq.mt.

**Minor time bound assignment:**

- Minor time bound design assignment to gauge the understanding and creative development of the student. **Note:-**Design portfolio for major & minor project should include architectural design solution, building services (layout drawings- conceptual), landscape layout, structural layout (column, beam positions) & structural systems to be completed with the help of scaled drawings, the process of drawings, with supporting sketches, models and views.

**Reference Books:**

1	Julius Panero , Martin Zelnik, Human Dimension & Interior Space: A Source Book of Design Reference Standards, Watson-Guption Publications
2	D. K. Ching , Third edition - Form, Space & Order, John Wiley & Sons, Inc
3	Charles Harris, Time saver standards for landscape architecture, Second edition, McGraw Hill Education
4	National Building Code of India 2016- Vol -1/2/3
5	Fred Hall & Roger Greeno : Building Services Handbook-Students corner .



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6	Michael Herz, Campus Landscape Planning & Design, Design Media Publishing (UK) Limited; Sew edition
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**Video/ Audio Link's:**

1	<a href="https://youtu.be/d-GzKyK0iw4">https://youtu.be/d-GzKyK0iw4</a>
2	<a href="https://youtu.be/c1k1TLMMn-Q">https://youtu.be/c1k1TLMMn-Q</a>

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Curriculum w.e.f. 2022-2023

Course Plan

Course Title : <b>History Of Architecture – IV</b>	
Course Code : 201AR311	Semester : VI
Teaching Scheme : L-T-P: <b>2-0-0</b>	Credits : <b>02</b>
Evaluation Scheme : ISE Marks : <b>20</b> +MSE Marks: <b>30</b>	ESE (TH) Marks : <b>-50</b>

### Course Description:

This course offers study of Architectural development in chronological manner in western countries with respect to historical periods within the restraints of social and religious customs, geography, climate, building materials and construction techniques, structural complexity and technology available at that time

### Course Objectives:

1	To introduce evolution of settlement patterns.
2	To explain intervention of various impacts on development of buildings in the particular time era.
3	To explain architectural characteristics of particular era with relevant illustrations.
4	To study architecture inspired by Western historic buildings.

### Course Outcomes (COs):

COs	<b>At the end of successful completion of course, the students will be able to:</b>
1	Understand development of settlements with respect socio economic, cultural and political context of particular time period.
2	Understand architectural development with respect to impacts of climate, geography, culture, religion, technology etc.
3	Understand architectural ornamentation of particular time period.
4	Appraise a historical structure.

**Prerequisite:** Basic understanding of historical and modern buildings.

### Course Articulation Matrix: Mapping of Course Outcomes (COs) with Program Outcomes (POs) and Program Specific Outcomes (PSOs)

Course Outcomes (COs) / Program Outcomes (POs) / Program Specific Outcomes (PSOs)	1	2	3	4	5	6	7	8	9	10	11	12	(PSOs)		B T L
													1	2	
CO-1	2								2	2					2
CO-2	3								2	3					2
CO-3	3								2	3				2	2
CO-4	2								2	2					2



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Unit No.	Course Content	Hrs.
<b>Unit 1</b>	<b>Renaissance period</b>	
1.1	Introduction to development of renaissance period in Italy, France and Britain Development of Indian architecture parallel to Renaissance period.	2
1.2	Study of geographical, geological, climatic influences'	2
1.3	Architectural characteristics during renaissance period	2
<b>Unit 2</b>	<b>Industrial revolution, Art Nouveau and Art Deco</b>	
2.1	Introduction to the period of industrial revolution.	1
2.2	New inventions in materials and its impact on building construction.	2
2.3	Introduction and synoptic study of Art Nouveau period and Art Deco period.	3
<b>Unit 3</b>	<b>Modern Architecture</b>	
3.1	Study of early Modernism – The Chicago school	2
3.2	Study of Bauhaus and its teaching concepts	2
3.3	Study of works of Louis Sullivan, Frank Lloyd Wright, Le Corbusier, Walter Gropius, Mies Van der Rohe.	2
<b>Unit 4</b>	<b>Postmodernism and Contemporary Architecture</b>	
4.1	Study of Postmodern era.	2
4.2	Introduction and study of Contemporary Architecture in Europe.	2
4.3	Introduction and study of Contemporary Architecture in India.	2

### Text Book:

1	Sir Banister Fletcher, A History of Architecture CBS publication 20 <sup>th</sup> Edition 2002
2	Francis D.K. Ching, Mark. M Jarzombek, VikramadityaPrakash, 'Global History of Architecture' John Wiley and sons 2017

### Reference Books:

1	SushmaParashar 'Global History of Architecture'
2	Daren Yarwood, 'Chronology of western Architecture', Pover publications Inc, New York 2010
3	Elie, G.Haddad, David Rifkind 'A critical history of contemporary Architecture'- 1960-2010 Routledge 2016
4	Bhatt and Scriver 'Contemporary Indian Architecture- After the Masters'University of Washington press 1991.
5	Diane Ghirardo 'Architecture after Modernism' Thames and Hudson 1990
6	Paolo Favole 'The story of Modern Architecture' Prestel New York 2012
7	Paolo Favole 'The story of contemporary Architecture' New York 2012
8	Robert Venturi 'Complexity and contradiction in Architecture' 1977.



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**Video / Audio links:**

1	Renaissance period–Italy – Palazzo Medici Riccardi : <a href="https://youtu.be/uB_nQuzWx-I">https://youtu.be/uB_nQuzWx-I</a> -- St.Peters Basilica : <a href="https://youtu.be/NvjtzKUaq-s">https://youtu.be/NvjtzKUaq-s</a>
2	Renaissance period – France- Chateau de Chombord: <a href="https://youtu.be/NoAcXthpCg0">https://youtu.be/NoAcXthpCg0</a>
3	Renaissance period – London – St.Pauls cathedral : <a href="https://youtu.be/BmsejntbXRw">https://youtu.be/BmsejntbXRw</a>
4	Bauhaus school : <a href="https://youtu.be/hj3XE0KxdXc">https://youtu.be/hj3XE0KxdXc</a>



Course Plan

Course Title : <b>Estimation costing and Specifications- II</b>	
Course Code : <b>201AR312</b>	Semester : <b>VI</b>
Teaching Scheme : L-T-P : <b>1-0-2</b>	Credits : <b>03</b>
Evaluation Scheme : ISE 20+MSE 30	ESE (OE) - 50

**Course Description:**

This course deals with tools and techniques of estimation and costing of R.C.C. framed structure. It also involves calculating quantities of wood work and structural steel. It involves a market survey for investigation of rates of ingredients and labour for R.C.C. items of framed structure. It also involves acquiring skill of writing detailed specifications for various items of construction

**Course Objectives:**

1	To understand the method of estimation of r.c.c. framed structures.
2	To understand method of calculating quantities of wood and structural steel.
3	To understand concept of tenders, process and types o tenders

**Course Outcomes (COs):**

COs	At the end of successful completion of course, the students will be able to...
1	Prepare estimates of r.c.c. framed structure.
2	Calculate quantities of wood and structural steel.
3	Prepare tender notice.

**Prerequisite:**

- Basic knowledge of R.C.C., wooden & structural steel components,
- Basic knowledge of writing specifications

**Course Articulation Matrix: Mapping of Course Outcomes (COs) with Program Outcomes (POs) and Program Specific Outcomes (PSOs)**

Course Outcomes (COs) / Program Outcomes (POs) / Program Specific Outcomes (PSOs)	1	2	3	4	5	6	7	8	9	10	11	12	(PSOs)		B T L
													1	2	
CO-1	3	3				2		2	2	2			2		3
CO-2	3	3				2		2	2	2			2		2
CO-3	3	3				2		2	2	2					3



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<b>Unit No.</b>	<b>Course Content</b>	<b>Hrs.</b>
<b>Unit-1</b>	<b>R.C.C. framed structure</b>	9
1.1	Listing of building items of a R.C.C.. framed structure.	
1.2	Calculating quantities of R.C.C. components for a residential unit.	
1.3	Preparing abstract by using SSR.	
<b>Unit 02</b>	<b>Wood</b>	6
2.1	Listing of parts of wooden components of a building.	
2.2	Market survey of rates of materials' & labour.	
2.3	Calculating quantities of wood work of wooden components . Preparing abstract.	
<b>Unit 03</b>	<b>Structural steel</b>	6
3.1	Calculating quantities of structural steel for a M.S. sheet roof.	
3.2	Market survey of rates. Preparing abstract.	
<b>Unit 04</b>	<b>Unit 04. Specifications</b>	9
4.1	Writing specifications for various items of construction in a residential unit.	
<b>Unit 05</b>	<b>Unit 05 Tenders</b>	6
5.1	Tender notice and tender documents.	
5.2	Types of tender, Process of tendering. Award of tenders.	

**Sessional work:**

- Notebook
- Calculating quantities of R.c.c. components of a framed structure.
- Calculating quantities of wood work.
- Calculating quantities of structural steel.
- Drafting specifications for various items of a residential unit.

**Text Book:**

1	Estimation and costing in Civil Engineering by B.N.Datta.
2	Estimating, costing, specification & valuation in Civil engineering by M. Chakraborty.

**Reference Books:**

1	PWD-SSR (latest published)
2	I.S. Code 1200





Course Plan

Course Title : <b>Working Drawing-II</b>	
Course Code : 201AR313	Semester : <b>VI</b>
Teaching Scheme : L-T-P : 1-0-3	Credits : <b>04</b>
Evaluation Scheme : ISE Marks : 100	ESE Marks(OE) :- 100

**Course Description:**

The purpose of this course is to develop and transform design into computerized working & detail drawings, which showcases all measurements & detailed plans, elevations, sections and all other details particular as perspecial features or requirements that need special attention.

**Course Objectives:**

1	To prepare working drawing with appropriate material indication and specifications with dimensions
2	To explain drawings of integrated services
3	To explain detail drawings

**Course Outcomes (COs):**

COs	<b>At the end of successful completion of course, the students will be able to...</b>
1	Communicate with consultants and construction team.
2	Produce drawings of integrated services
3	Prepare detailed drawings

**Prerequisite:** Basic knowledge of building construction technology & architectural graphics subject.

**Course Articulation Matrix: Mapping of Course Outcomes (COs) with Program Outcomes (POs) and Program Specific Outcomes (PSOs)**

Course Outcomes (COs) / Program Outcomes (POs) / Program Specific Outcomes (PSOs)	1	2	3	4	5	6	7	8	9	10	11	12	(PSOs)		B T L
													1	2	
CO-1	3	2	3		3				2	3					2
CO-2	3	2	3		3				2	3			2		3
CO-3	3	2	3		3				2	3					3



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Unit No.	Course Content	Hrs.
1	<b>Detail Drawings</b>	
1.1	Details of staircase including plan, sections & railing details.	16
1.2	Details of kitchen including plan & sections.	
1.3	Flooring & Skirting pattern and fixing details.	
1.4	Dado / Wall tile, Wall Cladding pattern and fixing details.	
2	<b>Service Plans</b>	
2.1	Layout of sanitary and plumbing lines on site and connection with the main sewer/ septic	8
2.2	Electrical layout of all floors including specification of fixtures.	
3	<b>Component Details</b>	
3.1	Door Details including specification of fixtures.	12
3.2	Window with grill details including specification of fixtures.	
3.3	Compound wall with Main gate.	
4	<b>Site Development</b>	
4.1	Landscape Details	12
4.2	Details of Septic tank & Rainwater Harvesting etc.	

**Text Book:**

1	Robert C. McHugh_1982_ Working Drawing Handbook: A Guide for Architects and Builders, Van Nostrand Reinhold Company.
2	Mantri Institute of Development and Resarch,Pune_1998_Practical building construction & its Management_Third Edition, SatyaPrakashan.

**Reference Books:**

1	Francis D.K.Ching_2018_Building Construction illustrated _Fourth edition .
2	Anirudha Kolhatkar_2015_Building Construction &Materral_First Edition.

**Video Links:**

1	Technology and technical construction stairs stone granite_ <a href="https://www.youtube.com/watch?v=KpHr3xWFZbs">https://www.youtube.com/watch?v=KpHr3xWFZbs</a>
2	Projects Construction & Install Concrete Kitchen Table Directly With Ceramic Tiles Modern_ <a href="https://www.youtube.com/watch?v=KLVBDZIDvrk">https://www.youtube.com/watch?v=KLVBDZIDvrk</a>
3	Skirting Tiles Fitting I Skirting Tiles installation process Complete <a href="https://www.youtube.com/watch?v=B_8sodwnDmA">_https://www.youtube.com/watch?v=B_8sodwnDmA</a>

**Note :- ESE ( OE ) for the courses Working Drawing-I (Sem.-V) and Working Drawing-II (Sem.-VI) will be conducted at the end of Sem. VI.**



Course Title: <b>Building Construction &amp; Materials- VI</b>	
Course Code: <b>201AR314</b>	Semester: <b>VI</b>
Teaching Scheme: L-T-P: <b>2-0-2</b>	Credits: <b>4</b>
Evaluation Scheme: <b>ISE-20 + MSE 30</b>	ESE Marks: <b>(TH)-50+ (OE)-50</b>

**Course Description:**

The course intends to explore process of construction activities, supervision of construction, appropriate use of building materials and preparation of detailed drawings to be used for construction by understanding various structural concepts and properties of building materials. The course also includes site visits, case studies and measure drawings of various stages of construction.

**Course Objectives:**

1	To introduce contemporary construction techniques
2	To introduce non-conventional building construction methods
3	To explain construction details through case studies
4	To explain process of construction and supervision

**Course Outcomes (COs):**

<b>COs</b>	<b>At the end of successful completion of course, the students will be able to...</b>
1	Apply knowledge of contemporary construction techniques during preparation of detailed drawings.
2	Select proper material based on contextual needs.
3	Design details in order to make better buildings.
4	Apply knowledge of construction process for supervision and construction of better buildings.

**Prerequisite:** Understanding of preparing detail construction drawings

**Course Articulation Matrix: Mapping of Course Outcomes (COs) with Program Outcomes (POs) and Program Specific Outcomes (PSOs)**

Course Outcomes (COs) / Program Outcomes (POs) / Program Specific Outcomes (PSOs)	1	2	3	4	5	6	7	8	9	10	11	12	(PSOs)		B T L
													1	2	
CO-1	3		2	2			3		2	2				2	3
CO-2	2		1	1			2		2	1				1	2
CO-3	3		2	2			3		2	2				2	3
CO-4	3		2	2			3		3	2				2	3



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<b>Unit No.</b>	<b>Course Content</b>	<b>Hrs.</b>
<b>Unit 1</b>	<b>Material</b>	
1.1	<b>Sound Insulation Materials</b>	
	Introduction, types and uses of sound insulating materials	8
	<b>Construction</b>	
1.2	<b>M.S. Roofing</b>	
	Different types of M.S. roof trusses for span up to 25 meters with roofing materials – details of simple fink roof truss and north light roof truss.	
<b>Unit 2</b>	<b>Material</b>	
2.1	<b>Epoxy Materials</b>	
	Properties, application in building industry	8
	<b>Construction</b>	
2.2	<b>Doors and Windows</b>	
	Rolling Shutter, Revolving doors, UPVC doors & windows	
<b>Unit 3</b>	<b>Material</b>	
3.1	<b>Paints, polishes and Varnishes</b>	
	Different types of paints, polishes and varnishes, their composition, properties, application and uses	8
	<b>Construction</b>	
3.2	<b>Ferrocement</b>	
	Introduction to ferrocement, casting techniques, uses.	
<b>Unit 4</b>	<b>Material</b>	
4.1	<b>Bamboo</b>	
	Types of bamboo, properties of bamboo, defects of bamboo, advantages of bamboo construction.	8
	<b>Construction</b>	
4.2	<b>Non-Conventional Building Construction methods - Bamboo Construction</b>	
	Various techniques of bamboo construction and its joinery	
<b>Unit 5</b>	<b>Material</b>	
5.1	<b>Plastics</b>	8



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		Historical background, composition, polymerization, classification, different types of resins, moulding, compound fabrication and uses, Application in building industry.		
		<b>Construction</b>		
	5.2	<b>Precast construction components</b>		
		Precast construction components for columns, beams, staircase, flooring, partitions, doors and windows frames, compound walls		
<b>Unit 6</b>		<b>Material</b>		
	6.1	<b>Materials for tensile structures</b>		
		Materials for tensile structures, thin film photovoltaic, texlon foil, PVC coated polyester cloth, poly tetra fluoroethylene, coated glass cloth, properties and application	8	
		<b>Construction</b>		
	6.2	<b>Long Span Roofs</b>		
		Domes, Shell structures, Folded plates, Space frames, Pneumatic structures, Tensile structures, Cable structures.		

**Reference Books:**

1	Chudley Roy Advanced Construction Technology–Prentice Hall; 4th edition (13 July 2006)
2	S.P.Arora, S.P. Bindra , A Text-Book of Building Construction - Dhanpat Rai & Co.
3	B. C. Punmia, Building Materials & Construction, Laxmi Publications; Eleventh edition (1 January 2016)
4	S.C. Rangwala, Building Construction, Charotar Publishing House Pvt. Ltd.; 33rd Edition (1 January 2016)
5	Gernot Minke, Building With Bamboo, Design and Technology of a Sustainable Architecture, Birkhauser; Second and revised edition (10 May 2016)

**Video/ Audio Links:**

1	<a href="https://www.youtube.com/watch?v=4INVrT-87FY">https://www.youtube.com/watch?v=4INVrT-87FY</a> ( For Pre cast construction )
2	<a href="https://www.youtube.com/watch?v=yxgXR8M6V4g">https://www.youtube.com/watch?v=yxgXR8M6V4g</a> ( For Bamboo construction )



Course Title : <b>Structural Engineering For Architecture - IV</b>	
Course Code : <b>201AR315</b>	Semester : <b>VI</b>
Teaching Scheme : L-T-P : <b>2-0-1</b>	Credits : <b>03</b>
Evaluation Scheme : ISE Marks - <b>20</b> + MSE Marks- <b>30</b>	ESE (OE) : - <b>50</b>

**Course Description:**

This course deals with concepts behind advanced structural systems and advanced constructional methodology and also learns concept of advanced foundation work. The student prepares structural designs for building involving simple RCC and steel frames and simple RCC water containing structures & earth retaining structures.

**Course Objectives:**

1	To understand the advanced structural systems.
2	To study RCC water containing structures & earth retaining structures
3	To understand advanced construction methodology.

**Course Outcomes (COs):**

COs	At the end of successful completion of course, the students will be able to...
1	Implement the knowledge of advanced structural system in their design.
2	Understand structural behavior of RCC water containing structures & earth retaining structures.
3	Develop project management skills by selecting appropriate construction methodologies .
<b>Prerequisite:</b> Mechanics of structures. RCC and steel design theory.	

**Course Articulation Matrix: Mapping of Course Outcomes (COs) with Program Outcomes (POs) and Program Specific Outcomes (PSOs)**

Course Outcomes (COs) / Program Outcomes (POs) / Program Specific Outcomes (PSOs)	1	2	3	4	5	6	7	8	9	10	11	12	(PSOs)		B T L
													1	2	
CO-1	3	3				3	2	2	2	2			2		2
CO-2	3	3				3	2	2	2	2					2
CO-3	2	2				2	1	1	1	1			1		2

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<b>Unit No.</b>	<b>Course Content</b>	<b>Hrs.</b>
<b>Unit 1</b>	<b>Foundation</b>	
1.1	Combined footing – Concept, types & structural behavior reinforcement details Raft foundation – Concept, types & structural behavior, reinforcement details.	2
1.2	Pile foundation – Types like friction, end bearing, tension piles etc	2
1.3	Under reamed piles, group of pile, pile cap. Other pile foundations – compaction piles, bored piles etc.	2
<b>Unit 2</b>	<b>Slabs</b>	
2.1	Two way slab – concept, design steps, design problem.	1
2.2	Flat slab – concept, advantages, disadvantages, elements.	2
2.3	Grid/waffle/Coffer Slab – concept.	2
2.4	Hollow block slab – concept and advantages.	1
<b>Unit 3</b>	<b>Stairs</b>	
3.1	Structural behavior and reinforcement detailing of Waist slab	2
3.2	Structural behavior and reinforcement detailing of Stringer beam, type Circular & semicircular , Helical	2
3.3	Free standing For all the above types detailing in structural steel as material also .	2
<b>Unit 4</b>	<b>Retaining Wall &amp; Concrete Mix</b>	
4.1	Elements, structural behavior & reinforcement details of Cantilever retaining wall Counter fort/Buttress type retaining wall <ul style="list-style-type: none"><li>• Cantilever retaining wall</li><li>• Counter fort/Buttress type retaining wall</li></ul>	3
4.2	Advantages and Disadvantages Parameters for mix design, Water cement ratio Test for wet & hardened concrete, Concept of ready Mix Concrete (RMC),Self Compacting Concrete (SCC),High Strength Concrete (HSC), Parameters for mix design, Water cement ratio, Test for wet & hardened concrete. <ul style="list-style-type: none"><li>• Concept of ready Mix Concrete (RMC)</li><li>• Self-Compacting Concrete (SCC)</li></ul> High Strength Concrete (HSC)	3
<b>Unit 5</b>	<b>Water Tanks</b>	
5.1	Structural behavior and reinforcement detailing of Underground (UG), resting on ground water tank.	2



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5.2	Elevated service reservoir (ESR) Shape in plan square, rectangular, circular,	2
5.3	Shape in plan square, rectangular, circular, advantages and disadvantages. Aesthetical effect on their structural systems and shapes. Aesthetical effect on their structural systems and shapes.	2
<b>Unit6</b>	<b>Constructional Methodology</b>	
6.1	Precast Concrete elements – advantages and disadvantages, Transportation, erection & Handling stresses.	2
6.2	Prefabricated Steel works – advantages and disadvantages	2
6.3	Pre-stressed concrete structure – Concept, Pre-tensioning & post tensioning, advantages and disadvantages	2

Sessional work

1. Class notes.
2. Assignments based on above topics
3. Case study report

**Text Book:**

1	S.Ramamrutham ,RCC Design.
2	R.R.Gadpal and D.J.Khamkar ,Design of steel and RCC Structure.
3	Prestressed concrete design,M.K.Hurst

**Reference Books:**

1	<b>IS 456-2000</b>
2	Hulse,Ray and Chain,Jack (2016) <b>Structural Mechanics</b> , Macmillan International Higher Education.
3	Salvadori,M and Heller , RA (1963), <b>Structure in Architecture</b> ,3 <sup>rd</sup> ed. ,prentice Hall
4	Hjelmstad,KeithD.(2005), <b>Fundamentals of Structural Mechanics</b> ,2 <sup>nd</sup> ed.,Springer
5	Sarkisian,Mark(2012),Designing <b>Tall Building-Structureas Achitecture</b> ,Routledge,New York.

**Video/ Audio Link's:**

1	<a href="https://youtu.be/2j6b3Xrk2MA">https://youtu.be/2j6b3Xrk2MA</a> for design of reinforced concrete slab.
2	<a href="https://youtu.be/2mxRULE9Cjk">https://youtu.be/2mxRULE9Cjk</a> for different methods of constructions





Curriculum w.e.f. 2022-2023  
Course Plan

Course Title : <b>Building Services IV</b>	
Course Code : 201AR316	Semester : <b>VI</b>
Teaching Scheme : L-T-P : <b>2-0-1</b>	Credits : <b>03</b>
Evaluation Scheme : ISE Marks : <b>20</b> +MSE Marks: <b>30</b>	ESE (TH) Marks : <b>-50</b>

**Course Description:**

Building services are the systems installed in buildings which make them comfortable, functional, efficient and safe. The course intends to provide knowledge about firefighting systems, HVAC systems and acoustics which will help the students to design the buildings efficiently.

**Course Objectives:**

1	To introduce the concept of acoustics and its application.
2	To introduce various HVAC systems used in various building typologies.
3	To introduce firefighting systems in the building services.

**Course Outcomes (COs):**

COs	At the end of successful completion of course, the students will be able to...
1	Illustrate acoustical calculations.
2	Select the various HVAC systems according to the building typology
3	Prepare the firefighting layout required for the building.
<b>Prerequisite:</b> Observation regarding the use of fire fighting, acoustical treatment and air conditioners.	

**Course Articulation Matrix: Mapping of Course Outcomes (COs) with Program Outcomes (POs) and Program Specific Outcomes (PSOs)**

Course Outcomes (COs) / Program Outcomes (POs) / Program Specific Outcomes (PSOs)	1	2	3	4	5	6	7	8	9	10	11	12	(PSOs)		B T L
													1	2	
CO-1	3	3	3		3	3	3		3	2				2	3
CO-2	3	3	2		2	3	3		2	2				2	2
CO-3	3	3	3		3	3	3		3	2				2	3



Unit No.	Course Content	Hrs.
<b>Unit 1</b>	<b>Fire Fighting systems</b>	12
1.1	Fire sources, classification, spreading, Classification of buildings and fire grading of structural elements as per NBC, Fire rating for different materials.	
1.2	Firefighting systems- Fire detectors, fire alarm system, control panel, external and internal firefighting systems, water & foam sprays, sprinkler system- types and advantages, Fire escape staircase, fire lifts, water storage requirements, refuge areas, fire tender access, fire tower, FHC, fire escape chute. Introduction to Autonomous vehicles, biotelemetry, 360° video & VR technology	
1.3	Integration and representation of fire safety norms at design and construction stage, design of escape routes, fire escape staircase, fire lifts, water storage requirements. Emergency exits for differently able persons.	
<b>Unit 2</b>	<b>Acoustics</b>	6
2.1	Definition and functions of Acoustics. Study of absorptive & reflective materials. Transmission of sound (structure & air borne). Understand noise its psychological and physiological effects, various noise control and mitigation systems.	
2.2	Acoustical defects- sound shadow, dead spot, whispering galleries, sound creep & their remedies. Characteristics and components of good sound reinforcing system such as microphones, amplifiers & speakers.	
<b>Unit 3</b>	<b>Acoustical Design</b>	9
3.1	Design Considerations for good acoustical design such as shape, size, occupancy, purpose, geometry for open Amphitheater, auditorium, recording studio, Discotheque, Home theater, lecture halls, classrooms.	
3.2	Calculation of reverberation time.	
3.3	Exercise- Design an acoustical room (Auditorium, conference, studio, etc. which is existing in design problem of Semester V) with desired reverberation time, material usage, surface treatment, construction details. Study of acoustical materials used to reduce, elevate, absorb & divert sound.	
<b>Unit 4</b>	<b>HVAC</b>	9
4.1	Principles and components of mechanical ventilation & air conditioning systems, Design consideration for chiller rooms, cooling plants, AHU, Etc.	
4.2	Integration with natural ventilation and other energy conservation technologies like VRF. Heating for buildings, central & local heating, insulation, radiators, convertors.	
4.3	Selection based on design condition, star rating and accordingly implementation of appropriate type of AC, split AC, central AC etc. in their design of semester V.	

**Sessional work**

- Class notes.
- Assignments based on above topics.
- Prepare layout showing allocation of above services into design problems of semester V.



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**Text Book:**

1	Brannigan Francis L., Third Edition, Building Construction for the fire Service, National Fire Protection Association
2	Templeton Ducan, Acoustics in the Built Environment, advice for the design team, Second edition, Architectural press.
3	Dr. Punmia B.C. Building Construction, Laxmi Publications
4	Rangwala S.C. Building construction., Charotar Publishing house pvt. Ltd.
5	Arora S.P., Bindra S.P., Building Construction, Dhanpat Rai Publications

**Reference Books:**

1	National Building Code of India: National Electrical Code.
2	National Building Code Of India (Fire and Life safety)
3	Grueneisen Peter, Sound space Architecture for sound and Vision, Brikhauser
4	Mittal A.K. Electrical and Mechanical Services in High rise Buildings, Design and Estimation manual.
5	Harris Norman C., Third Edition, Modern Air Conditioning Practice, McGraw Hill Education.
6	Ermann Michael, Architectural acoustics Illustrated, Wiley
7	Haines R.W., Wilson C.L., HVAC System Design Handbook, New York : McGraw-Hill

**Video/ Audio Link's:**

1	Sprinkler working- <a href="https://youtu.be/_DjvcDCo-MA">https://youtu.be/_DjvcDCo-MA</a>
2	Firefighting in high rise- <a href="https://youtu.be/MVkh0StB3Vo">https://youtu.be/MVkh0StB3Vo</a>
3	HVAC- <a href="https://youtu.be/ScVBPAitibQ">https://youtu.be/ScVBPAitibQ</a>
4	HVAC- <a href="https://youtu.be/uqc81yenwQo">https://youtu.be/uqc81yenwQo</a>
5	VRF System- <a href="https://youtu.be/d7W80HvNi8Y">https://youtu.be/d7W80HvNi8Y</a>
6	Acoustics- <a href="https://youtu.be/nxiwWfvIdKY">https://youtu.be/nxiwWfvIdKY</a>
7	Acoustical applications- <a href="https://youtu.be/jCb_Tv9DwXw">https://youtu.be/jCb_Tv9DwXw</a>



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Course Plan

Course Title : <b>Role of Art and Technology in Interior Design</b>	
Course Code : <b>201AR317A</b>	Semester : <b>VI</b>
Teaching Scheme : 2-0-2	Credits : 04
Evaluation Scheme : ISE Marks : 50	ESE (OE) Marks :- 50

### Course Description:

This course focuses on art and technology in designing interiors. It highlights various types of arts and technologies used in interiors and expresses it as a techno-art. It also takes into consideration the context of different types of materials used in different climates & acoustical considerations. It emphasizes the role of technology as a key influence that drives, shapes and inspires contextual and contemporary interior and art work.

### Course Objectives:

1	To understand the meaning of Art & technology in interior.
2	To interpret different forms of Art & technology in any interior.
3	To study various materials in context with Climate & Acoustics.
4	To differentiate between Art & technology in Residential & Commercial interiors.

### Course Outcomes (COs):

COs	At the end of successful completion of course, the students will be able to...
1	Understand the meaning of Interior Design
2	Apply technology in Interior.
3	Apply of various materials with respect to climate & Acoustical condition.
4	Differentiate between Art & technology in Residential & Commercial interiors.

### Course Articulation Matrix: Mapping of Course Outcomes (COs) with Program Outcomes (POs) and Program Specific Outcomes (PSOs)

Course Outcomes (COs) / Program Outcomes (POs) / Program Specific Outcomes (PSOs)	1	2	3	4	5	6	7	8	9	10	11	12	(PSOs)		B T L
													1	2	
CO-1	2	2	2						2	2			2		2
CO-2	2	2	3						2	2			2		3
CO-3	2	2	3						2	2				2	2
CO-4	2	2	2						2	2			2		2



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<b>Unit No.</b>	<b>Course Content</b>	<b>Hrs.</b>
<b>Unit 1</b>	<b>Introduction to interior design</b>	
1.1	Definition & meaning of Interior Design , role of Interior Designer	4
1.2	Definition & meaning of craftsman and Interior design as a techno-art	4
<b>Unit 2</b>	<b>Components of interior design</b>	
2.1	Different forms of Art used in interior	4
2.2	Elements & principles of Interior Design	4
2.3	Study of Anthropometry & Ergonomics	4
<b>Unit 3</b>	<b>Material and technology in interior design</b>	
3.1	Various materials used in interiors	4
3.2	Different type of technologies used in interior like False ceiling, Partitions, Wall	4
3.3	Application of materials with respect to Climate and Acoustics	4
<b>Unit 4</b>	<b>Commercial &amp; Residential Interiors</b>	
4.1	Difference between Commercial & Residential Interiors	4
4.2	Art & Technology in Residential Interior and Commercial Interiors	4
<b>Unit 5</b>	<b>Case studies</b>	
5.1	Two case studies each of Residential and Commercial Interior	4
<b>Unit 6</b>	<b>Analytical study</b>	
6.1	Comparative analysis and presentation of Residential and Commercial Interior case studies done	4

**Text Book:**

1	J.K. Mckay , Building Contruction , Pearson
2	R. Chudley, Construction technology, Pearson

**Reference Books:**

1	Ahmed Kasu - Interior Design , Ashish book center , Mumbai
2	McGRAW-HILL -Time-Saver Standards For Interior Design and Space Planning



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Course Plan

Course Title : <b>Basic Residential Gardening</b>	
Course Code : <b>201AR317B</b>	Semester : <b>VI</b>
Teaching Scheme : L-T-P : <b>3-0-1</b>	Credits : <b>04</b>
Evaluation Scheme : ISE Marks : <b>20 + MSE 30</b>	ESE(TH) Marks :- <b>50</b>

**Course Description:** The importance of **gardens** in today's hectic life is of great significance both psychologically and environmentally. Considering this need the course is designed to develop in students awareness and skills in designing residential gardens. The curriculum will equip students with various aspects of Residential Gardening such as garden elements, soil preparation and plantation, plant care, composting and manuring. The course will enable student to plan, establish and maintain a residential garden.

### Course Objectives:

1	To build knowledge of basic residential gardening.
2	To identify the role of hardscape and soft scape elements in design of indoor and outdoor environments for various projects.
3	To understand the other components and contemporary trends of residential gardens.
4	To create awareness of aesthetical, environmental and economical benefits of residential gardening.

### Course Outcomes (COs):

COs	<b>At the end of successful completion of course, the students will be able to...</b>
1	Confidently design, develop and maintain a residential garden.
2	Use the appropriate hardscape and softscape elements for residential garden.
3	Experiment with appropriate components considering the contemporary trends of residential garden.
4	Implement environment friendly components and processes for residential garden.

**Pre requisite:** Basic liking and compassion for gardening and environment.

**Course Articulation Matrix: Mapping of Course Outcomes (COs) with Program Outcomes (POs) and Program Specific Outcomes (PSOs)**

Course Outcomes (COs) / Program Outcomes (POs) / Program Specific Outcomes (PSOs)	1	2	3	4	5	6	7	8	9	10	11	12	(PSOs)		B T L
													1	2	
CO-1	3	3	3	3	2	3	3		3	3					1
CO-2	3	3	3	3	2	3	3		3	3					3
CO-3	3	3	3	3	2	3	3		3	3			3		2
CO-4	3	3	3	3	2	3	3		3	3					3

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<b>Unit No.</b>	<b>Course Content</b>	<b>Hrs.</b>
<b>Unit 1</b>	<b>Introduction</b> Lecture – Categories of Residential Garden as ornamental, orchard and kitchen gardening.	8
1.1	Types as formal and informal, natural and artificial, indoor and outdoor.	
1.2	Understanding site in terms of building, open area , natural features, climate and sun /shade.	
1.3	Introduction of hardscape and softscape elements.	
1.4	Principles of garden design.	
1.5	History of Indian landscape	
<b>Unit 2</b>	<b>Hardscape elements with various materials.</b>	8
2.1	Pathways, bridges, flower beds, pergolas and gazebos.	
2.2	Garden furniture, garden sculptures, pots and hanging baskets.	
2.3	Various water features.	
2.4	Mounds and rockery Watering, Drainage and lighting of the garden.	
<b>Unit 3</b>	<b>Softscape and plant care</b>	8
3.1	Lecture – Softscape Study of various trees, shrubs, plants, ground covers, lawn, succulents, climbers, cacti, water plants.	
3.2	Groups or types of indoor plants and outdoor plants -foliage, flowering etc. commonly used for residential gardens.	
3.3	Planting scheme, selection of appropriate plant , Best time to plant and plantation. Plant care	
3.4	Immediate Post plantation care	
3.5	Weeding	
3.6	Natural and chemical Pesticides, Pruning	
<b>Unit 4</b>	<b>Soil and Nutrition</b>	8
4.1	Understanding the nature of soil	
4.2	Soil texture and structure	
4.3	Different types of soils, Acidity and alkalinity of soils.	
4.4	Nutrient elements - Nitrogen, phosphorus, potassium, magnesium, calcium, sulphur	
4.5	Fertilizers, Ways to apply fertilizer	
4.6	Different types of Manures	
<b>Unit 5</b>	<b>Other components and Contemporary trends in Residential Garden</b>	
5.1	Lecture -Kitchen garden	



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	5.2	Terrace, balcony gardens	8
	5.3	Vertical gardens	
	5.4	Aquaponics, hydroponics.	
	5.5	Dry landscape, xericaping ,indoor landscape, artificial landscape,Bonsai	
<b>Unit 6</b>		<b>Environment responsible aspects for Residential Garden.</b>	8
	6.1	Top soil protection	
	6.2	Hardscape to softscape ratio	
	6.3	Rain water harvesting	
	6.4	Grey water recycling	
	6.5	Composting	
	6.6	Use of native plants	
	6.7	Pollution, sound absorbing plants	
	6.8	Micro climate control through plantation	

**Note :- Assignment will be based on respective units.**

### Text Book:

1	Landscape architecture a manual of site planning and design – Symonds Residential landscape architecture, Norman. K. Booth
2	K.C.Sahni, publisher Oxford University Press - The book of Indian Trees, edition 2000.
3	Shrikant Ingahalikar,Sharvari Barve, publisher Corolla Publications,Pune – Trees of Pune,field guide to 482 Aroreal plants of Pune city, edition 2010.
4	Landscape Architecture In India. by Mohammad Shaheer (Editor), Geeta Wahi Dua (Editor), Adit Pal (Editor) – LA Journal of Architecture.
5	Landscape Architecture: History, Ecology and Patterns by I P Singh (Author), Minakshi Jain (Author) Copal Publishing Group.

### Reference Books:

1	Time saver standards for landscape architecture
2	National building code 2016
3	Trees of Central India by Pradip Kishan.
4	'Landscape Architecture' by JO Simonds,Mcgrawhill education,Delhi,1983 and onwards.
5	Griha Manual Volume 2-4 Adarsh.

### Video/ Audio Link's:

1	How Much Sun A Plant Needs  Gardening Basics  Part1- <a href="https://youtu.be/Neda0goqbRk">https://youtu.be/Neda0goqbRk</a>
2	Home Gardening Tips for Beginners    Lesson - 1 Home/Garden- <a href="https://youtu.be/CyhpDmwzP-w">https://youtu.be/CyhpDmwzP-w</a>
3	How to Make a Terrace Vegetables Garden - <a href="https://youtu.be/feIJXJqNfoc">https://youtu.be/feIJXJqNfoc</a>
4	Grow Plants in small Balcony - <a href="https://youtu.be/nHLTxMojOg8">https://youtu.be/nHLTxMojOg8</a>





Curriculum w.e.f. 2022-2023  
Course Plan

Course Title: <b>Entrepreneurship Skills For Architects</b>	
Course Code: <b>201AR318</b>	Semester: <b>VI</b>
Teaching Scheme: L-T-P: <b>2-0-0</b>	Credits: <b>NIL</b>
Evaluation Scheme: <b>ISE-50</b>	ESE(TH) Marks: <b>50</b>

**Course Description:**

This course aims to bridge the gap between academia and architectural practice and encouraging the students to take a proactive role in building their careers by introducing them to entrepreneurship; leadership and self-motivation skills; also it caters to the pioneering content for the business side of architecture through marketing and finance management; starting a small business; future-oriented design principles to increase the design organization's innovative and competitive qualities; in the course creating a Sustainable practice; Risk-taking; Job procurement; Employee management; marketing; Social entrepreneurship and its relevance to the practice of architecture.

**Course Objectives:**

1	To introduce scope and meaning of entrepreneurship.
2	To understand the concept of office management systems.
3	To study, architectural firm's philosophy.

**Course Outcomes (COs):**

COs	<b>At the end of successful completion of course, the students will be able to...</b>
1	Differentiate between entrepreneurship and other career options.
2	Apply knowledge of management and setting of office systems for better efficiency.
3	Analyze the impact of philosophy on entrepreneurship development.

**Prerequisite:** Basic knowledge of an architect's office

**Course Articulation Matrix: Mapping of Course Outcomes (COs) with Program Outcomes (POs) and Program Specific Outcomes (PSOs)**

Course Outcomes (COs) / Program Outcomes (POs) / Program Specific Outcomes (PSOs)	1	2	3	4	5	6	7	8	9	10	11	12	(PSOs)		B T L
													1	2	
CO-1	3	2			1				2			1			1
CO-2	2	2			1				2			1			2
CO-3	3	2			1				2			1			2



**D.Y.PATIL COLLEGE OF ENGINEERING & TECHNOLOGY**

**KASABA BAWADA, KOLHAPUR-416006**

**An Autonomous Institute**

**Third Year B. Arch.**

**Curriculum w.e.f. 2022-2023**

<b>Unit No.</b>	<b>Course Content</b>	<b>Hrs.</b>
<b>Unit 1</b>	<b>Introduction to entrepreneurship</b>	
1.1	Scope and Challenges faced by fresh graduate, entrepreneurship meaning, self-motivation, Risk-taking	6
<b>Unit 2</b>	<b>Setting up office</b>	
2.1	Conventional and contemporary office setups, finance management, Employee	6
<b>Unit 3</b>	<b>Architect and his work</b>	
3.1	Firm's philosophy, various stages of architect's work.	6
<b>Unit 4</b>	<b>Marketing and finance management</b>	
4.1	Websites, Forums & Networking, Social entrepreneurship and its relevance to the practice of architecture, publications, exhibition of works, Thesis on live issues.	6

**Reference Books:**

1	Dr. Roshan Namavati, 2018, Professional Practice
2	Prof. Madhav Deobhakta, Ar. Meera Deobhakta, 2007, Architectural Practice in India