

MADHAV INSTITUTE OF TECHNOLOGY & SCIENCE, GWALIOR
(A Govt. Aided UGC Autonomous Institute Affiliated to RGPV, Bhopal)

BOARD OF STUDIES MEETING
MAY 2020

DEPARTMENT OF ARCHITECTURE

Contents

Minutes	1
Agenda	-
Annexure	3

Table 1 : Courses where revision was carried out

Total No. of Courses offered during July-December 2020 Session	Revision of Syllabus Carried out (No. of Courses & Course Details)	% of Courses where syllabus revision was done	% change in syllabus from existing	Item/Agenda No.	Pg. No.
31	Architectural Design – VII (210701)	Change in Credits	20%	-	112
	Adv Building Construction (210702)	Change in Credits	80%	-	112
	Project Management & Building economics (210703)	-	35%	-	112
	Estimating and Costing & Specifications	Subject Introduced	100%	-	112
	Intellectual property Rights (100008)	Subject Introduced	100%	-	112
	Advanced Structure Design (AR703)	Subject Dissolved	-	-	112
	Dissertation (AR706)	Subject Dissolved	-	-	112
	Inclusive Urban Planning	Subject Dissolved	-	-	112
	Environment Development & Disaster Management	Subject Dissolved	-	-	112

Table 2 : New courses added

Total No. of Courses offered during July-December 2020 Session	Total No. of New courses added	Name of New courses added	Agenda/ Item No.	Pg. No.
31	6	Role of Craft and Technology in Interior - Architecture	1	6
		Visual Communication Design for Digital Media	1	6
		Principles and applications of building science	1	6
		Structural System in Architecture	3	6
		Urban Land Use and transportation planning	3	6
		Urban governance and Development Management (UGDM)	3	6

Table 3 : Courses focusing on employability/entrepreneurship/skill development

Total No. of Courses offered during July-December 2020 Session	Total No. of Courses focusing on employability /entrepreneurship/skill development	Name of Courses focusing on employability/entrepreneurship/skill development	Agenda/Item no.	Pg. No.
31	11	Graphics III (210303),	-	54
		Human Settlement (210511)	2	88
		Interior Design (210512)	2	89

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		Estimating and Costing & Specification (210704)	-	114
		Professional Training (AR901)	-	117
		Visual Communication Design for Digital Media (210508)	1	13
		Role of Craft and Technology in Interior - Architecture (210508)	1	14
		Building Materials and Composites (210508)	1	16
		Structural System in Architecture (210751)	3	11
		Urban Land Use and transportation planning (210752)	3	9
		Urban governance and Development Management (UGDM) (210753)	3	7
		Inclusive Urban Planning (Elective-I) (670311)	-	153
		Planning for Tourism (Elective-I) (670312)	-	153
		Environment, Development & Disaster Management (Elective-II) (670313)	-	153
		Energy, Climate Change & Urban Development (Elective-II) (670314)	-	154
		Seminar (670303)	-	154
		Pre-Dissertation (670304)	-	154

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24.05.2021

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DEPARTMENT OF ARCHITECTURE

Minutes of the meeting of Board of Study of Architecture Department Meeting

The meeting of Board of Studies of Architecture was held on 30th May 2020 at 11.30 AM on Zoom

The following members were present:

1. Dr. S. S. Jadon, Professor, Department of Architecture MITS, Gwalior
2. Dr. A. S. Patil, Asso Professor, Department of Architecture MITS, Gwalior
3. Noopur Gupta, Asst. Professor, Department of Architecture MITS, Gwalior
4. Versha Sinha, Asst. Professor, Department of Architecture MITS, Gwalior
5. Richa Mishra, Asst. Professor, Department of Architecture MITS, Gwalior
6. Pranshi Jain, Asst. Professor, Department of Architecture MITS, Gwalior
7. Shweta Singh, Asst. Professor, Department of Architecture-MITS, Gwalior
8. Apurva Tomar, Asst. Professor, Department of Architecture MITS, Gwalior
9. Dr Manmohan Kapshe, Professor, Department of Architecture and Planning, MANIT, Bhopal,
Subject experts from outside the parent university (RGPV) BoS Member
10. Dr Vasudha Gokhale, Professor, Department of Architecture, BNCA, Pune M.S. Subject experts
from outside the parent university (RGPV) BoS Member
11. Dr Sanjiv Singh, Professor, School of Planning and Architecture Bhopal Madhya Pradesh (M.P.),
nominee -honorable Vice - chancellor, RGPV BoS, Member
12. Dr Sandip Sankat, Asso Professor, SPA, Bhopal
13. Ar. Punit Pandey, Architect Indore, meritorious alumni, MITS, Gwalior, BoS, Member

Ar. Rakhi Taparia, Architect, New Delhi, Industry Corporate Member, BOS, unable to attend the Zoom meeting due to network problem,

The scheme of B. Architecture course and detailed syllabus up to Fourth year (Eighth Semester) were discussed and recommended for consideration. Salient feature of the proposed scheme are as follows:-

1. Subject Architectural Material -210102 is substituted by Building Materials- 210110
2. Subject Technical English -210109 is substituted by Professional Communication- 210111
3. Subject code of Elective I to VI and MOOC courses are given as per AC guidelines
4. Changes are done for IV sem in the marks distribution applicable from 2019-2020 batch onwards
5. Detailed syllabus of VII and VIII semester is proposed.

6. Mandatory Course- Disaster Management is introduced in VIII sem (instead of VI sem)
7. List of electives and Online NPTEL courses list is prepared for July- Dec 2020 session
8. No change in the scheme and syllabus is proposed in the Master of Urban Planning.
9. Amendments are proposed in the IX and X sem of CBCS scheme Training AR901 and ARX01 (students admitted in 2016) in lieu of COVID19



Anoop Gupta,
Asst. Professor, Department of
Architecture MITS, Gwalior



Versha Sinha,
Asst. Professor, Department of
Architecture MITS, Gwalior



Richa Mishra,
Asst. Professor, Department of
Architecture MITS, Gwalior



Parvati Jain,
Asst. Professor, Department of
Architecture MITS, Gwalior



Shweta Singh,
Asst. Professor, Department
of Architecture MITS, Gwalior



Apurva Tomar,
Asst. Professor, Department of
Architecture MITS, Gwalior



(Dr. A. S. Patil)
Asst. Professor, Department of
Architecture MITS, Gwalior



(Dr. S. S. Jadon) 20.09.2020
Professor, Department of
Architecture MITS, Gwalior



Dr Sanjiv Singh,
Professor, School of Planning and Architecture
Bhopal Madhya Pradesh (M.P.I. nominee -
Institutional Vice - Chancellor, RGPV BoS,
Member



Dr Vasudha Gokhale,
Professor, Department of Architecture, BNCA, Pune
M.S. Subject experts from outside the parent
university (RGPV) BoS Member



Dr Manmohan Kapshe
Professor, Department of Architecture and
Planning, MANIT, Bhopal. Subject experts from
outside the parent university (RGPV) BoS Member



Dr Sandip Sankat,
Asso Professor, SPA, Bhopal



Ar Punit Pandey,
Architect Indore, meritorious alumna, MITS, Gwalior,
BoS, Member



Dr. Manaraj Pandit
Dean Academics, MITS,
Gwalior

DEAN (ACADEMICS)
MITS
GWALIOR

MADHAV INSTITUTE OF TECHNOLOGY & SCIENCE, GWALIOR

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B. Arch. Scheme Structure & Semester-Wise Credit Distribution (Under Flexible Curriculum)

Reference Course Scheme Structure & Semester – wise credit distribution

General Definition:

Category Code	Course category
L	Lecture
T	Tutorial
P/ST	Practical / Studio
DC	Departmental(Professional) Core
BSAE	Building Science & Applied Engineering
DE	Departmental(Professional) Elective
PAEC	Professional Ability Enhancement Course
SEC	Skill Enhancement Course
MC	Mandatory Course

Definition of Credit:

As per Council of Architecture (CoA) Recommendation

1 Lecture period/ hour	1 Credit
2 Lab/ Workshop/ Studio Exercise Periods/ Hours	1 Credit
1 Design Studio/ Construction Studio/ Project/ Thesis Period/ Hour	1.5 Credit

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Credit Requirements & Guidelines for MOOCs

- As per the recommendation and Council of Architecture (CoA), Provision 260 credits have been made to pass the B. Architecture course of five Years.
- Note: In partial fulfillment of flexible curriculum, a mandate provision to earn credits through E-Learning (NPTEL/MOOC etc.) based Departmental Core/Elective (DC/DE) has been introduced.
- Up to 52 credits out of total 260 credits for B. Architecture students can be earned through SWAYAM/NPTEL / MOOC platform based learning for the award of UG degree in Architecture
- The guidelines regarding "credit transfer from MOOCs" by All India Council of Technical Education (AICTE) and the affiliating university, i.e RGPV Bhopal, as issued from time to time will be binding on the institute.
- The list of courses which the students can opt from the SWAYAM/NPTEL / MOOC platform against DE courses in the scheme will be displayed on the website well in advance, (in November & June) so that students can select the courses of their choice. Each such Course must be of minimum 2 credits.
- For the courses opted under MOOC, the equivalent credit weightage will be given to the students, for the credits earned in online examination on SWAYAM/NPTEL platform and other similar platforms as approved by the authorized bodies (BoS, AC etc), in the credit plan of the program w.e.f 2017-18 admitted batch onwards.

Proposed Structure of Bachelor of Architecture (B.Arch.) program

Category Code	Course Category	Weightage in terms of credits as per CoA norms (2017 regulations)	No of courses	Total credits	Weightage in terms of credits achieved
DC	Departmental(Professional) Core	45%	19	127	49 %
BSAE	Building Science & Applied Engineering	20%	14	55	21 %
DE	Departmental(Professional) Elective	10%	7	20	7.5 %
PAEC	Professional Ability Enhancement Course	15%	7	35	13.5 %
SEC	Skill Enhancement Course	5%	12	17	6.5%
MC	Mandatory Course	5%	2	6	2.5 %
	TOTAL	100%	62	260	100





MADHAV INSTITUTE OF TECHNOLOGY & SCIENCE, GWALIOR

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Scheme of Examination

For batches admitted in Academic Session 2020-21 onwards

Bachelor of Architecture, First Year, I Semester

S.No	Subject Code	Subject Name	Category	Maximum Marks Allotted				Total Marks	CT HRS.	Contact Periods per week			Total Credits
				Theory Slot		Practical Slot				L	T	P	
				End Sem.	Mid Sem.	Quiz/ Assignment /Sessional	End Sem.						
1.	210101	Architectural Design - 1	DC-1	100	30	20	50	250	7	2	3	2*(1.5)	8
2.	210110	Building Materials	BSAE-1	50	30	20	-	100	3	2	1	-	3
3.	210103	Graphics - 1	DC-2	50	30	20	50	200	7	2	3	2	6
4.	210108	Structure I	BSAE-2	50	30	20	-	100	3	2	1	-	3
5.	210105	History of Architecture-1	DC-3	50	30	20	-	100	3	2	1	-	3
6.	210107	Workshop - 1	SEC-1	-	-	-	20	50	4	-	-	4	2
7.	210111	Professional Communication	SEC-2	50	30	20	-	100	2	1	1	-	2
		Total		350	180	120	130	900	29	11	10	8	27

Induction program of three weeks (MC): Physical activity, Creative Arts, Universal Human Values, Literary, Proficiency Modules, Lectures by Eminent people, Visits

to local Areas, Familiarization to Dept/ Branch Innovation

*One Design Studio/ Construction Studio/ Project/ Thesis Period/ Hour shall have 1.5 Credit

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 N.K.
 M.A.
 J.P.
 V.V.
 S.S.

MADHAV INSTITUTE OF TECHNOLOGY & SCIENCE, GWALIOR

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Scheme of Examination

For batches admitted in Academic Session 2020-21 onward

Bachelor of Architecture, First Year, II Semester

S.No	Subject Code	Subject Name	Category	Maximum Marks Allotted				Total Marks	CT HRS.	Contact Periods per week			Total Credit
				Theory Slot		Practical Slot				L	T	P	
				End Sem.	Mid Sem Exam.	Quiz/ Assignme nt/ Sessional	End Sem.						
1.	210201	Architectural Design - II	DC-4	100	30	20	50	250	7	2	3	2*(1.5)	8
2.	210202	Building Construction -I	BSAE-3	50	30	20	20	150	5	2	1	2*(1.5)	6
3.	210203	Graphics - II	DC-5	50	30	20	20	150	4	1	1	2	3
4.	210208	Structure II	BSAE-4	50	30	20	-	100	3	2	1	-	3
5.	210205	History of Architecture- II	DC-6	50	30	20	-	100	3	2	1	-	3
6.	210206	Theory of Design	DC-7	50	30	20	-	100	2	2	-	-	2
7.	210207	Workshop - II	SEC-3	-	-	-	20	50	4	-	-	4	2
		Total		350	180	120	140	900	28	11	7	10	27

Summer Internship Project- I (Institute level)(Qualifier): Minimum two weeks duration

*One Design Studio/ Construction Studio/ Project/ Thesis Period/ Hour shall have 1.5 Credit

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Scheme of Examination

2017-2018 batch onwards

Bachelor of Architecture, Second Year, III Semester

S.No.	Subject Code	Subject Name	Category	Maximum Marks Allotted					Total Marks	CT HRS	Contact Periods per week			Total Credits	
				Theory Slot		Practical Slot		End Sem.			Term work	L	T		P
				End Sem.	Mid Sem. Exam.	Quiz/Assignment / Sessional	Lab Work & Sessional								
				End Sem.	Mid Sem. Exam.	Quiz/Assignment / Sessional	Lab Work & Sessional								
1.	210301	Architectural Design - III	DC-8	100	30	20	50	50	250	7	2	3	2*(1.5)	8	
2.	210302	Building Construction -II	BSAE-5	50	30	20	50	50	200	5	2	1	2*(1.5)	6	
3.	210303	Graphics -III	PAEC-1	-	-	-	50	50	100	6	-	-	6	3	
4.	210304	Surveying & Leveling	BSAE-6	50	30	20	-	-	100	3	1	2	-	3	
5.	210305	History of Architecture-III	DC-9	50	30	20	-	-	100	3	2	1	-	3	
6.	210306	Structure-III	BSAE-7	50	30	20	-	-	100	3	2	1	-	3	
7.	210307	Summer Internship Project - I (Associate Level Evaluation)	SEC-4	-	-	-	50	-	50	2	-	-	2	1	
Total				300	150	100	200	150	900	29	9	8	12	27	
8.	100002	Workshop for Engineers/Architects (Audit Course)	MC-1	50	30	20	-	-	100	3	3	-	-	-	
NSS/NCC				Qualifier											
Tour/ seminar/ Workshop/ Training during winter break: Evaluation in IV semester															

*One Design Studio/ Construction Studio/ Project/ Thesis Period/ Hour shall have 1.5 Credit

†100002 Biology for Architects (Audit Course) will not be included in the aggregate and Passing is optional, however a separate marksheet will be issued to those who qualify



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Scheme of Examination

2019-2020 batch onwards

Bachelor of Architecture, Second Year, IV Semester

S. No.	Subject Code	Subject Name	Category	Maximum Marks Allotted					Total Marks	CT HRS	Contact Periods per week			Total Credits
				Theory Slot		Practical Slot		End Sem.			L	T	P	
				End Sem.	Mid Sem. Exam.	Quiz/Assignment / Sessional	Term work							
						Lab Work & Sessional								
1.	210401	Architectural Design - IV	DC-10	100	30	20	50	50	7	2	3	2*(1.5)	8	
2.	210402	Building Construction -III	BSSAE-8	50	30	20	50	50	5	2	1	2*(1.5)	6	
3.	210403	Building Services-I (Water Supply & Sanitation)	BSSAE-9	50	30	20	-	-	3	2	1	-	3	
4.	210404	History of Architecture-IV	DC-11	50	30	20	-	-	3	2	1	-	3	
5.	210405	Structure -IV	BSSAE-10	50	30	20	-	-	3	2	1	-	3	
6.	-	ELECTIVE - I	DE-1	50	30	20	-	-	3	2	1	-	3	
7.	210407	Four/ Seminar / Workshops/ NASA Training during winter break	SEC-5	-	-	-	50	-	2	-	-	2	1	
Total				350	180	120	150	100	26	12	8	6	27	
NSS/NCC													Qualifier	

Summer Internship Project- II (Softskill based): Minimum two weeks duration: Evaluation in V semester

S.no	Elective	Sub code	Sub Name	Remark
1	ELECTIVE-I	210411	Ecology & Environment	
		210412	Society, Culture And Architecture	

*One Design Studio/ Construction Studio/ Project/ Thesis Period/ Hour shall have 1.5 Credit

DR. S. S. (ACADEMICS)

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DR. S. S. (ACADEMICS)

DEAN

Scheme of Examination

Bachelor of Architecture, Third Year, V Semester

S. No	Subject Code	Subject Name	Category	Maximum Marks Allotted				Total Marks	Contact Periods per week			Total Credits	
				Theory Slot		Practical Slot			CT HRS	L	T		P
				End Sem. Exam	Mid Sem. Assignment / Sessional	End Sem	Lab work & Sessional						
1.	210501	Architectural Design -V	DC-12	100	30	20	50	50	2	3	2*(1.5)	8	
2.	210502	Building Construction -IV	BSAE-11	50	30	20	20	30	2	1	2*(1.5)	6	
3.	210503	Building Services-II (Electrical & Mechanical)	BSAE-12	50	30	20	-	-	2	1	-	3	
4.	210504	Building Sciences & Energy Conservation	BSAE-13	50	30	20	-	-	2	1	-	3	
5.	-	LLC (IVE) -II	DE-2	50	30	20	-	-	3	2	-	3	
6.	210508	* Self study, Seminar (SWAYAM/SPIEL & MOOC)	SEC-6	-	-	-	-	100	4	-	4	2	
7.	210507	Summer Internship Project-II	SEC-7	-	-	-	50	-	2	-	2	1	
		Total		300	150	100	120	180	27	10	7	10	26
8.	100006	Constitution of India/ Essence of Indian Traditional knowledge (Audit course)	MC-2	70	20	10	-	-	100	3	-	-	-

Department level activity/ workshop/ awareness programme to be conducted, certificate of compliance to be submitted by HoD to the Exam Controller through Dean Academics

S.No	Elective	Sub code	Sub Name	Remark
1	EEC (IVE) -II	210511	Human Settlement	
		210512	Interior Design	
		210513	Architectural conservation and historic preservation	

* Compulsory registration for one online course using SWAYAM/SPIEL/ MOOC, Evaluation through attendance, assignments and presentations.

* One Design Studio / construction Studio Project Thesis Period. Four shall have 1.54 credit

* Previous Constitution of India / Essence of Indian Traditional knowledge (Audit course) will not be included in the aggregate and Passing is optional. To receive a separate mark sheet will be sent to the respective department.

24/11/2020

24/11/2020

Scheme of Examination

Bachelor of Architecture, Third Year, VI Semester

2018-2019 batch onwards

S.No	Subject Code	Subject Name	Category	Maximum Marks Allotted						Total Marks	Contact Periods per week			Total Credits			
				Theory Slot			Practical Slot				MOOC	L	T		P		
				End Sem.	Mid Sem Exam.	Quiz/Assignm. / Sessional	End Sem.	Lab work & Sessional	Assignment							Exam	
1.	210601	Architectural Design - VI	DC-13	100	30	20	20	50	100				8	2	2	4*(1.5)	10
2.	210602	Building Services-III (Acoustic & Fire Fighting)	BSAE-14	50	30	20	20	-	-				4	3	1	-	4
3.	210608	Site Planning and Landscaping Architecture	DC-14	50	30	20	20	-	-				3	2	1	-	3
4.	210604	Working Drawing	PAEC-2	-	-	-	-	20	30				4	-	-	4	2
5.	-	ELLECTIVE-III	DE-3	50	30	20	20	-	-				3	1	2	-	3
6.	-	ELLECTIVE-IV	DE-4	-	-	-	-	-	-				3	2	1	-	3
7.	210607	Four/ seminar / Workshop/ Training during winter break	SEC-8	-	-	-	-	50	-				2	-	-	2	1
		Total		250	120	80	80	120	130				26	10	7	10	26

Summer Internship Project-III: Minimum four weeks duration: Evaluation in VII semester

S.no	Elective	Sub code	Sub Name	Remark
1	ELLECTIVE-III	210611	Housing	
2	ELLECTIVE-IV ^a	210614	Architectural Journalism	opted from NPTEL platform

^a Compulsory registration for one online course using SWAYAM/NPTEL/ MOOC

*One Design Studio/ Construction Studio/ Project/ Thesis Period/ Hour shall have 1.5 credit

Page 5 of 7

M. Pandey

ICAN (ACADEMICS)

M.I.T.S

GWALIOR

10/10/18

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Scheme of Examination

2017-2018 batch onwards

Bachelor of Architecture, Fourth Year, VII Semester

S. No.	Subject Code	Subject Name & Title	Category	Maximum Marks Allotted						Total Marks	Contact Periods per week			Total Credits	
				Theory Slot			Practical Slot				MOOC	L	T		P
				End Sem	Mid Sem. Exam	Quiz/Assign ment/Sessional	End Sem.	Term Work	Assign ment						
1	210701	Architectural Design – VII	DC-15	-	-	-	100	100	-	-	-	6*(1.5)	9		
2	210702	Adv Building Construction	DC-16	50	30	20	30	30	20	-	-	2*(1.5)	5		
3	210703	Project Management & Building economics	PAEC-3	50	30	20	-	-	-	-	-	-	3		
4	210704	Estimating and Costing & Specifications	PAEC-4	50	30	20	-	-	-	-	-	-	3		
5	-	ELECTIVE-V	DE-5	-	-	-	-	-	25	75	-	-	3		
6	100008	Intellectual Property Rights	MC-3	70	20	10	-	-	-	-	-	-	3		
7	210706	Summer Internship Project-III	SEC-9	-	-	-	50	-	-	-	-	2	1		
Total				220	110	70	170	130	25	75	24	10	4	27	

Tour/ seminar/ Workshop/ Training during winter break will be evaluated in VIII semester

S no	Elective	Sub code	Sub Name	Remark
1	ELECTIVE-V	210751	Structural System in Architecture	opted from NPTEL platform (July - Dec 2020)
		210752	Urban Landuse and transportation planning	
		210753	Urban governance and Development Management (UGDM)	

*One Design Studio/ Construction Studio/ Project Thesis Pgrad/ Hour shall have 1.5 Credit

Page No. 11



MADHAV INSTITUTE OF TECHNOLOGY & SCIENCE, GWALIOR

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Scheme of Examination

2017-2018 batch onwards

Bachelor of Architecture, Fourth Year, VIII Semester

S.N o.	Subject Code	Subject Name & Title	Category	Maximum Marks Allotted					Total Marks	Contact Periods per week			Total Credits		
				Theory Slot		End Sem. / Exam	Quiz/ Assignment / Sessional	End Sem.		Practical Slot		L		T	P
				End Sem.	Mid Sem. Exam					Lab Work & Sessional	Term Work Sessional				
1.	210801	Architectural Design - VIII	DC-17	-	-	150	100	250	8	-	8*(1.5)	12			
2.	210802	Urban Design	DC-18	50	30	20	30	150	5	2	1	4			
3.	210803	Professional Practice & Ethics	PAEC-5	50	30	-	-	100	3	2	1	3			
4.	210804	Dissertation	PAEC-6	-	-	20	30	50	4	-	-	2			
5.	100907	Disaster management (MC)	MC-4	70	20	-	-	100	3	2	1	3			
6.	210805	ELECTIVE- VI	DE-6	50	30	-	-	100	3	2	1	3			
7.	210806	1 day seminar / NASA/Workshop/Training during winter break	SEC-10	-	-	50	-	50	2	-	-	1			
		Total		220	110	70	160	800	28	8	4	16	28		

*One Design Studio/ Construction Studio/ Project/ Thesis Period/ Hour shall have 1.5 Credit

S no	Elective	Sub-code	Sub Name	Remark
1	ELECTIVE-VI	210811	Furniture Design	
		210812	City & metropolitan planning	
		210813	Adv Structural Design	

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ACADEMICS
Gwalior

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Scheme of Examination

Bachelor of Architecture, Fifth Year, IX Semester

S.N o.	Subject Code	Subject Name & Title	Category	Maximum Marks Allotted						Total Marks	Min. Working HRS/Week	Contact Periods per week			Total Credits	
				Theory Slot		Practical Slot		MOOC				L	T	P		
				End Sem.	Mid Sem. Exam	Quiz/Assign ment	End Sem.	Term Work Lab Work & Sessional	Assign ment							Exam
1.	210901	Professional Training	PAEC-7	-	-	-	400	300	-	-	700	36	-	-	36	18
2.	210902	Online Copurse (SWAYAM/ NPTEL/ COURSERA etc)	SEC-11	-	-	-	-	-	25	75	100	4	-	-	4	2
		Total					400	300	25	75	800	40	-	-	40	20

Scheme of Examination

Bachelor of Architecture, Fifth Year, X Semester

S.N o.	Subject Code	Subject Name & Title	Category	Maximum Marks Allotted						Total Marks	CT HRS	Contact Periods per week			Total Credits
				Theory Slot		Practical Slot		End Sem.	Term Work & Lab Work & Sessional			L	T	P	
				End Sem.	Mid Sem. Exam	Quiz/Assignment /Sessional	End Sem.								
1.	211001	Thesis Project	DC-19	-	-	-	400	400	250	650	14	-	-	14*(1.5)	21
3.	211002	Professional Development	SEC-12	-	-	-	20	20	30	50	2	-	-	2	1
4.	211003	ELECTIVE - VII PROFESSIONAL CERTIFICATION COURSE	DE-7	-	-	-	75	75	25	100	6	-	-	6	3
		Total					495	305	800	22	-	-	22	25	

*Orig. Design Studio/ Construction Studio/ Project/ Thesis Period/ Hour shall have 1.5 Credit

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MADHAV INSTITUTE OF TECHNOLOGY & SCIENCE, GWALIOR

(A Govt. Aided UGC Autonomous Institute Affiliated to RGPV, Bhopal)

2017-2018 batch onwards

Bachelor of Architecture, Fifth Year, IX Semester

S.N o.	Subject Code	Subject Name & Title	Category	Maximum Marks Allotted						Total Marks	Min. Working .HRS/ Week	Contact Periods per week		Total Credits		
				Theory Slot		Practical Slot		MOOC				L	T		P	
				End Sem.	Mid Sem. Exam	Quiz/ Assig nment	End Sem.	Term Work Lab Work & Session al	Assign ment							Exa m
1.	210901	Professional Training	PAEC-7	-	-	-	400	300	-	-	700	38	-	-	38	19
2.	210902	Online Copurse (SWAYAM/ NPTEL/ COURSERA etc)	SEC-11	-	-	-	-	-	25	75	100	4	-	-	4	2
		Total					400	300	25	75	800	42	-	-	42	21

2017-2018 batch onwards

Bachelor of Architecture, Fifth Year, X Semester

S.N o.	Subject Code	Subject Name & Title	Category	Maximum Marks Allotted						Total Marks	CT HRS	Contact Periods per week		Total Credits	
				Theory Slot		Quiz/ Assignment / Sessional	Practical Slot		L			T	P		
				End Sem.	Mid Sem. Exam		End Sem.	Term Work Lab Work & Sessional							
1.	211001	Thesis Project	DC-19	-	-	-	400	400	250	18	-	-	-	18*(1.5)	27
3.	211002	Professional Development	SEC-12	-	-	-	20	20	30	50	2	-	-	2	1
4.	211003	ELECTIVE - VII PROFESSIONAL CERTIFICATION COURSE	DE-7	-	-	-	70	70	30	100	4	-	-	4	2
		Total					490	490	310	800	24	-	-	24	30

*One Design Studio/ Construction Studio/ Project/ Thesis Period/ Hour shall have 1.5 Credit

Page 1 of 12

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First Year First Semester

1. Architecture Design – I (Code - 210101)

Objectives –

The course aims to obtain the fundamentals of design – elements and principles that govern the aesthetic aspects of design, experimental understanding on graphic elements and compositions in 2D / 3D, experimental understanding of colours, textures and compositions. Experimental understanding of form building experimental understanding of design.

S. No.	Subject Code	Subject Name	Category	Maximum Marks Allotted					Total Marks	CT HR S.	Contact Periods per week			Total Credits
				Theory Slot			Practical Slot				L	T	P	
				End Sem	Mid Sem.	Quiz/ Assignment	End Sem.	Lab work & Sessional						
1	210101	Architecture Design – I	DC-1	100	30	20	50	50	250	7	2	3	2*(1.5)	8

UNIT-1 GRAPHIC ELEMENTS, COMPOSITIONS & COLOURS – 2D

Impart elements and principles of design theory with sample exercises supported by illustrative PowerPoint presentations.

Exercises:

1. Dots, lines, shapes & forms
2. Hatching patterns
3. 2D compositions with geometric & organic shapes
4. Impart colour theory with sample exercises supported by illustrative ppt presentations
5. Colour compositions on 2d compositions.
6. Textures replacing colours.

UNIT-2 3DCOMPOSITIONS / COLOUR & TEXTURE APPLICATIONS

1. Texture portfolio
2. 3D compositions with geometric & organic forms (model)
3. Color compositions on 3D compositions (model)
4. Texture applications& material compositions (model)

UNIT-3 2D & 3D ABSTRACTIONS

1. 2D image abstraction (colour, black/white, grey tone/mono colour, textures)
2. 3D image abstraction (colour, black/white, grey tone/mono colour, textures)
3. 3D model abstraction (colour)

UNIT-4 FORM BUILDING(MODELS)

Make a vivid PowerPoint presentation / video presentation on form building models with ample samples

Exercises

1. 3D sculpture exercises (additive& subtractive forms – solids & voids)
2. Space frame model using a linear module (space creation)
3. Origami models (space creation + solids & voids)
4. Life scale models (group)

UNIT-5 PRODUCT DESIGN

Make a vivid PowerPoint presentation on product design with emphasis on user, purpose, material & form.

Exercises:

- Small scale product design
- Life scale furniture design (group)
- 3D model abstraction (colour)

COURSE OUTCOME: After completion of this course student will be able to-

CO1	Identify the elements and principle of design theory
CO2	Associate various graphical elements
CO3	Apply principle of design/additive & subtractive form (using 2d/ 3d compositions)
CO4	Illustrate the color theory principles using color compositions & texture
CO5	Evaluate the geometric & organic forms (2D & 3D in building)
CO6	Develop analytical thinking towards spatial analyses of visual culture

REFERENCES:

1. Charles Wallschlagger & Cynthia Busic-Snyder, Basic Visual Concepts and Principles for Artists, Architects and Designers, McGraw Hill, New York 1992.
2. V.S. Pramar, Design fundamentals in Architecture, Somaiya Publications Pvt. Ltd, New Delhi, 1973
3. Francis D. K. Ching - Architecture - Form Space and Order Van Nostrand Reinhold, Co., (Canada), 1979.
4. Elda Fazei, Henry Moore, Hamlyn, London, New York, Sydney, Toronto, 1972.
5. Exner, V, Pressel, D, Basics Spatial Design, Birkhanser, 2009

Note: Five questions shall be asked. All questions may have equal or varied weightage in end semester exams.

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Objectives –

The course aims to obtain various materials and systems, their properties and applications, develop a fundamental understanding of the relationship of materiality to construction systems and techniques, the intrinsic relationship of building materials to structural systems and environmental performance

S. N o.	Subject Code	Subject Name	Category	Maximum Marks Allotted					Total Marks	CT HR S.	Contact Periods per week			Total Credits
				Theory Slot			Practical Slot				L	T	P	
				End Sem.	Mid Sem	Quiz/ Assignment	End Sem	Lab work & Sessional						
2	210110	Building Materials	BSAE-1	50	30	20	-	-	100	3	2	1	-	3

UNIT-1

- Clay and clay products (bricks, tiles), stones
- Composition of cement, properties & various types of cement and their uses
- Lime, sand, aggregate & mortar.

UNIT-2

- Timber types, qualities, and defects in timber seasoning.
- Processed materials- plywood, laminates, fiberboards, lightweight boards, panels & clay products

UNIT-3

- Special functional need and category of building materials abrasives, adhesives, asbestos, asphalt, bitumen, cork, electrical insulators, fuels, gypsum, heat insulation materials, lubricants, rubber sheets, roof coverings, solders, sound absorb materials, tar, turpentine.
- Proprietary building materials: - Paints, Varnishes, distempers wallpaper, floor coverings, tiles, vinyl's polyesters, fittings, furnishing materials for interiors& exteriors polymers, plastics resins and advanced surface finishes for interior and exterior.

UNIT-4

- Classification of glass, types of glass, physical properties and uses of glass in building industries, a special variety of glass and architectural glass.

UNIT-5

- Bamboo as plant classification, species, geographical distribution, Anatomy of Bamboo, Properties, strength, processing, harvesting, working of Bamboo tools – Treatment and preservation of Bamboo and uses of Bamboo. Termite protection, sewage protection, fire protection materials of special needs
- Industrial, agricultural and mineral wastes and their utilization as building materials: Fly ash, blast furnace slag, calcium carbonate, lime kiln rejects, by-product, gypsum, red mud, throw-away packages, rice husk, sawdust, wooden chips, choir waste, wood wool, tailings etc. their application in components of different types of buildings.

Note: Assignments should be in the form of small reports, market surveys, seminars and notes on above-mentioned topics. The works of CBRI, NBO, HUDCO, and other related institutions be referred to and discussed

COURSE OUTCOME:After completion of this course student will be able to-

CO1	Classify different types of building materials used primarily in building construction work
CO2	Analyze building materials and its influence on prevailing architectural styles
CO3	Illustrate specific use of materials and ascertain their application
CO4	Finalize specific building materials for different types of buildings
CO5	Consider local material and its application techniques for low cost construction
CO6	Integrate the market survey of different types of material

TEXT BOOKS:

1. S.C. RANGWALA, "Engineering Materials" Published 2012
2. S.P. ARORA & BINDRA, "Building Construction" Published Dec 2010

REFERENCE BOOKS:

1. Advances in Building Materials and Construction, CBRI
2. Specification Year Book

17

Objectives -

The course aims to obtain presentation skills, visual expression and representation, imaginative thinking and creativity through a hands on working with various mediums and materials, grammar of art by involving them in a series of free hand exercises both indoor and outdoor to understand form, proportion, scale, etc. exercises that look at graphic and abstract representations of art, concepts and fundamentals of Architectural Drawing, language of architecture & buildings as two dimensional and three dimensional representations.

S. No.	Subject Code	Subject Name	Category	Maximum Marks Allotted					Total Marks	CT HRS	Contact Periods per week			Total Credits
				Theory Slot			Practical Slot				L	T	P	
				End Sem	Mid Sem.	Quiz/ Assignment	End Sem	Lab work & Sessional						
3	210103	Graphics - I	DC-2	50	30	20	50	50	200	7	2	3	2	6

UNIT-1 INTRODUCTION TO DRAWING

- Introduction to drawing instruments and their use
- **Lettering and Dimensioning:** Introduction to architectural lettering, styles, proportion and scale. Methods of dimensioning
- **Lines:** different types of lines, their thickness and applications in architectural drawing
- **Scale:** Architectural Metric scale, necessity of scaled drawing, selection of scale while preparing architectural drawing

UNIT-2 GEOMETRICAL DRAWING

- **Introduction to plane geometry:** Construction and development of planar surface—square, rectangle, polygon etc.
- **Construction of conic sections:** Ellipse, parabola and hyperbola
- **Introduction to orthographic projection:** Representation of geometric solids in terms of plan, elevation and side elevation in first angle projection – exercise on simple solids

UNIT-3 ISOMETRIC VIEW / AXONOMETRIC VIEW

- **Isometric view:** Isometric view of solids, Isometric application in building—buildings with different shape and different types of roofs to include pitched roof, hipped roof, flat roof, vault, cone, dome etc. Conversion of solids to orthographic projection and vice versa.

UNIT-4 BUILDING ELEMENTS AND BUILDING COMPONENTS

- **Building Elements:** Techniques of representing building elements such as doors, windows, steps, chajja, porch, canopy, balcony, parapet, foundation, walls, roofs, column, staircase, difference of levels, furniture fittings such as hand wash basins, WC pans, traps etc. on drawings in plan, elevation and section.
- **Material Indications:** Symbolic representation of building materials as specified by Indian Standard Code of practice.
- **Building components:** Components of a simple residential building through plan, elevation and section.

UNIT-5 ISOMETRIC VIEW / AXONOMETRIC VIEW OF BUILDINGS

- **Isometric view:** Exterior view of a simple residential building showing all building components
- **Axonometric view:** Axonometric view of a room interior showing all interior components.

COURSE OUTCOME: After completion of this course student will be able to-

CO1	Visualize the language of architecture & buildings through as two dimensional and three dimensional representations
CO2	Interpret architectural geometry by applying fundamental principles of drawing
CO3	Develop the capability of ideation and 3D modeling using drafting tools
CO4	Describe spatial relationship using sequential thinking
CO5	Solve basic problems involving graphics and spatial manipulations for architectural

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	applications to represent the future forms of her/his projects
CO6	Express her/his ideas by drawing using representation techniques and tools in the spatial concept and

REFERENCES:

1. K. Venugopala et al., "Engineering Drawing + AutoCAD", New Age International Publishers, 2010
2. Francis D K Ching, "Architectural Graphics- Fifth Edition", John Wiley and Sons, New Jersey, 2009
3. N D Bhatt et al., "Engineering Drawing" (53rd Edition), Charotar Publishing House, Anand, India, 2014
4. Morris et al., "Geometrical Drawing for Art Students", Universities press, 2012
5. Leslie Martin C., "Architectural Graphics", The Macmillan Company, New York, 1978

Note: Four questions shall be asked. First question will contain 20 marks & will be compulsory. Other three questions will be of equal marks and one question may have option.

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4. Structure -I (Code - 210108)

Objectives -

The course aims to obtain understanding the basic knowledge & overview of structural systems used in buildings, historical development of structural form and the evolution of structural design knowledge from Gothic cathedrals to long span structural systems, principles of structural mechanics & how bending moment and shear force diagrams are used to analyze simple structural behavior

S N o	Subject Code	Subject Name	Categ ory	Maximum Marks Allotted					Total Mark s	CT HRS	Contact Periods per week			Total Cred its
				Theory Slot			Practical Slot				L	T	P	
				End Sem.	Mid Se m.	Quiz/ Assignm ent	End Se m.	Lab work & Sessio nal						
6	210108	Structure -I	B.SAE- 2	50	30	20	-	-	100	3	2	1	-	3

UNIT-1

Statics of a particle, composition and resolution of forces, moment of a force, parallel forces, couples, general conditions of equilibrium.

UNIT-2

Center of gravity and moment of inertia of composition and cut out sections, parallel and Perpendicular axes theorem, stability of equilibrium.

UNIT-3

Simple stresses and strains, direct stresses, compound stresses.

UNIT-4

Shear force and bending moments for strained beams subjected to concentrated load and Distributed loadings (Simply supported and cantilever only) support reactions.

UNIT-5

Stress in beams: Direct, bending and shearing stress in beams.

Note: Assignments work should include design and analysis of simple elements as stated above with drawings

COURSE OUTCOME:-After completion of this course student will be able to-

CO1	Elaborate various principles of strength of materials and behavior of forces
CO2	Establish relationship between the bending to the material property and geometry
CO3	Apply pure bending and shear equation
CO4	Analysis the stress and strain conditions due to bi-axial stress system
CO5	Compute stresses at various level of beam
CO6	Compute support reactions in simply supported, cantilever and over-hang beams for a given set of loading

TEXT BOOKS:

1. S.B. JUNNARKAR, "Applied Mechanics" 2015
2. RAMAMURTHAM, "Applied Mechanics" 2010
3. S.B. JUNNARKAR/H.J. SHAH, "Mechanics of Structure Vol.1" : 32nd Edition : 2016
4. DR. B.C. PUNAMIA, "Strength of Materials" 2018

REFERENCE BOOKS:

IS Codes

1. IS 465: 2000
2. SP-16 3
3. SP-34

5. History of Architecture- I (Code – 210105)

Objectives –

The course aims to obtain knowledge of evolution with regarding to Indian architecture, in India as this is an integrated expression of art, culture, vernacular material and techniques of the place, designs that are rooted in this country and suitable to the lifestyle of its people, varied culture and the resulting architectural productions which are unique in time and place.

S - N o	Subject Code	Subject Name	Cate gory	Maximum Marks Allotted					Tota l Mar ks	CT HRS	Contact Periods per week			Tot al Cre dits
				Theory Slot			Practical Slot				L	T	P	
				End Se m.	Mid Se m.	Quiz/ Assignment	End Se m.	Lab work & Sessional						
5	210105	History of Architecture- I	DC- 3	50	30	20	-	-	100	3	2	1	-	3

UNIT-1 RIVER VALLEY CIVILIZATIONS OF INDIA

Pre historic civilization, Neolithic & Paleolithic. Indus Valley Civilization: culture and pattern of settlement Vedic culture - Vedic village and rudimentary forms of bamboo and wooden construction - Aryan civilization - origins of early Hinduism.

UNIT-2 BUDDHIST ARCHITECTURE

Origins of Buddhism and Jainism, Evolution of Buddhist Architecture and its salient features- Examples – Ashokan Pillar at Sarnath and Sanchi stupa. Chaitya hall and Vihara - Buddhist rock cut architecture Examples - Chaitya hall at Karli, Viharas at Nasik.

UNIT-3 EGYPTIAN ARCHITECTURE

Study of the influences & architectural character of ancient Egypt with relevant examples of Tomb & Temple structures (Cult and Mortuary temples), Mastaba – development and typical components of Pyramids – Complex of Zoser, Pyramid of Cheops and Cephren.

UNIT-4 WEST ASIATIC ARCHITECTURE

Study of Mesopotamian architecture, Urbanization in the Fertile Crescent – Sumerian, Babylonian, Assyrian and Persian (with examples of Ziggurat, Sargon palace & Palace of Persepolis).
Mayan Civilization- Ceremonial platforms, palaces, pyramids and temples.

UNIT-5 INTRODUCTION TO SOUTH EAST ASIAN AND EAST ASIAN ARCHITECTURE

Study of prominent architectural character of south Asian countries. Study of relevant examples like Angkor wat Cambodia. Introduction to Chinese architecture and typical examples of Pagoda, Pylons, Great Wall of China, temples etc.

Introduction to Japanese architecture, its characteristic features and typical examples Pagoda, temples, monasteries, tea house etc.

COURSE OUTCOME: After completion of this course student will be able to-

CO1	Visualize basic concepts regarding the historical and architectural development in ancient civilization as an integrated expression of art, culture, vernacular material and techniques of the place
CO2	Observe diverse artistic and architectural expressions with regard to the historical context in which they are developed
CO3	Illustrate visual and verbal vocabularies of Indian, Egyptian, west Asiatic and Eastern Architecture
CO4	Evaluate architectural forms and space with reference to technology, style and character
CO5	Reproduce with sketches, audio and visuals various architectural forms and styles
CO6	Develop an appreciation of varied cultures and the resulting architectural productions which are unique in time and place & suitable to the lifestyle of its people

TEXT BOOKS:

- 1 SATISH GROVER, "The Architecture of Indian (Buddhist & Hindu)"
- 2 A VOLWANSEN, "Living Architecture (Indian)", Oxford & IBH London
- 3 Pier LuigiNervi, General Editor, "History of World Architecture - Series"

REFERENCE BOOKS:

- 1 PERCY BROWN, "Indian Architecture (Buddhist & Hindu), Taraporewala & Sons, Bombay 2nd Edition
- 2 CHRISTOPHER TADGILL, "History of Architecture in India", Phaidon Press
- 3 History Of Architecture by Sir Bannister Fletcher 20th edition
- 4 The Story Of Architecture by Patrick Nuttgens 2nd Edition
- 5 Space, Time And Architecture by Siegfried Gideon 5th Edition

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Objectives -

The course aims to obtain the ability to appreciate the three dimensional implications of design and to introduce the students to the techniques of model making, basics of rendering, presentation skills & model making with various materials

S N o	Subject Code	Subject Name	Categ ory	Maximum Marks Allotted					Total Mark s	CT HRS	Contact Periods per week			Total Cred its
				Theory Slot			Practical Slot				L	T	P	
				End Sem.	Mid Se m.	Quiz/ Assignm ent	End Se m.	Lab work & Sessio nal						
6	210107	Workshop - I	SEC -1	-	-	-	20	30	50	4	-	-	4	2

UNIT-1 VISUAL ART

General characteristics of visual art/Fundamentals of visual art: Space, Form, size, Shape, Line, Color, Tone values, Perspective, Design and aesthetic organization of Visual elements in art object (Composition). The use of two and three dimensions in visual art. Tactile quality in art. Environment and art. Perceptual and conceptual aspects in art. Use of various kinds of papers in art making.

UNIT-2 CARPENTRY

Introduction to the carpentry tools, processes, joints and wood working machines. Preparation of various carpentry joints, fixing of plywood, Blackboards, commercial boards and their application in furniture. Models in appropriate materials for understanding of joinery in wooden construction.

UNIT-3 FOUNDRY

Introduction, type of patterns, pattern making, preparation of moulds and moulding equipment details.

UNIT-4 FABRICATION

Introduction to welding equipments, processes and its applications.

UNIT-5 PAINTING & POLISHING

Classification of paints, varnishes ingredients of paints, painting methods-brush, spray, hot spray etc.

COURSE OUTCOME: After completion of this course student will be able to-

CO1	Review various tools and techniques in visual communication and model making
CO2	Incorporate basics of rendering, presentation skills & model making with various materials
CO3	Associate properties of different materials and products for designing and model making
CO4	Apply two dimension and three dimension compositions to designing and model making
CO5	Produce art works from various materials individually and in team
CO6	Integrate these materials in creating their design models in further studies

REFERENCES:

- 1 BENN, the book of the house ,Ernest Benn limited London
- 2 Jannsen, Constructional Drawings & Architectural models, Kari Kramer Verlag Stuttgart, 1973.
- 3 Harry W Smith, The art of making furniture in miniature, E P Dutton Inc., New York, 1982
- 4 Thames and Hudson Manual of Rendering with Pen and Ink-Robert W Gill.

Objectives –

The course aims to obtain communication skills in English by developing their listening, speaking, reading and writing skills, speaking skills with specific reference to prospective/actual clients, suppliers, business partners and colleagues, reading ability of journals, research articles etc & develop their writing skills especially writing project proposals and reports.

S N o	Subject Code	Subject Name	Categor y	Maximum Marks Allotted					Total Mark s	CT HRS	Contact Periods per week			Total Credi ts
				Theory Slot			Practical Slot				L	T	P	
				En d Se m.	Mi d Se m.	Quiz/ Assignme nt	End Sem	Lab work & Session al						
7	210111	Professional Communication	SEC -2	50	30	20	-	-	100	2	1	1	-	2

Unit -1 Introduction to Language & Linguistics

An Introduction to Linguistics, IPA, English Phonetic Symbols/Sign & Sounds, Place & Manner of Articulation

Unit -2 Communication

Communication: Approaches, Elements, Types, Process, Models; Management Communication (Levels of Communication) and Grapevine Communication, Verbal and Nonverbal Communication; Barriers to Communication; Johari Communication Window.

Unit-3 Application of Linguistic Ability

1. Listening: Factors Affecting Listening and Improving Listening.
2. Speaking: Making Speeches, Presentation, Group Discussion, Meeting, Interview, Debate.

Unit-4 Grammar & Vocabulary:

Grammar: Parts of Speech, Subject-verb Agreement, Active and Passive Voice, conditional sentences
Vocabulary: Using the dictionary and thesaurus, word formation, prefix & suffix, idioms, phrasal verbs.

Unit-5 Report Writing:

Reading Comprehension: Stories, Passages, Poetry and Scientific Text
Writing: Essentials of good writing, Technical Descriptions of Simple Engineering Objects, Formal (Application, Email, CV, Résumé, Memo, Report writing)
*Material for story and prose is to be selected by concerned teacher in class.

COURSE OUTCOME: After completion of this course student will be able to-

CO1	Speak clearly effectively and appropriately in a public forum to a variety of audiences and purposes (LOTS1)
CO2	Prepare and deliver oral presentations and arguments acceptable within the Engineering Profession effectively (LOTS3)
CO3	Demonstrate knowledge and comprehension of major text and traditions in language as well as its social, cultural and historic context (LOTS3)
CO4	Read a variety of text critically and analytically so as to demonstrate in writing and / or speech the interpretations of those texts (HOTS4)
CO5	Interpret text written in English assessing the result in written and oral arguments using appropriate material for support (HOTS3)
CO6	Implement professional work habits, including those necessary for-effective collaboration and corporation with others (HOTS4)

Reference Books :-

- Technical Communication — By Meenakshi Raman, OUP, 2015
- Understanding Human Communication — By Ronald Alderman by OUP 2016
- Communication Skills for Engineers – Pearson Education
- Effective Business communication – Tata McGraw Hill 2008
- Business Communication – OUP, Tata McGraw, 2005
- Practical English Grammar by Thomson Martinet – Oxford University Press 1986
- A Handbook of Language laboratory by Cambridge University Press, 2009

1. Architecture Design – II (Code – 210201)

Objective –

The course aims to obtain o learn the basic principles of space making, the forms of building through intensive designstudio practice

S. No.	Subject Code	Subject Name	Category	Maximum Marks Allotted					Total Marks	CT HR S.	Contact per week			Total Credits
				Theory Slot			Practical Slot				L	T	P	
				End Sem.	Mid Sem.	Quiz/ Assignment	End Sem.	Lab work & Sessional						
1	210201	Architecture Design – II	DC- 4	100	30	20	50	50	250	7	2	3	2*(15)	8

PROCESS:

- Fragment the pre design process and help students build formats/templates for analysis. Guide to derive architectural design data through various studies
- Guide to program and to understand the causes for architectural spaces Guide to understand context & its influences
- Guide to learn and experiment the design process
- Guide to conceptualize the design/evolution of architecture Guide to document the design project

Note: minimum four design problems shall be introduced in the semester out of which, one major problem one small problem and two shall be time bound problem. Learning the basic principles of space making and form building through intensive design studio practice.

PROJECT 1(Prototype): SINGLE SPACE DESIGN

Enlighten the student on the design project overview & the design process to be followed through relevant presentations.

Present an analytical discourse on an identical architectural design project covering

- Architectural elements & relevant architectural terms
- Space planning (response to user & purpose with logic & application of standards)
- Material, form & structure
- Aesthetics & visual perceptions

PROJECT 2(Prototype): SMALL SCALE MULTI-SPACE DESIGN

Enlighten the student on the design project overview & the design process to be followed through relevant presentations.

Present an analytical discourse on an identical architectural design project covering

- Architectural, elements, spaces & terms
- Noted projects & architects
- Space planning (response to user & purpose with logic & application of standards)
- Site planning (contextual response, response to the natural environment, response to views + general site planning guidelines)
- Material, form & structure
- Aesthetics & visual perceptions.

PROJECT 3 & 4(Prototype): Time bound Problems of 6 hours to 48 hours.

COURSE OUTCOME: After completion of this course student will be able to-

CO1	Interpret architectural design fundamentals (Relationship between people to built forms & built forms to environment)
CO2	Summarize different functional spaces and their space requirements
CO3	Identify human standards of design based on ergonomics
CO4	Analyze pre-design process, design process & conceptualization stages in design
CO5	Design objects based on the concept of space and form by modifying and evaluating an existing space
CO6	Express their designs through communication skills – verbal, script & graphics

REFERENCES:

1. Mike W.Lin. Drawing & Designing with confidence – A step by step guide, John Wiley & sons, USA, 1998
2. Criss B Mills, Designing with models : A Studio guide to making & using architectural models, Thomson & Wadsworth, USA, 2000. 1st Edition
3. DeChiara and Callender, Time saver standards for building types, McGraw hill company 1990
4. Bousmaha Baiche & Nicholas Walliman, Neufert Architect's data, Blackwell science ltd. 3rd Revised editio
5. Ramsey / Sleeper, National Architectural graphic standards, The American Institute of Architects 12th Edition (AGS 12e) , 2016
6. Space Planning Basics - Mark Karlen 2016

Note: Two small design problems shall be given in End Semester Examination.
6 hours examination.

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2. Building Construction - I (Code - 210202)

Objective -

The course aims to obtain knowledge basic building components and doors, windows, different types of materials and their use in construction, the different materials & technology available & their application, the various types of roofing and its materials.

S.N o.	Subject Code	Subject Name	Category	Maximum Marks Allotted					Total Marks	CT HR S.	Contact Periods per week			Total Credits
				Theory Slot			Practical Slot				L	T	P	
				End Sem.	Mid Sem.	Quiz/ Assignment	End Sem.	Lab work & Sessional						
2	210202	Building Construction - I	B.SAE-3	50	30	20	20	30	150	5	2	1	2*(1.5)	6

UNIT-1 LOW-COST CONSTRUCTION

- Introduction to Low-cost construction techniques and materials with combinations of mud and terra - cotta
- Foundation and walls in stabilized mud-rammed earth and compact earth blocks

UNIT-2 INTRODUCTION OF BASIC BUILDING COMPONENTS

- Cross-section of a G+1 building to understand foundation, plinth beam, flooring, sill, lintel, slabs, parapet & weathering course
- Foundation: typical types of foundation in stone, brick & RCC. Timbering of trenches, tools, plants, and equipment for excavation

UNIT-3 WALL

- **Walls:** Types of bricks and stone and their uses.
- **Brick:** definition, and types of bond: English, Flemish & rat trap bond for one brick and half thick wall for corners and T- Junctions, Garden wall bond & ornamental bond.
- **Stone:** Types of stone masonry (random rubble and ashlar).
- **Piers and Quoins.**

UNIT -4 INTRODUCTION TO OPENINGS

- **Doors:** Braced, panel, flush doors, carved entrance doors, and partially glassed doors.
- **Windows:** casement window, bay window, and French window.
- **Ventilators:** Louvered & Top hung ventilator.
- **Arches in brick and stone:** flat, segmental, semi-circular and pointed, plastering and pointing
- **Lintels and sills:** in brick and stone

UNIT-5 ROOFS

- **Simple configurations and details of various forms of roofs.** Flat, sloped, pyramids and dome.

COURSE OUTCOME- After completion of this course student will be able to-

CO1	Elaborate materials and systems, their properties and applications, and their intrinsic relationship to structural systems and environmental performance
CO2	Compare the material and construction techniques through site visit and market surveys
CO3	Develop a fundamental understanding of the relationship of materiality to construction systems and techniques
CO4	Illustrate basic components of a building with its construction details such as Foundation Footing, Wall section, Roofs, and Interior details
CO5	Produce detail construction drawings sets of building components and construction techniques
CO6	Demonstrate the Studio work using communication skills

REFERENCES:

1. W.B. McKay – Building construction Vol. 1 (5th edition), Vol. 2 (4th edition) and Vol. 3 (5th edition) **Fifth edition** (2013)
2. S.C. Rangwala – Engineering materials (Fortieth edition, 2013) – Charotar Publishing pvt. Ltd. **40th Revised and Enlarged: 2013**
3. Harold B. Olin, John L. Schmidt – Construction principles, Materials and Methods – John Wiley & Sons, Inc. 1995
4. Dr. B.C. Punmia – Building construction (10th edition) - Laxmi Publications
5. Roy Chudley (Author), Roger Greeno (Author) - construction Technology, 4th Edition. 1995
6. S.K. Duggal- Building materials (4th edition) – New age international publishers. 4th revised edition 2012
7. Bureau of Indian standards - Handbook on Masonry Design and Construction (First Revision) 1991
8. Hans Bans –Building construction details practical drawing, 2001

Note: Total five questions shall be asked. Each question will consist of two parts, one of which will be of 7 marks (which shall be compulsory) and another with 3 marks (which shall be optional).

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3. Graphics – II (Code – 210203)

Objectives –

The course aims to obtain the skill of representation in advance drawing techniques perspective, sciography and Measured Drawing

S. No.	Subject Code	Subject Name	Category	Maximum Marks Allotted					Total Marks	C T H R S.	Contact Periods per week			Total Credits
				Theory Slot			Practical Slot				L	T	P	
				End Sem	Mid Sem.	Quiz/ Assignment	End Sem	Lab work & Sessional						
3	210203	Graphics – II	DC- 5	50	30	20	20	30	150	4	-	-	2	2

UNIT-1 ELEMENTS AND PRINCIPLES OF PERSPECTIVE DRAWING

Principles of perspective drawings and understanding of all relevant terms like Picture Plane, Centre line of vision, Eye Level, Height Line, Vanishing Points, Cone of Vision, Station Point, Horizon line, Ground line etc. Basic principles of perspective drawing, Various types of perspectives - One point perspective, Two point perspective and three point perspective.

Exercise on two point exterior perspectives of simple objects and their combination by changing positions of picture plane and stand point in form of Worm's eye view, Normal eye view and Birds eye view.

UNIT-2 TWO POINT PERSPECTIVE VIEW OF BUILDINGS

Construction of Two point perspective grid.

Exercise on Two point Perspective of building Interior by Direct projection Method / Approximate Method

Exercise on Two point Perspective of building exterior by Direct projection Method / Approximate Method

Exercise on Sectional perspective

UNIT-3 ONE POINT INTERIOR PERSPECTIVE

Construction of One point perspective grid

Exercise on One point Interior view of any room viz Bed Room, Kitchen, Drawing room etc. by Direct projection Method / Approximate Method

UNIT-4 SCIOGRAPHY

(a) Principles of Shades and shadows - Techniques of drawing shades and shadows of lines, planes, solids and Architectural Building Elements.

(b) Exercise on Shade and shadow of typical building on Elevation and Site Plan

(c) Exercise on Shades and Shadows in perspective

UNIT-5 MEASURED DRAWING

Measured drawing of single storied building(s) :To measure and draw the Ground Floor Plan along with plot boundaries, four side elevations, two sections, block plan, site plan of existing single storied building (maximum of 100.0 sq. m. Plinth area). In addition to this drawings shall be prepared based on examples of buildings by giving a sketch design (maximum of 100.0 sq. m Plinth area).

Exercises to include application of shade and shadow in site plan, elevation and exterior perspective

COURSE OUTCOME: After completion of this course student will be able to-

CO1	Communicate their ideas through various drawings
CO2	Visualize the design ideas from various angles
CO3	Represent advance drawing techniques involving perspective, sciography
CO4	Produce architectural drawings using perspective, sciography
CO5	Prepare Measured Drawing of any historical building
CO6	Integrate these techniques in creating their design drawings in further studies

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REFERENCES

Robert W Gill, "Perspective From Basic To Creative", Thames and Hudson, London, 2006

1 Francis D K Ching, "Architectural Graphics- Fifth Edition", John Wiley and Sons, New Jersey, 2009

2 John Montague, "Basic perspective Drawing A Visual Approach", John Wiley and Sons, New Jersey, 2009

3 Milind Mulick, "Perspective", Jyotsna prakashan, 2006

4 Ernest Norling, "Perspective Made Easy", Dover publications, 1999

5 M G Shah & C M Kale, "Principles of Perspective Drawing", Asia publishing House, 1965

Note: Four questions shall be asked. First question will contain 20marks & will be compulsory. Other three questions will be of equal marks and one question may have option.

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Objectives -

The course aims to obtain basic knowledge & overview of structural systems used in buildings, the structural form and the evolution of structural design knowledge, from Gothic cathedrals to long span structural systems simple structural behavior

S. No.	Subject Code	Subject Name	Category	Maximum Marks Allotted					Total Marks	CT HR S.	Contact Periods per week			Total Credits
				Theory Slot			Practical Slot				L	T	P	
				End Sem.	Mid Sem.	Quiz/ Assignment	End Sem.	Lab work & Sessional						
6	210208	Structure -II	BSAE- 4	50	30	20	-	-	100	3	2	1	-	3

UNIT-1 OVERVIEW OF VARIOUS TYPES OF STRUCTURAL SYSTEMS IN ARCHITECTURE

Simple RCC frame system used for small span buildings – vaults & domes of various spans – types of trusses & their application for industrial buildings – various configurations in rcc roof slab – RCC folded plate roofing systems – Various types of shell structures – Space frames in steel used for large spans – Tensile structural systems – Suitable examples for all these structural systems.

UNIT-2 BASIC STRUCTURAL CONCEPTS

Various types of loads in buildings – compression and tension in structures – Effect of temperature & settlement on buildings – properties of structural materials such as steel, concrete, RCC, wood, brick & stone – Evolution of the concept of span from architectural history: Temples in Egypt, Greece, South India, Indo-Aryan etc – Vaults & domes in historical buildings: Domes in Pantheon & Hagia Sophia, Vaults during Romanesque, Gothic & Mughal period.

UNIT-3 REINFORCED CEMENT CONCRETE STRUCTURES

Simply spanned RCC slabs & load bearing walls – one way & two way RCC slabs – coffer slab, grid beam slab in RCC – vault, dome, pitched roof, hipped roof in RCC – simple RCC frame structural system up to 5 floors – their application with suitable examples. Concept & various configurations of the folded slab roof – Concept of thin shells – simply curved & doubly curved shells, interpenetrating cylindrical shells, hyperbolic paraboloids, Hypars etc.

UNIT-4 STEEL STRUCTURAL SYSTEMS

Simple steel truss - members in tension & compression – various types of trusses – Warren, Pratt, Fink, Howe, Bowstring, mansard etc – girders & trusses in saw tooth roof configuration, Steel frame domes – Fuller, Geodesic, Schwedler dome configurations - Concept of Space frames: various types, single, double & triple layered tubular steel space frames & their use as long span structural system – Concept of tensile roofing system – saddle roof, mast supported, Arch supported, Point supported & their combinations – tensegrity roof structures.

UNIT-5 STRUCTURAL MECHANICS

Composition and Resolution of Forces – concept of stress / strain, young's modulus, typical stress strain curve for ductile & rigid materials, Hooke's law – Theory of Bending Moment & Shear force – their application in buildings for various loads & support conditions (Simply supported, Cantilevered, continuous etc). Simple problems on the above mentioned.

COURSE OUTCOME: After completion of this course student will be able to-

CO1	Identify the concept of various structural elements and system
CO2	Illustrate the use of different structural systems in building industry
CO3	Analyze the structural geometry based on strength and stability criteria
CO4	Appraise the built environment based on specific structural system
CO5	Analyze simple structural behavior using bending moment and shear force diagrams
CO6	Apply basic principles of structural mechanics



REFERENCES:

- 1 Henry J. Cowan, Forrest Wilson, *Structural Systems*, Van Nostrand Reinhold Company, New York, 1981
- 2 Bjorn N Sandekar et al, *The structural basics of Architecture* – 2nd edition, Routledge, Newyork, 2011
- 3 Mario Salvadori, Robert Heller, *Structure in Architecture*, Prentice International Series in Architecture, New Jersey, 15th Printing edition (1963)
- 4 Wayne Place, *Architectural structures*, John wiley & sons, Canada, 2007
- 5 Curt Siegel, *Structure and Form in Modern architecture*, Reinhold publishing corporation, Newyork, (1966)
- 6 Rowland J. Mainstone, *Developments in Structural form*, Architectural press, Oxford, 1975, 1999

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5. **History of Architecture- II (Code – 210205)**

Objectives –

The course aims to obtain knowledge of evolution with regarding to Indian architecture in India as this is an integrated expression of art, culture, vernacular material and techniques of the place, designs those are rooted in this country and suitable to the lifestyle of its people, varied culture and the resulting architectural productions which are unique in time and place

S.N o.	Subject Code	Subject Name	Category	Maximum Marks Allotted					Total Marks	CT HR S.	Contact Periods per week			Total Credits
				Theory Slot			Practical Slot				L	T	P	
				End Sem.	Mid Sem.	Quiz/ Assignment	End Sem	Lab work & Sessional						
5.	210205	History of Architecture- II	DC- 6	50	30	20	-	-	100	3	2	1	-	3

UNIT-1 EVOLUTION OF HINDU TEMPLE ARCHITECTURE:

Hindu forms of worship – Origin and evolution of temple form (Nagara, Dravida&Vesara) - meaning, symbolism ritual and social importance of temple, categories of temple, and elements of temple architecture

UNIT-2 NORTHERN INDIAN TEMPLES:

Early shrines of the Gupta Period. Their salient features. Salient features of Nagara Style Temple Architecture. Examples of Orissa style - Lingaraja temple at Bhubaneswar& Sun temple at Konark - Example of Madhya style – KandariyaMahadev temple at Khajuraho - Example of Gujarat style - Surya Temple at Modhera - Example of Maru-gurjara style – Ambaji Mata Temple, Udaipur. Example of Jain style temple- Dilwara temple, Mt. Abu. Examples of North & North East (Kashmir, Uttarakhand, etc.)

UNIT-3 DRAVIDIAN STYLE TEMPLES:

Brief history of South India - relation between Bhakti period and temple architecture - Temple Complexes & Towns (Madurai, Srirangam), Dravidian Order (evolution of Dravidian orders under pallavas, chola's and pandya's), Gopurams and Rock cut productions.

Examples: Early shrines of the Chalukyan periods, Tigawa temple - Ladh Khan and Durga temple, Aihole - Papanatha, Virupaksha temples, Pattadakal- Rock cut productions under Pallavas, Shore temple and five rathas at Mahabalipuram, Kailasanatha temple, Ellora. Example of Chola style - Brihadeeswara temple at Tanjore - Example of Pandyan style - Meenakshiamman temple, Hoysala architecture: Belur and Halebid and Kailasanathar temple at Kanchipuram.

UNIT – 4 INDO - ISLAMIC ARCHITECTURE

Introduction to Islamic culture worldwide. Classification of Islamic architecture in India, Mughal Architecture in India. Religious (Maqbara, Masjid, Idgah, etc.) and Secular typologies (Sarai, Rauza, etc.) of Islamic architecture. Features of an Indian mosque, concept of squinch arches, and its variations. Imperial style Provincial styles. Characteristics of Mughal architecture, planning, dome construction, materials. Development of the Mughal style under different rulers

Examples under imperial style - Qutub Complex, Qutubminar and Alai Darwaza at Delhi - Tomb of GhiasuddinTughlaq, Lodi garden at Delhi. Characteristics of the provincial styles in different regions through examples - Punjab style - Tomb of shah RukniAlam, Bengal style - Chotasona masjid at Gaur, Gujarat style - Jami masjid at Ahmedabad, Deccan style –Golgumbaz at Bijapur and Charminar at Hyderabad. Examples of Mughul architecture under different rulers - Humayun- Humayuns Tomb at Delhi, Akbar- FatehpurSikhri, Shahjahan - The Taj Mahal, Agra - Red Fort at Delhi, etc

UNIT – 5 FORTIFICATIONS AND PALATIAL ARCHITECTURE

Introduction to Fortifications, forts, Palaces across country.

Examples of Forts – Salient features of forts like Gwalior Fort, Daulatabad Fort, Golconda Fort, etc

Examples of palaces – Salient features of palaces like Mysore Palace, Padmanabha Palace, Umaid Bhawan, etc.

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COURSE OUTCOME: After completion of this course student will be able to-

CO1	Summarize basic concepts regarding the historical and architectural development in ancient India
CO2	Observe the diverse artistic and architectural expressions with regard to the historical context
CO3	Illustrate visual and verbal vocabularies of Indian Architecture
CO4	Analyze the diversity of imperial Indian Temple Architecture, Indian Mosques, Tombs, Forts, Cities, etc. including the buildings viewed as architectural masterpieces, and their urban settings
CO5	Appreciate varied culture resulting in architectural productions which are unique in time and place & suitable to the lifestyle of its people
CO6	Reproduce with sketches, audio and visuals various architectural forms and styles

REFERENCES:

1. Percy Brown, Indian Architecture (Islamic Period) - Taraporevala and Sons, Bombay, 1983 revised edition 1995
2. Satish Grover, The Architecture of India (Buddhist and Hindu period), Vikas Publishing House, New Delhi, 1981
3. Satish Grover, The Architecture of India (Islamic)/Vikas Publishing House Pvt. Ltd., New Delhi, 1981 revised edition 2009
4. Christopher Tadgell, The History of Architecture in India, Longman Group, U.K. Ltd., London, 1990
5. A. Volwahn, Living Architecture - India (Buddhist and Hindu), Oxford and IBM, London, 1969
6. George Mitchell, Monuments of India, Vol I, Buddhist, Jain, Hindu; Penguin books, 1990
7. Gateway to Indian Architecture, Guruswamy Vaidyanathan, Edifice Publication, 2003
8. Architecture of the Islamic World - George Michell - (its history and social meaning). Thames and Hudson, London, 1978.
9. Islamic Architecture, Form, Function and Meaning, Robert Hillenbrand, Edinburgh University Press, 1994

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6. Theory Of Design (Code – 210206)

Objectives –

The course aims to obtain the theoretical aspects of design and understand how it could be manifested in architectural design, the ideologies from works of architects and planners, the design communication skills to enable to put forth the design ideas in graphics and literature

S. No.	Subject Code	Subject Name	Category	Maximum Marks Allotted					Total Marks	CT HR S.	Contact Periods per week			Total Credits
				Theory Slot			Practical Slot				L	T	P	
				End Sem	Mid Sem.	Quiz/ Assignment	End Sem	Lab work & Sessional						
6	210206	Theory Of Design	DC-7	50	30	20	-	-	100	2	2	-	-	2

UNIT-1 PRIMARY ELEMENTS IN ARCHITECTURE

Geometry in Architecture - points, lines and shapes.-Linear elements -planar elements and volumetric elements. Patterns in nature and building design.Order to chaos Regularity and irregularity

UNIT-2 FORM AND SPACE

Elements of spatial definition – form defining space - elevated base plane, depressed base plane-vertical and horizontal elements defining space -depth and density of space - spatial juxtaposition and interpenetration – spatial characteristics of elementary shapes - qualities of architectural space - degree of enclosure Analysis of works of F.L Wright and Le Corbusier.

UNIT-3 ORDERING PRINCIPLES AND MEANING IN ARCHITECTURE

Ordering Principles-Axis -Symmetry -Hierarchy - Datum -Rhythm -Repetition -Transformation - Measure and balance – spaces on human scale - proportion – Golden Section, Le modular, Fibonacci series – Renaissance Theories - anthromorphism and architecture - Figure and ground, positive and negative spaces.

UNIT-4 CONCEPTS IN ARCHITECTURAL DESIGN

Concept – types- Ideas and Intent in design - intuitive, contextual, Iconic, Experiential, Symbolic, Modular, Ideologies and philosophies of architects'. Case Studies, Importance of graphics in architectural design. Study of site plans, city plans, conceptual drawings. Interpretation of architects' conceptual sketches and the respective buildings. Vernacular Architecture. Western & Indian Philosopher.

UNIT-5 RESPONSIVE AND RESPONSIBLE ARCHITECTURE

Phenomena of perception – looking, listening, feeling and moving through architecture –light and shade – Architecture as Making Frames -, Environmental-Energy based

COURSE OUTCOME: After completion of this course student will be able to-

CO1	Integrate the design communication skills to enable to put forth the design ideas in graphics and literature
CO2	Interpret the ideologies from works of architects and planners
CO3	Develop awareness of the natural and built environments (past and present) through critical observation
CO4	Analyze ideas from abstract thinking
CO5	Develop an approach to architectural thinking
CO6	Apply theoretical aspects of design to architectural design

REFERENCES:

- Francis D.K.Ching, Architecture-Form, Space and Order, Van Nostrand Reinhold Company, New York, 2007
- Simon Unwin, Analysing Architecture, Roulledge, London, 2003
- V.S.Pramar, Design Fundamentals in Architecture, Somaiya Publications Private Ltd, New Delhi, 1973
- Peter von Meiss -Elements of architecture - from form to place, Spon Press 1992
- Steen Eiler Rasmussen - Experiencing architecture, MIT Press, 1964

7. Workshop – II (Code – 210207)

Objectives –

The course aims to obtain the ability to appreciate the three dimensional implications of design and to introduce the students to the techniques of model making, basics of rendering, presentation skills & model making with various materials.

S. No.	Subject Code	Subject Name	Category	Maximum Marks Allotted					Total Marks	CT HR S.	Contact Periods per week			Total Credits
				Theory Slot			Practical Slot				L	T	P	
				End Sem	Mid Sem.	Quiz/Assignment	End Sem	Lab work & Sessional						
7	210207	Workshop – II	SEC-3	-	-	-	20	30	50	4	-	-	4	2

UNIT-1 MODEL MAKING

Use of clay, Plaster of Paris, metal scrap, metal sheets, jute fibre etc. for study of forms through models. Making models of the various structural systems used in buildings like Space frames – using Match sticks, wires. Different forms of shell roofs using POP, Clay, Soap Tensile structures using fabric.

UNIT-2

Development of surfaces of simple and composite forms using paper, Thermocol, wire, Wax, acrylic, sheets and similar materials. Introduction to metallic sections, joinery tools, joinery processes and working with them. Bonds in masonry based on the programme of building construction to make the various forms of masonry structures. Mixing of concrete, preparation of various objects.

UNIT-3 INTRODUCTION TO MODEL MAKING AND BLOCK MODELLING

Introduction to concepts of model making and various materials used for model making. Preparation of base for models using wood or boards. Introduction to block models of buildings (or 3D Compositions) involving the usage of various materials like Thermocol, Soap/Wax, Boards, Clay etc.

UNIT-4 DETAILED MODELLING

Making a detailed model which includes the representation of various building elements like Walls, Columns, Steps, Windows/glazing, Sunshades, using materials like Mount board, Snow-white board, and acrylic sheets. Representing various surface finishes like brick/stone representation, stucco finish etc. Various site elements – Contour representation, Roads/Pavements, Trees/Shrubs, Lawn, Water bodies, Street furniture, Fencing etc.

UNIT-5 PHOTOGRAPHY

Introduction to photography, use of camera, techniques in architectural photography.

COURSE OUTCOME: After completion of this course student will be able to-

CO1	Incorporate basics of rendering, presentation skills & model making with various materials
CO2	Appreciate three dimensional implications of design and techniques of model making
CO3	Criticize the properties of different materials for various products for designing and model making
CO4	Review requirements and design consideration of complementing field of architecture and designing such as photography and set designing
CO5	Develop small scale models using various building construction techniques
CO6	Design a functional model for real life situation

REFERENCES:

1. BENN, the book of the house, Ernest Benn limited London
2. Janssen, Constructional Drawings & Architectural models, Kari Kramer Verlag Stuttgart, 1973

SECOND YEAR THIRD SEMESTER

1. Architectural Design – III (Code – 210301)

Objectives –

The course aims to obtain knowledge of Architecture as responding to site conditions, the designing process, spaces and relationship of architecture with personal traits, information and choices such as occupation, life style, religion etc.

S. No.	Subject Code	Subject Name	Category	Maximum Marks Allotted					Total Marks	CT HR S.	Contact Periods per week			Total Credits
				Theory Slot			Practical Slot				L	T	P	
				End Sem	Mid Sem.	Quiz/ Assignment	End Sem.	Lab work & Sessional						
1	210301	Architectural Design – III	DC- 8	100	30	20	50	50	250	7	2	3	2*(15)	8

PROJECT 1(Prototype): TOWN HOUSE / VILLA

Study of contemporary practices & design for town houses and villas in urban areas, to sensitize the students towards life style, individual preferences, space – activity relationship and exploration of how material, color, texture and light affect the quality of spaces is the main focus. It is also intended as an exercise in massing & configuration of façade elements such as the balancing of solids & voids, adoption of a system of proportioning and elements of contemporary detailing. This design exercise will also attempt to involve the student in the built form / open space relationship & explore the connectivity between indoor & outdoor spaces.

PROJECT 2(Prototype): NUSERY / PRIMARY / SECONDARY SCHOOL

Case studies on contemporary trends in school design to know how various architects have responded to the design program, site conditions, student age group etc. The project aims to enlighten the student on how the school design responds to various education philosophy and grooming methods. The analysis of important functional aspects such as space adequacy, circulation in the built form and play areas, locating the various spaces according to functional adjacency and careful design of toilet areas is intended. The objective is to also optimize the variables of the physical environment such as thermal comfort, daylighting and noise control in design.

PROJECT 3 & 4(Prototype): Time bound Problems of 6 hours to 48 hours.

REFERENCES:

1. Time saver standards for building types, De Chiara and Callender, Mc Grawhill company.
2. Neufert Architect's data, Bousmaha Baiche & Nicholas Walliman, Blackwell science ltd

COURSE OUTCOME:-

After completion of this course student will be able to-

CO1	Identify spaces responding to site condition and personal issues such as occupation, lifestyle, religion etc.
CO2	Analyze how school designs respond to various education philosophy and grooming methods with help of case studies.
CO3	Explore the integration of classroom spaces with outdoor play areas in school buildings.
CO4	Produce sketches, models and photographs for analysis and design.
CO5	Design school buildings that respond to a particular educational philosophy.
CO6	Design independent residential buildings in urban areas with concepts that respond to personal preference & taste, family lifestyle, culture & site conditions.

Note: minimum four design problems shall be introduced in the semester out of which, one major problem one small problem and two shall be time bound problem.

Note: One design problem shall be given in End Semester Examination. 6X2 hours examination.



2. Building Construction – II (Code - 210302)

Objectives –

The course aims to obtain knowledge about doors, windows, different types of materials and their use in construction, the different water proofing, damp proofing materials & technology available & their application, the vertical transportation designing & detailing

S. N o.	Subject Code	Subject Name	Category	Maximum Marks Allotted					Total Marks	CT HR S	Contact Periods per week			Total Credits
				Theory Slot			Practical Slot				L	T	P	
				End Sem	Mid Sem.	Quiz/ Assignment	End Sem	Lab work & Sessional						
2	210302	Building Construction - II	B.SAE- 5	50	30	20	50	50	200	5	2	1	2*(1.5)	6

UNIT-1 BUILDING MATERIALS

Ferrous and Non-Ferrous metals & Plastics

- Properties and uses: Aluminum, zinc, lead, copper.
- Properties and Architectural uses of plastics: Thermoplastics, thermosetting plastics and, Structural plastics – Reinforced plastics and Decorative laminates-plastic coatings, Adhesives, and sealants – Modifiers and Plasticizers – Fabrications of plastics.
- Primary plastic building products for walls, roof, and partitions.
- Secondary building products for rooms, windows, roof lights, domes, gutters, and handrails.

UNIT-2 INTRODUCTION TO FOUNDATION AND WALLS

Foundation and walls:

- Different types of Foundation as per structure needs, soil condition and materials need

UNIT-3 DETAILS OF DOORS, WINDOWS & VENTILATORS

- **Timber Doors and its Joints:** Single, double-leaf, ledged braced & battened door, framed ledged braced & battened door, Paneled door, flush door, and Composite door.
- **Timbers Windows & ventilators:** Casement(side hug & top hug), Sliding pivoted (horizontal and vertical) folding and bay windows, fixed light of different sizes and shapes.
- Combined doors and windows and ventilators.

UNIT-4 STAIRCASES AND MASONRY

- **Staircases:** Types according to profile—straight flight, doglegged, quarter-turn half-turn, bifurcated, spiral & Helical. The foundation for the RCC staircase. Vertical transportation.

UNIT-5 DAMP PROOFING AND WATERPROOFING

- **Damp proofing:** Hot applied and cold-applied—Emulsified asphalt, Bentonite clay, Butyl rubber, silicones, Vinyl's, Epoxy resins and metallic waterproofing materials, their properties, and uses. Waterproofing: waterproofing membranes such as rag, asbestos, glass felt, plastic and synthetic rubber vinyl, butyl rubber, neoprene, polyvinylchloride – prefabricated membranes sheet lead, asphalt their properties and uses.
- **Application:** Application of the above in the basement floor, swimming pool, and terraces.

COURSE OUTCOME:-

After completion of this course student will be able to-

CO1	Classify Non-ferrous metals in terms of their properties, manufacturing and their applications in architectural construction.
CO2	Explain the concept of foundation and wall in different type of masonry
CO3	Classify various types of foundation according to structure, considering necessary parameters
CO4	Draw types of timber doors, windows, ventilators and its joinery detail
CO5	Define types of Vertical transportation systems in a building
CO6	Identify Different water proofing and damp proofing materials and applied technology

REFERENCES:

1. W.B. McKay – Building construction Vol. 1 (5th edition), Vol. 2 (4th edition) and Vol. 3 (5th edition)
2. R. Chudley & R. Greeno – Building Construction Handbook, ninth edition
3. S. C. Rangwala – Engineering materials (Fortieth edition) – Charotar Publishing pvt ltd
4. P. C. Varghese, "Building Materials", Prentice Hall of India Pvt. Ltd., New Delhi, 2005
5. Use of Bamboo and Reeds in building Construction – UNO Publications

Note: Total five questions shall be asked. Each question will consist of two parts, one of which will be of 7 marks (which shall be compulsory) and another with 3 marks (which shall be optional).

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3. Graphics -III (Code – 210303)

Objectives –

The course aims to obtain knowledge of various softwares used for drafting, 3D model making, rendering and presentation, such as AutoCAD, Revit, 3Ds MAX, Photoshop, CorelDraw, etc. according to availability of experts.

S. No.	Subject Code	Subject Name	Category	Maximum Marks Allotted					Total Marks	CT HR S.	Contact Periods per week			Total Credits
				Theory Slot			Practical Slot				L	T	P	
				End Sem.	Mid Sem.	Quiz/ Assignment	End Sem.	Lab work & Sessional						
3	210303	Graphics -III	PAEC- 1	-	-	-	50	50	100	6	-	-	6	3

COMPUTER AS A DRAFTING TOOL: Productivity tools in CAD, organization of layers for working drawings, use of blocks and symbols hatch patterns. Dimensioning systems extracting of areas from drawings, concept of paper space plotting the drawings

COMPUTER AS A DESIGN TOOL: Repetition of forms mirroring, coping, and array etc. calculation of areas volumes. Creating and using templates, blocks, and symbols and using them in architectural drawings - Managements of large drawing files. - Working in a network environment-Security systems-converting drawing files into Internet compatible files.

VISUAL COMMUNICATION

Photoshop: Creating and saving images, basic image editing, Photoshop tool box and tools, using layers special effects.

MEASUREMENT DRAWING WITH THE HELP OF CAD

Exercise will be a group activity; to measure and draw the floor plan along with the plot boundaries, four side elevations, four sections, block plan, site plan of a large building or a settlement with the help of CAD. In addition to this drawing shall be prepared based on examples of buildings by giving a sketch design. Drawings shall be detailed enough to explain the complete design.

Note: Exercises of measurement drawings may be clubbed with study tour.

COURSE OUTCOME: -

After completion of this course student will be able to-

CO1	Explain fundamental principles of using graphical Software.
CO2	Develop Basic skills in visual composition using Graphics
CO3	Apply productivity tools of 2D drawings.
CO4	Produce presentations for corporate clients-using CAD drawings, pictures, 3Dimages, text etc.

REFERENCES:

1. User manual & tutorials of Google Sketch Up software
2. Auto CAD reference manual – Autodesk UNC, 1998
3. Auto CAD architectural users guide – Autodesk Inc, 1998
4. Sham Tickoo, Advance Technique in Auto CAD Re 14 – 1977 6. Sham Tickoo, Understanding Auto CAD – 14 (windows) – 1977
5. Photoshop CS Bible – Deke McClelland
6. Adobe Photoshop 7.0 classroom in a book – Adobe creative team.

4. Surveying and Leveling (Code – 210304)

Objectives –

The course aims to obtain knowledge of the basic process of land surveying and fundamentals of various types of surveys adopted in architecture and civil, use various surveying methods in practice, field survey and to prepare a layout for understanding.

S. N. o.	Subject Code	Subject Name	Category	Maximum Marks Allotted					Total Marks	CT HR S.	Contact Periods per week			Total Credits
				Theory Slot			Practical Slot				L	T	P	
				End Sem	Mid Sem.	Quiz/ Assignment	End Sem	Lab work & Sessional						
4	210304	Surveying and Leveling	BSAE- 6	50	30	20	-	-	100	3	1	2	-	3

UNIT-1

Aspects of surveying for the Architect. Surveying instruments classification by function. Useful data and formulae.

UNIT-2

Scales-Plain scale, diagonal scale, comparative scale, shrunk scale, vernier scale.

UNIT-3

Study, test, degree of accuracy, use and care of surveying instruments and accessories.

UNIT-4

Site survey techniques: Chain surveying, compass surveying, plain table, and theodolite.

UNIT-5

Leveling and contouring.

Note: Class work and field work of the above subject should be oriented towards the layout of buildings. Students should also be taken to site visits for explaining the practical aspects of surveying.

COURSE OUTCOME:-

After completion of this course student will be able to-

CO1	Interpret the booking for field notes
CO2	classify the various types of modern survey
CO3	Work out the contour surveying with the help of leveling instrument
CO4	Apply the fundamental of chain and compass surveying for field survey
CO5	Perform survey of the site and will learn how to make layout of building.

LIST OF TEXT AND REFERENCE BOOKS:

1. T. P. KANETKAR & S.V. KULKARNI, "Surveying & Leveling", Pune VidyarthiGriha Pub
2. DR. B.C. PUNAMIA, "Surveying Vol.1", Laxmi Pub.
3. SHAHANE AND IYENGAR, "A Text book of Surveying & Leveling", Engineering Book Co
4. BERNARD H. KNIGHT, "Surveying and leveling for students"

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5. **History Of Architecture-III (Code – 210305)**

Objectives –

The course aims to obtain knowledge about the development of architecture in the ancient Europe and the culture and context which produced it such as climate, religion, social practices & the politics the evolution of architectural form & space with reference to Technology, Style and Character using sketches as the principal method of learning – about the prehistoric world, Ancient Egypt, West Asia, Greece, Rome, Medieval times and Renaissance period.

S.No.	Subject Code	Subject Name	Category	Maximum Marks Allotted					Total Marks	C T H R S.	Contact Periods per week			Total Credits
				Theory Slot			Practical Slot				L	T	P	
				End Sem.	Mid Sem.	Quiz/ Assignment	End Sem.	Lab work & Sessional						
5	210305	History Of Architecture-III	DC-9	50	30	20	-	-	100	3	2	1	-	3

UNIT-1 GREEK ARCHITECTURE

Evolution of City states in Greece, the Hellenic & Hellenistic art & architecture, Evolution of the classical orders & the features of the Greek temple, the building of the Acropolis with one outstanding example of Doric (Parthenon), Ionic (Erechtheon) & Corinthian. Public architecture: Theatre of Epidaurus and Agora, Optical illusions in Greek architecture.

UNIT-2 ROMAN ARCHITECTURE

Formation of Roman republic & Empire & influence of geology, culture & lifestyle. Roman architectural character using concrete, marble, travertine etc & masonry types used for walls. Tuscan & Composite orders. Roman forums and basilicas – methods of Vault & Dome construction with examples of Pantheon, Thermae of Caracalla, Colossium, & Basilica of Constantine.

UNIT-3 EARLY CHRISTIAN & BYZANTINE ARCHITECTURE

Spread of Christianity, the evolution of early Christian Church form from the Roman basilica (St. Clemente). Centralized plan concept (St. San Vitale, Ravenna). The creation of eastern & western Roman Empire, the development of domes & pendentive, Byzantine architectural character with study of St. Sophia (Hagia Sophia) at Istanbul.

UNIT-4 ROMANESQUE & GOTHIC ARCHITECTURE

Romanesque period: Monastic orders & development of Craft and merchant guilds, influences & architectural character of Romanesque churches in Italy (Pisa complex), France (Abbey Aux Hommes) and England (Tower of London) - Development of vaulting. Development of Gothic architecture in France, evolution of Gothic Cathedral & structural system using vaulting & flying buttress, the example of Notre dame cathedral at Paris.

UNIT-5 RENAISSANCE ARCHITECTURE IN EUROPE

Idea of rebirth and revival of classical architecture & the development of art & science. Italian renaissance character. Early renaissance & urban renaissance style and High renaissance period. Works of various artists and architects during the period (Andrea Palladio, Sir Christopher Wren, Michelangelo, Leonardo).

COURSE OUTCOME:-

After completion of this course student will be able to-

CO1	Outline the chronological development of Civilizations across the globe
CO2	Observe different styles of Western (Christian) Architecture and its historical importance
CO3	Illustrate visual and verbal vocabularies associated with christian architecture
CO4	Explain the evolution of architectural form & space with reference to Technology, Style and Character of the era
CO5	Analyze Architecture as an outcome of various social, political and economic upheavals

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REFERENCES:

1. Sir Banister Fletcher, A History of Architecture, CBS Publications (Indian Edition), 1999
2. Spiro Kostof - A History of Architecture - Setting and Rituals, Oxford University Press, London, 1985
3. Leland M Roth; Understanding Architecture: Its elements, history and meaning, Craftsman House, 1994
4. Pier Luigi Nervi, General Editor - History of World Architecture - Series, Harry N. Abrams, Inc Pub., New York, 1972.
5. S. Lloyd and H.W. Muller, History of World Architecture - Series, Faber and Faber Ltd., London, 1986
6. Gosta, E. Samdstrp, Man the Builder, Mc. Graw Hill Book Company, New York, 1970
7. Webb and Schaeffer; Western Civilisation Volume I; VNR: NY: 1962.
8. Vincent Scully; Architecture, Architecture - The Natural and the Man Made: Harper Collins Pub 1991

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6. Structures-III (Code – 210306)

Objectives –

The course aims to obtain understanding of the basic principles of limit state design in reinforced concrete structural systems and the interpretation of detail structural drawings for the purpose of construction, the structural behavior of RCC buildings from an architect's perspective and hence does not delve into the process of detailed structural analysis design which is the forte of the structural engineer

S. No.	Subject Code	Subject Name	Category	Maximum Marks Allotted					Total Marks	CT HR S.	Contact Periods per week			Total Credits
				Theory Slot			Practical Slot				L	T	P	
				End Sem.	Mid Sem.	Quiz/ Assignment	End Sem.	Lab work & Sessional						
6	210306	Structures-III	BSAE-7	50	30	20	-	-	100	3	2	1	-	3

UNIT- 1 FOUNDATIONS IN BUILDINGS

Soil load bearing capacity – concept of RCC spread footing - Types of R.C.C foundation – Individual, Combined, Strip footings – Raft foundation (Theory only) – Eccentric footings with projection on one side only- the situations in which the various footings are used – friction pile foundation used in clayey soil (section & understanding of the principle)- pile foundation used in sandy soil & the pile foundation used in multi-storied buildings (section & principle only) Interpretation of typical structural details in foundation drawings. Site visits necessary for understanding the above.

UNIT – 2 ROOF SLABS & STAIRCASE

Exposure to the basic design concepts of Limit state method of design – recommendations in the code book - Classification of slabs – Estimation of loads – Design of one way, two way, circular and continuous slabs using SP – 16(Theory only). Interpretation of reinforcement details in a typical structural drawing for one way, two way slab & continuous slab. Understanding the reinforcement details for a RCC waist slab in dog legged staircase and for a folded slab staircase using typical structural drawings.

UNIT-3 BEAMS& LINTELS

Exposure to the basic design concepts - Estimation of loads on beams – Transfer of load from slab to beam – Understanding the design of simply supported beams, cantilevered & continuous beams using code coefficients & detailing using SP-16 for the design (Theory only). Steel detailing of beams for earthquake proofing (section only) – the function of plinth beam belt & continuous lintel belt –ring beam for RCC dome roof, typical reinforcement detail for waffle (coffer) slab (section only). Site visits to understand typical details in RCC slabs & beams.

UNIT - 4 COLUMNS

Understanding the estimation of loads on columns – Load transfer from slab and beam to columns. Structural behavior of Long and short columns –Distinction between rectangular and circular columns – Difference between columns subjected to uniaxial and those subjected to bi-axial bending. Knowledge about the design of columns using column interaction diagrams (Theory only) – Use of SP-16 for reinforcement detailing Interpretation of typical structural drawing for columns& footings.

UNIT- 5 FLAT SLABS

Understanding the situations in which flat slabs are used - advantages of flat slab construction. Components of flat slab – Configuration of columns – Design of flat slab by direct design method as per BIS codes (Theory only). Site visit to understand flat slab construction.

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COURSE OUTCOME:-

After completion of this course student will be able to-

CO1	Outline the features of IS code provisions regarding limit state method for designing concrete structures
CO2	Explain basic principles of limit state design in reinforced concrete structural systems with detail structural drawings for the purpose of construction
CO3	Analyze the structural behavior of RCC buildings from an architect's perspective without detailed structural analysis
CO4	Model design of different R.C. Structural components: Beam, Slab, Column, Stair and Foundation.

REFERENCES:

1. Victor E. Saouma, Structural Engineering- analysis & design, University o Colorado, 2011
2. Simha .N.C and Roy .S.K, Fundamentals of Reinforced Concrete, S. Chand & Co. Ltd, Delhi, 2001

Handwritten notes in blue ink:

- A signature on the left.
- A circled letter 'W'.
- The text 'NG' underlined.
- A large handwritten 'A' followed by a flourish.
- The word 'Gan' written below.
- A small symbol resembling a cross or a stylized 'f' on the right.

7. Summer Internship Project -I (Institute Level Evaluation) (Code - 210307)

S.No.	Subject Code	Subject Name	Category	Maximum Marks Allotted					Total Marks	CT HR S	Contact Periods per week			Total Credits
				Theory Slot			Practical Slot				L	T	P	
				End Sem.	Mid Sem.	Quiz/ Assignment	End Sem.	Lab work & Sessions						
7.	210307	Summer Internship Project -I (Institute Level Evaluation)	SEC- 4	-	-	-	50	-	50	2	-	-	2	1

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SECOND YEAR FOURTH SEMESTER

1 Architectural Design – IV (Code – 210401)

Objectives –

The course aims to obtain knowledge of Architecture as responding to Social issues such as community, culture, religion, politics etc. designing for special groups such as the villagers, elderly, and the handicapped

S No	Subject Code	Subject Name	Category	Maximum Marks Allotted					Total Marks	CT HR S.	Contact Periods per week			Total Credits
				Theory Slot			Practical Slot				L	T	P	
				End Sem	Mid Sem	Quiz/ Assignment	End Sem	Lab work & Sessional						
1	210401	Architectural Design – IV	DC- 10	100	30	20	50	50	250	7	2	3	2 (1.5)	8

PROJECT 1(Prototype): VILLAGE SURVEY & RURAL HOUSING

Study of the physical, socio economic and cultural aspects of a selected village by conducting various surveys to understand the settlement pattern, housing stock and amenities that are existing or required – To understand the linkages between Occupation, Social structure and Religious beliefs and its physical manifestation in the form of the settlement – Identification of a suitable Design intervention that would improve the quality of life – Ex. Design of housing prototypes for a particular community / occupation using rural building materials & cost effective technology. Design exercise may include the design of any facility required such as Primary health center / Community hall / Farm training center, etc.

PROJECT 2(Prototype): DESIGN OF COMMUNITY FACILITIES

Community facilities –Design of Community hall, Nursing home, Youth hostel, Old age home etc., encourage the student to explore concepts an agglomeration of simple spaces with particular emphasis on the special needs of elderly, handicapped etc. It also focuses on the bioclimatic approach to the design of the building envelope i.e. articulation of openings, choice of materials for roof & walls of different orientations etc. Concepts integrating the use of passive, active & hybrid solar technologies with the design proposals are encouraged

PROJECT 3 & 4(Prototype): Time bound Problems of 6 hours to 48 hours.

COURSE OUTCOME:-After completion of this course student will be able to-

CO1	Explain the Settlement pattern in village and socio-cultural, geographic and economic aspects that shape the built environment.
CO2	Analyze design of any rural settlement that evolved organically over a period of time.
CO3	Analyze housing typology, locally available materials, craftsmanship and integration of landscape with the built environment.
CO4	Explore concepts of agglomeration of simple spaces with particular emphasis on the special needs of elderly, handicapped etc.
CO5	Develop presentation of concepts through 2D and 3D presentation including sketches and models.

REFERENCES:

- 1 Time saver standards for building types, DeChiara and Callender, Mc Grawhill company
- 2 Neufert Architect's data, Bousmaha Baiche & Nicholas Walliman, Blackwell science ltd
- 3 National Building Code – ISI
- 4 Time saver standards for landscape architecture – Charles W Harris – McGraw Hill
- 5 New Metric Handbook – Patricia Tutt and David Adler – The Architectural Press

Note :Design exercises that explore Architecture as responding to Social issues such as community, culture, religion, politics etc. Students familiarize themselves with designing for special groups such as the villagers, elderly, and the handicapped.

Note. One design problem shall be given in End Semester Examination. 6X2hour's examination

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2. Building Construction –III (Code – 210402)

Objectives –

The course aims to obtain knowledge of the preparation of concrete, construction methods, special concrete and concreting methods, the properties and its use in foundation, beams and slabs, various exterior finishes and advanced structural systems

S. No.	Subject Code	Subject Name	Category	Maximum Marks Allotted					Total Marks	CT HRS	Contact Periods per week			Total Credits
				Theory Slot			Practical Slot				L	T	P	
				End Sem	Mid Sem	Quiz/Assignment	End Sem	Lab work & Sessional						
2	210402	Building Construction –III	BSAE-8	50	30	20	50	50	200	5	2	1	2*(1.5)	6

UNIT-1 BUILDING MATERIALS

- **Concrete:** Various types of cement concrete, its properties, and uses. Proportioning of concrete, grading of aggregates, water-cement ratio, and workability of concrete. Estimating yield concreting Formwork for concreting, mixing, transporting and placing, consolidating and curing of concrete. Types of Special concrete and concreting method, concrete block and its uses.
- **Glass:** Curtain walls & glass block construction

UNIT -2 RCC FOUNDATION

- **Introduction to RCC framed structures, concrete foundation:** Types of footing – Isolated, combined, continuous, strip raft & piles.
- **Pile foundation:** Definition, functions, and Design factors.
- Tool equipment and plants for piling.
- Precast pile – timber, concrete, and steel
- Friction pile and bearing pile bore pile.
- Cast in situ & Steel and Concrete, Pile Cap

UNIT-3 BEAMS AND SLABS

- **Concrete slabs:** One-way, two ways, continuous & cantilever.
- **Detailing of Slabs:** One-way slabs, 2-way slab, continuous, flat slab.
- **Concrete beams:** Singly reinforced, doubly reinforced, cantilever & continuous beams
- **R.C.C:** Column, beams, slabs, lintel, chajja, staircase, canopy, coffer slab & pergola.

UNIT-4 RETAINING WALL, EXPANSION JOINTS, AND WATERPROOFING

- Detailing of R.C.C. retaining wall.
- Expansion Joints: Walls, roofs, and flooring.
- Detailing of apertures (lintels, sunshades, arches).
- Study of Various types of precast concrete blocks, their extensive uses in Building construction
- Waterproofing basement, construction of pools, fireplaces, and fuels. Fire safety construction techniques.

Exercises of the above through case studies and drawings of selected building types

UNIT-5 CLADDING SYSTEMS & FINISHES

- **Types of Cladding systems –** Stone, timber, weatherboard, Fiber cement, Brick, Vinyl, Metal (aluminum composite panels (ACP), Precast concrete cladding panel, Curtainwall, Rain screen wall system, Exterior insulation & Finishes

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COURSE OUTCOME:-

After completion of this course student will be able to-

CO1	Explain the preparation of concrete, its construction methods, and its properties
CO2	List properties, characteristics, strength, manufacturing, processing and application of materials such as cement, glass, paints and other finishing materials
CO3	Draw details of water proofing construction, fire proofing construction details
CO4	Outline types of Cladding systems and finishes
CO5	Draw details of RCC Beams, Columns, Slabs, Staircases, etc

REFERENCES:

1. Dr. B.C Punmia – Building construction (10th edition) - Laxmi Publications
2. Roy Chudley (Author), Roger Greeno (Author) -construction Technology, 4th Edition
3. Francis D.K Ching – Building Construction illustrated, 4th edition, 2015
4. M.S Shetty, concrete Technology, S.Chand publishing

Note: Total five questions shall be asked. Each question will consist of two parts, one of which will be of 7 marks (which shall be compulsory) and another with 3 marks(which shall be optional)

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3. Building Services-I (Water supply & Sanitation) (Code – 210403)

Objectives –

The course aims to obtain knowledge of water supply and waste water management, in residential unit, small campus, and commercial buildings, plumbing layouts for various building typology, best practices for Solid waste management

S. No.	Subject Code	Subject Name	Category	Maximum Marks Allotted					Total Marks	CT HR S.	Contact Periods per week			Total Credits
				Theory Slot			Practical Slot				L	T	P	
				End Sem.	Mid Sem.	Quiz/ Assignment	End Sem.	Lab work & Sessional						
3	210403	Building Services-I (Water supply & Sanitation)	BSAE - 9	50	30	20	-	-	100	3	2	1	-	3

UNIT-1 WATER SUPPLY

Sources of water supply – Water Quality - Water requirements for different types of buildings and for town, simple method of removal of impurities, Rainwater harvesting to include roof top harvesting, type of spouts, sizes of rainwater pipes and typical detail of a water harvesting pit. System of supply - continuous and intermittent supply, sump, overhead tanks, pumps, distribution pipes, cold water and hot water supply for single and multi-storied buildings. Pipes sizes, types – GI, CPVC, Copper, Cast Iron (CI) Pipes, Steel Pipes, Asbestos Cement (AC) Pipe, Concrete Pipes fittings, valves, and types of taps.

UNIT-2 DRAINAGE AND SEWAGE DISPOSAL

Recycling/Reuse of Wastewater, Systems of drainage – separate, combined and partially separate system, surface drainage, sizes and construction, system of plumbing – single stack, one pipe system, one pipe partially ventilating system and two pipe system.

House drainage – principles, traps-floor trap, multi-trap, gully trap, grease and oil trap, Anti Siphonage pipe, Types of fixtures and materials, Arrangements of fixtures in a bathroom, Design of Septic tank, Treatment and disposal of septic tank effluents – Design of soak pit and dispersion trench, Biological filter, up flow anaerobic reactors

Sewage treatment technologies: Activated sludge process, Membrane bioreactors, packaged treatment plants, Root zone treatment system, Decentralized Wastewater Treatment Systems (DEWATS), Soil Bio technology

UNIT-3 SOLID WASTE DISPOSAL

Solid waste management: Generation of Solid waste, Collection & Transportation of solid waste to the secondary/ locality storage/community bins, Storage of solid waste at locality level, Transport of solid waste to dumping sites and treatment plants, Treatment and Dumping of Solid Waste, Methods of Disposal of solid waste

Approaches to Solid Waste Management: Waste minimization / reduction at source, recycling, waste processing (with recovery of resources and energy), waste transformation(without recovery of resources) and disposal on land

UNIT-4 EMERGING PROCESSING TECHNOLOGIES

Emerging processing technologies : Vermicomposting, Biogas from MSW, Pyrolysis (including plasma arc technology), refuse derived fuel, Bio reactor landfill - Biomethanation plant at koyambedu, wholesale vegetable market Chennai, Door-to-door collection, transportation and waste processing services by Exnora Green pammal.

UNIT-5 PLUMBING AND FIRE FIGHTING LAYOUT OF SIMPLE BUIDINGS

Designing of toilet blocks in residential and public buildings, showing complete details of fittings and plumbing required for water supply and drainage.

Designing and preparing a complete water supply and drainage layout of an academic Architectural design project, with all required calculations

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COURSE OUTCOME :-

After completion of this course student will be able to-

CO1	Understand water distribution components and networks and sanitation systems and their functioning process
CO2	Study Water supply, treatments and plumbing system for all type of buildings
CO3	Design Plumbing layout with working drawing and specifications for buildings
CO4	List and identify waste water management systems and the drainage for various building typology and understand solid waste management systems with respect to urban and rural set up
CO5	Apply of all the above systems to Buildings, Small Campus and a Residential neighborhood
CO6	Produce plumbing and fire fighting layouts for various building typology

REFERENCES:

- 1 Birdie G Sand Birdie J. S Water Supply & Sanitary Engineering, Dhanpat Rai Publishing Company (p) Ltd (2010)
- 2 Sanitary Engineering by R S Deshpande
3. S. K. Garg , Water Supply Engineering, Environmental Engineering v. khanna publishers 2010
- 4 Charangith shah, Water supply and sanitary engineering, Galgotia publishers
- 5 Kamala & DL Kanth Rao, Environmental Engineering, Tata McGraw – Hill publishing company Limited
- 6 Technical teachers Training Institute (Madras), Environmental Engineering, Tata McGraw Hill publishing Company Limited
7. M David Egan, Concepts in Building Fire Safety.
8. V K Jain, Fire Safety in Building 43
9. National Building Code 2005.
10. Toolkit for Solid Waste Management, Jawaharlal Nehru National Urban Renewal Mission, November 2012. Ministry of Urban Development Government of India.

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4. History Of Architecture-IV (Code- 210404)

Objectives -

The course aims to obtain knowledge of Design philosophies of colonial, post independent and contemporary architecture in Indian context, modern design philosophies in the evolution of innovative architectural forms and designs, the effect of industrial revolution on architecture

S. No.	Subject Code	Subject Name	Category	Maximum Marks Allotted					Total Marks	CT HR S.	Contact Periods per week			Total Credits
				Theory Slot			Practical Slot				L	T	P	
				End Sem.	Mid Sem	Quiz/ Assignment	End Sem.	Lab work & Sessional						
4	210404	History Of Architecture-IV	DC- 11	50	30	20	-	-	100	3	2	1	-	3

UNIT-1 INDUSTRIAL REVOLUTION

Impact of the Industrial Revolution on Architectural practices. Transformation from iron to steel and the demand for a new Architecture.

UNIT -2 MODERNISM

Context of Origin, Characteristics, Key Movements – Arts and Crafts, Constructivism, Bauhaus, Expressionism, International Style, Minimalism, Brutalism. Works of notable conforming Architects Frank Lloyd Wright, Ludwig Mies van der Rohe, Le Corbusier, Walter Gropius, Oscar Niemeyer and Alvar Aalto.

UNIT-3 DECONSTRUCTIVISM

Origin and influences breaking away from Modernism and Postmodernism, Deconstructivist philosophy Influence on Architectural practice; Works of notable conforming Architects: Frank Gehry, Daniel Libeskind, Rem Koolhaas, Peter Eisenman, Coop Himmelb(l)au, and Bernard Tschumi.

UNIT-4 NEO-MODERNISM AND OTHER POST-POST MODERN REACTIONS

Origin and Characteristics, Other associated movements: Metamodernism, Re-modernism, Neo-futurism, Neo-Historism. Works of Richard Meier, Charles Gwathmey, I.M. Pei, Tadao Ando, ZahaHadid, and Santiago Calatrava.

UNIT-5 COLONIAL, POST COLONIAL CONTEMPORARY INDIAN ARCHITECTURE

Architecture in colonial India and post independence, Indo-Saracenic Architecture, Modernism and Works of notable contemporary Architects.

COURSE OUTCOME:-

After completion of this course student will be able to-

CO1	Understand the basic terminology of the subject and know the chronology and typology of western architecture in the 20th/21st century
CO2	Identify the stylistic characteristics of different epochs in different western, Indian countries and relate them to structural/tectonic systems, architectural theories and socio-economic and cultural conditions of their emergence.
CO3	Know the life and masterpieces of the most renowned western architects
CO4	Understand types of Cladding systems and finishes
CO5	Gain an in-depth knowledge of modern design philosophies in the evolution of innovative architectural forms and designs.

REFERENCES:

1. Kenneth Frampton, Modern Architecture: A Critical History, Thames and Hudson, London
2. Sigfried Giedion, Space time and Architecture: The Growth of a New tradition, Harvard University Press
3. Tzonis Alexander, Santiago calatrava, International Publications, January 2005, New York
4. Steele James, Hassan fathy - The complete works, London Thames and Hudson

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5. Structures-IV (Code – 210405)

Objectives –

The course aims to obtain knowledge about the structural behavior of various types of steel structural systems those are commonly employed in the building construction industry presently. Methods those are used to design a steel structural system for a specific condition & loading. Interpretation of structural detail drawings in the site is also intended.

S. No.	Subject Code	Subject Name	Category	Maximum Marks Allotted					Total Marks	CT HR S.	Contact Periods per week			Total Credits
				Theory Slot			Practical Slot				L	T	P	
				End Sem.	Mid Sem	Quiz/ Assignment	End Sem	Lab work & Sessional						
5	210405	Structures-IV	BSAE- 10	50	30	20	-	-	100	3	2	1	-	3

UNIT- 1 PROPERTIES OF STEEL SECTIONS & TYPES OF CONNECTIONS

Introduction Properties of Indian standard rolled steel section – Use of IS 800 and steel tables – Permissible stresses in tension, compression and shear. Connections: Welded and bolted connections – Types of failure – Design of welded and bolted connections for members subjected to axial forces. Site visit to a steel fabrication unit.

UNIT-2 TENSION AND COMPRESSION MEMBERS

Steel structures – Identification of tension and compression members in trusses & girders– Understanding the process of design of single angle and double angle sections in tension– understanding the method to design compression members – signify chance of Slenderness ratio– Design of simple and compound sections (Theory only) – Design of lacings and battens.

UNIT -3 STEEL BEAMS

Identification of principal & secondary beams in a structural system - Allowable stresses in Principal beams. General specifications for steel beams. Understanding the design process for simply supported & cantilevered beams – Comprehending the design of laterally supported beams.(Simple problems)

UNIT-4 STEEL TRUSSES & GIRDERS

Study of the various types of roof trusses & where a particular truss can be used – Selection of trusses according to the span – Estimation of gravity loads and wind loads on roof – Use of BIS and book SP-38 in analyzing and design of trusses – gusseted plate connections (Theory Only)

UNIT-5 INTRODUCTION TO LONG SPAN STEEL STRUCTURAL SYSTEMS

Space frame structural system in tubular steel – various types of connectors – single / double & triple grid space frames and the span for which they can be employed – various types of space frame configurations. Tensile structural systems using steel cables – Examples of space frame & tensile structural systems.

COURSE OUTCOME:-

After completion of this course student will be able to-

CO1	Analyze structural behavior of various types of steel structural systems that are commonly employed in the building construction industry presently
CO2	Explain methods that are used to design a steel structural system for a specific condition & loading
CO3	Design simple and compound sections, Design of lacings and battens
CO4	Design trusses – gusseted plate connections

REFERENCES:

1. Ramachandra .S Design of steel structures Vol. 1, Standard publication, New Delhi, 1992
2. Vazirani V.N. and Ratwani M.M, Steel structures, Khan
3. Handbook of Typified Designs for Structures with steel roof trusses. SP 38 (S&T) – 1987, BIS, New Delhi, 1987
4. Code of practice for Earthquake Resistant Design and Construction of Buildings IS4326-1976. BIS, New Delhi.

6. Elective – I

Objectives –

The course aims to obtain knowledge about ecology, society, culture, environment, the use of ecology etc in architecture design and site planning

S.No	Subject Code	Subject Name	Category	Maximum Marks Allotted					Total Marks	CT HR S	Contact Periods per week			Total Credits
				Theory Slot			Practical Slot				L	T	P	
				End Sem.	Mid Sem.	Quiz/ Assignment	End Sem.	Lab work & Sessional						
6	210411	Ecology & Environment	DE-1	50	30	20	-	-	100	3	2	1	-	3

UNIT-1 INTRODUCTION TO THE STUDY OF ECOLOGY & ENVIRONMENT

Introduction, Structure and Function: Introduction to ecology, its meaning and growing importance in daily life. Basic terms used in ecology and their meanings. Fundamental concepts of ecology. Ecology – Environment relationship. Concept of spaceship as earth. Structure and function of eco- system, Eco- system equilibrium, natural cycles, ecological foot print, climate change

UNIT-2 RELATIONSHIP WITH NATURE:

Man's relationship with nature in the present: Industrial activities, urbanization, de-forestation, mining and similar incursions on nature for technological progress. Environmental impacts of these activities. The ecological crisis

UNIT-3 IMPORTANCE OF ECOLOGY

Importance of Ecology: Relevance and growing importance of ecology in a highly urbanized and technological world with reference to dwindling resources, increasing demands and advancing technology. Adaptation of life-styles, and adoption of alternate technologies to harmonize with the natural environment. Discussion on alternatives available. Guiding environmental principles

UNIT-4 ECOLOGICAL APPLICATIONS TO ARCHITECTURE AND PLANNING

Ecological applications to Architecture and Planning. Preserving and improving the human settlement in harmony with nature. Conservation of natural resource for improving the quality of life on earth and attempting to ensure its continuity for the future of humanity. Eco cities, eco- communities and eco buildings. Archeology. Designing settlements and other man-made eco- systems. Ecological and environmental cities for sustainable future.

UNIT-5 ECOLOGY AND ENVIRONMENT FOR SUSTAINABLE FUTURE.

Eco building materials and construction – Bio mimicry, Low impact construction and recyclable products and embodied energy. Life cycle analysis. Energy sources-Renewable and non- renewable energy

COURSE OUTCOME:

After completion of this course the student will be able to

CO1	Outline the importance of ecology and environment along with basic concepts of ecosystem.
CO2	Analyze the relationship between man and its natural surroundings, focusing on negative impacts of man made activities on environment.
CO3	Apply various practical applications of ecology in field of architecture to form new concepts of sustainability.
CO4	Design with innovative methods by using sustainable materials to reduce the impacts of construction and urbanization.
CO5	Develop environmental sensitivity.

REFERENCES:

1. Fundamentals of Ecology by E.P. Odum
2. The Ecology of Man: An Ecosystem Approach by Robert Leo Smith
3. Introduction to Ecology by Kurmundi
4. Review Our Dying Planet by Sarala Devi
5. Ecological Crisis: Reading for Survival by G. A. Love & R.M. Love

S.No	Subject	Subject Name	Category	Maximum Marks Allotted					Total Marks	CT HR S.	Contact Periods per week			Total Credits
				Theory Slot			Practical Slot				L	T	P	
				End Sem.	Mid Sem.	Quiz/ Assignment	End Sem.	Lab work & Sessional						
1	210412	Society, Culture And Architecture	DE- 1	50	30	20	-	-	100	4	2	1	-	3

SOCIETY, CULTURE AND ARCHITECTURE

UNIT-1 CULTURE

Fundamentals of sociology and its relationship to architecture. Culture and social identity with reference to architecture. Fundamentals of society, culture and politics with reference to architectural history. Forms of social organization in history. Various definitions of culture and civilizations

UNIT-2 ARCHITECTURAL TRADITIONS

Cosmological models and architectural form. Articulation of people and built environments. House form and communication. Asian traditions in architecture. Concept of vernacular Architecture

UNIT-3 SOCIETY AND CIVILISATION

Architecture and its context. Social and cultural aspects of building practices. Architecture-expression of power. Architecture as an agent of change. Architecture as an identity

UNIT-4 INDIGENIZATION AND CULTURAL CHANGE

Transformations and changes in forms of historical architecture. Localization and globalization –cases and examples. Loss of architectural identity and role of culture

UNIT-5 ARCHITECTURAL REJUVENATION

Definition of Renewal, transformation, redevelopment, rejuvenation in architectural context and basic concepts

COURSE OUTCOME: After completion of this course student will be able to-

CO1	Recognize importance of architecture and design through time and across cultures
CO2	Comprehend what have been the major issues in the development of architectural design in socio- cultural context
CO3	Illustrate the place specific nature of architectural design
CO4	Appraise about architecture and its relationship to its historical, political, social, economic, technological contexts
CO5	Interpret the aesthetics related to more general systems of ordering within a particular society or group

REFERENCES:

- 1 Conformity and Conflict: Readings in Cultural Anthropology by McCurdy, David W, Dianna Shandy, and James Spradley, eds.
2. Case examples of research on cultural anthropology
3. Field studies of communities
- 4 House, Form and Culture by Amos Rapoport
5. Case studies of various examples on social and cultural issues relating to architectural history in India and world
6. Architecture in Cultural Change: Essays in Built Form and Culture Research by David G. (ed) Saie (Author)

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7. Tour/ Seminar / Workshop/ NASA Training during winter break (Code - 210407)

S.No.	Subject Code	Subject Name	Category	Maximum Marks Allotted					Total Marks	CT HR S.	Contact Periods per week			Total Credits
				Theory Slot			Practical Slot				L	T	P	
				End Sem.	Mid Sem.	Quiz/ Assignment	End Sem.	Lab work & Sessional						
7	210407	Tour/ Seminar / Workshop/ NASA Training during winter break	SEC-5	-	-	-	50	-	50	2	-	-	2	1

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THIRD YEAR FIFTH SEMESTER

1. Architectural Design – V (Code – 210501)

Objectives –

The course aims to obtain knowledge Architecture as a design response to the culture of a place, artistic expressions with common building materials such as brick, concrete, steel & glass, building components using the same building material, designing various services and spaces required specifically for a particular use

S.N o.	Subject Code	Subject Name	Categor y	Maximum Marks Allotted					Total Marks	C T H R S.	Contact Periods per week			Tot al Cr edi ts
				Theory Slot			Practical Slot				L	T	P	
				End Se m.	Mid Sem	Quiz/ Assign ment	End Sem.	Lab work & Sessio nal						
1	210501	Architectural Design – V	DC-12	100	30	20	50	50	250	7	2	3	2*(15)	8

PROJECT I: MATERIAL STUDIO

Studio project: Cultural Center / Multiplex with mall. The cultural center project exposes the student to the design issues such as effects by manipulating day light in the art gallery space, designing for clear sight lines and sound in the auditorium space & optimizing day light for reading in the library space. The additional challenge is to create spaces for fine arts & performing arts by creating artistic expressions with building materials such as brick, concrete etc. The multiplex project expects the student to the design issues involved in entertainment spaces such as cinema halls and the challenges in creating commercial spaces such as food courts, shops, gaming parlours etc. Moreover it exposes the student to contemporary materials such as steel, aluminum & glass.

PROJECT II: HEALTHCARE BUILDINGS

Hospitals and Nursing homes are a special category of buildings where functional aspects such as planning, building services & the creation of a sterile environment become important design issues. This project aims to familiarize the student with the design of critical health care spaces such as operation theatres, diagnostic facilities, outpatient department and inpatient rooms. The modern trends in hospital design challenge the architect to create world class ambience.

COURSE OUTCOME:-

After completion of this course student will be able to-

CO1	Analyze the culture of a place – building types such as the cultural center comprising of spaces such as the art gallery, auditorium for performing arts, library etc.
CO2	Identify the various common building materials such as brick, concrete, steel & glass
CO3	Examine the same building material through Material studio.
CO4	Illustrate with materials to find suitable artistic & commercial expressions and the learning of design methods for healthcare buildings.
CO5	Design commercial buildings integrating entertainment spaces, where the student is given exposure to the finer aspects of auditorium design.
CO6	Express the design with drawings and model to support the concept.

REFERENCES:

- Richard Weston, Plan sections & elevations of key buildings of the 20th century, Lawrence king publishing London, 2004
- Time saver standards for building types, De Chiara and Callender, McGraw hill company
- Neufert Architect's data, Bousmaha Baiche & Nicholas Walliman, Blackwell science ltd
- National Building Code – ISI
- Time saver standards for landscape architecture – Charles W Harris – McGraw Hi

Note: One design problem shall be given in End Semester Examination. 6X3 hours examination



2. Building Construction –IV (Code – 210502)

Objectives –

The course aims to obtain knowledge of detail the various materials used in construction, various advanced structural components, modern masonry units, and its components, types of insulation and temporary structures

S.No	Subject Code	Subject Name	Category	Maximum Marks Allotted					Total Marks	CT HR S	Contact Periods per week			Total Credits
				Theory Slot			Practical Slot				L	T	P	
				End Sem.	Mid Sem.	Quiz/ Assignment	End Sem.	Lab work & Sessional						
2	210502	Building Construction-IV	BSAE- 11	50	30	20	20	30	150	5	2	1	2*(15)	6

UNIT-1 BUILDING MATERIALS –IV

- **Steel:** Properties and uses of cast iron, wrought iron, pig iron, and steel
- **Market forms of steel:** Structural steel, stainless steel, steel alloys – properties and uses

UNIT -2 STEEL

- **Steel trusses** – Sawtooth roof truss with north light glazing, simple trusses in steel, and types of connections – to foundations, steel stanchion, and beams
- **Space frames:** Single, double & triple-layered tubular space frames, Gates: collapsible gate, entrance gate, rolling shutter
- **Steel components:** Steel doors, (hinged, fixed sliding, sliding & folding & Revolving door) steel windows (casement window & sliding window) Steel stairs (dog-legged, spiral stair) steel handrails and balustrade grill designs for windows

UNIT-3 WALL & FLOOR

- **Wall:** Modern masonry units - Fly ash brick, Aerated concrete blocks, Hollow concrete blocks & Hollow clay blocks
- **Floor finishes**– Indian patent stone (IPS), Terrazzo flooring, Granolithic flooring stone flooring, Resilient flooring & Carpeting.

UNIT-4 PARTITIONS & FALSE CEILING:

- **Simple paneled and glazed partitions:** Timber, Glass, Aluminium & PVC
- **False ceiling:** False ceiling of interior spaces using wood panels, glass, Thermacol, gypsum board, plaster of Paris, aluminum strips & perforated metal sheets.
- Jam casing, skirting, molding, architrave & pelmet

UNIT-5 THERMAL INSULATION AND ACOUSTICS INSULATION

- **Thermal insulation:** vapor barriers and rigid insulations, blanket, poured and reflective insulation– properties and uses of spun glass foamed glass, cork, vegetable fibers Gypsum plaster of Paris, hydride gypsum properties and their uses
- **Acoustics insulation:** porous, baffle and perforated materials such as Acoustic plastic, Acoustic tiles, wood, partition board, fiberboard, cork, quilts and mats – their properties and uses – current developments. Applications of the above insulations in seminar hall, theatre, and coldstorage

COURSE OUTCOME:-

After completion of this course student will be able to-

CO1	Summarize Properties and uses of cast iron, wrought iron, pig iron and steel Market forms of steel. Structural steel, stainless steel, steel alloys
CO2	Identify various steel members and joints for building industry.
CO3	Prepare detail drawings of steel doors, rolling shutters etc.
CO4	Illustrate modern methods of wall and floor construction
CO5	Design interior wall panelling and suspended ceiling detail drawings
CO6	Summarize thermal insulation techniques, acoustical treatment details for different spaces

REFERENCES:

1. W B McKay – Building construction Vol 1 (5th edition), Vol 2 (4th edition) and Vol 3 (5th edition)
2. R Chudley & R Greeno – Building Construction Handbook, ninth edition
3. Francis D K. Ching – Building Construction illustrated, 4th edition, 2015
4. R Chudley & R Greeno – Building Construction Handbook, ninth edition
5. Arthur Lyons, Materials for Architects and Builders – Oxfordshire, England, New York - Routledge, 2014
6. Don A Watson, construction materials and process, McGraw Hill Co, 1972
7. Stephen Emmitt, Christopher A. Gorse - Barry's Advanced Construction of Buildings, 3rd Edition
8. The American Institute of Architects - Architectural Graphics standards – 11th edition

Note: Total five questions shall be asked. Each question will consist of two parts, one of which will be of 7 marks (which shall be compulsory) and another with 3 marks (which shall be optional)

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3. Building Services-II (Electrical & Mechanical) (Code – 210503)

Objectives –

The course aims to obtain knowledge of various services in a building such as electrical illumination, etc. an understanding of layouts of electrical, plumbing, AC ducts, lighting, etc. Air conditioning system and its working

S.No	Subject Code	Subject Name	Category	Maximum Marks Allotted					Total Marks	CT HR S.	Contact Periods per week			Total Credits
				Theory Slot			Practical Slot				L	T	P	
				End Sem.	Mid Sem.	Quiz/ Assignment	End Sem.	Lab work & Sessional						
3	210503	Building Services-II (Electrical & Mechanical)	BSAE-12	50	30	20	-	-	100	3	2	1	-	3

UNIT-1 ELECTRICAL SERVICES

Electrical systems – Basic of electricity – single/Three phase supply . Electrical installations in buildings – Types of wires, Wiring systems and their choice, planning electrical wiring for building – Main and distribution boards, HT transformers, electrical panel rooms, cable trenches, controls, Circuits, fuses, main switch box, meter box, circuit breakers. Uninterrupted power supply, inverters, protective devices in electrical installation – Earthing for safety – Types of earthing – ISI Specifications, Lighting protection Electrical installations in various building types, Residential bungalow, apartments, commercial recreational buildings and factory buildings etc Market survey of Electrical materials and electrical appliances.

UNIT-2 ILLUMINATION AND LIGHTING DESIGN

Principles of Illumination: Basics of Lighting Technology and Terminology, Classification of lighting–Artificial light sources. Systems of lighting such as direct, indirect, diffused etc .

Design of modern lighting: Lighting for stores, offices, schools, hospitals and house lighting Elementary idea of special features required and minimum level of illumination required for physically handicapped and elderly in building types. Seeing light: learn about vision and perception, color, and - understanding shade and shadow

Light fixture :Controlling light, luminaire optics and distributions - introduction to light fixture materialsand construction, and components Light in Architecture and the Psychology of Light,

Lighting Design Concepts, Lighting in terms of energy efficiency, ergonomic aspects and aesthetic aspects

Light a surface: Horizontal and vertical - present various approaches and techniques - finding lightfixtures. For a Task - present various approaches and techniques, simple lighting effects.

Calculating Light: learn light metrics and calculation methods - review energy and the environment Lighting calculations

Lighting Design :Residential lighting, Office and Corporate Lighting, Hospitality Lighting Design,

Health Care/Institutional Lighting Design, Lighting for Stores, Lighting Common Spaces

UNIT-3 AIR CONDITIONING

Components of an air-conditioning system & their function-Refrigeration cycle, different systems of AC, window, split, small standalone unit, and air cooled direct expansion system used for auditorium spaces, chill water systems with air handling units, estimating the cooling load of different spaces in a building with simple calculation, duct lay out for both types of systems. Intelligent building systems in air conditioning, Sick building syndrome, effect of pollutants, improving air quality in air-conditioned buildings

UNIT-4 PUMPS AND MACHINERIES

Pumps: Different types of Pumps, working, applications. Water pumps, sewage pumps Centrifugal,Reciprocating pump, turbine (diagrams & functioning only)

Compressors: Different types of Compressors and their applications.

Lifts And Escalators : Elevators (Lifts) and escalators–Brief history-types of Elevators like traction,Hydraulic etc. Double-decker, sky lobby, lift lobby, lift interiors etc. Definition and components Elevating a building environmental considerations i.e., location in building, serving floors, grouping, size, shape of passenger car, door arrangement etc. Service requirements. Quality of service, quantity of service, time, passenger handling capacity, space and physical requirements, machine room spaces and its typical layout Escalators – Definition,

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Application. Location and arrangement in buildings. Space requirement. Conveyor belts-movement of passengers and goods

UNIT-5 ELECTRICAL AND AC DUCT LAYOUT OF SIMPLE BUILDINGS

Fixtures and accessories used in electrical installation –Preparing an electrical layout for part of design project with simple load calculations. Design consideration for AC plant location and size. Ac ducting layout for an office building, shopping complex etc.

COURSE OUTCOME:-

After completion of this course student will be able to-

CO1	Classify various technical aspects of electrical services
CO2	Summarize basic principles of illumination and practical application of lighting while designing a building.
CO3	Explain the importance, installation and working of essential services in buildings.
CO4	Elaborate the importance and application of mechanical services while designing a building.
CO5	Develop electrical distribution plans and layout for installation purposes.
CO6	Develop a comfortable mechanical system for a building by means of various natural and mechanized measures.

REFERENCES:

1. Heating, Cooling, Lighting: Sustainable Design Methods for Architects Oct 13, 2014 by Norbert Lechner
2. DEWALT Plumbing Code Reference: Based on the 2015 International Plumbing and Residential Codes (DEWALT Series)
3. Electrical Wiring Residential Jan 1, 2011 by Ray C. Mullin and Phil Simmons
4. Architectural Lighting: Designing with Light and Space (Architecture Briefs). May 4, 2011 by Hervé Descottes and Cecilia Ramos.
4. HVAC Design Sourcebook Oct 26, 2011, by W. Larsen Angel

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4. Building Sciences & Energy Conservation (Code – 210504)

Objectives –

The course aims to obtain knowledge of building sciences such as design methodology, resource optimization and innovative approaches to eco-design, the acclaimed sustainable buildings designed within the past decade, energy conservation through building design, designing an eco-building

S.N o.	Subject Code	Subject Name	Category	Maximum Marks Allotted					Total Marks	CT HR S.	Contact Periods per week			Total Credits
				Theory Slot			Practical Slot				L	T	P	
				End Sem.	Mid Sem.	Quiz/ Assignment	End Sem.	Lab work & Sessional						
4	210504	Building Sciences & Energy Conservation	BSAE-13	50	30	20	-	-	100	3	2	1	-	3

UNIT-1 CLIMATE & THERMAL COMFORT

Global climatic factors, elements of climate, classification & characteristics of tropical climates, site climate and Urban climate - Thermal balance of the human body, Thermal comfort indices – Effective temperature, CET, calculation of comfort zone & determination of overheated & under heated periods.

UNIT-2 SOLAR GEOMETRY & DESIGN OF SUNSHADING DEVICES

Apparent movement of the sun, sun path diagrams (solar chart) - Solar angles, Shadow angles, solar shading masks, etc - Exercises on plotting isopleths, transfer of isopleths to solar chart, fitting a shading mask over the overheated period & design of sun shading devices for different orientations.

UNIT-3 PRINCIPLES OF THERMAL DESIGN IN BUILDINGS

Thermal quantities – heat flow rate, conductivity (k-value) & resistivity, conductance through a multilayered body, surface conductance, transmittance – U value of different materials – convection, radiation, concept of sol-air temperature & solar gain factor - heat loss & heat gain, Periodic heat flow in building – time lag & decrement factor & its application in selection of appropriate materials for walls & roof. Effect of Insulation & cavity on time-lag.

UNIT-4 VENTILATION & DAY LIGHTING

Functions of ventilation – stack effect due to the thermal forces, wind velocity – wind rose diagram, wind pressure - Air movement through building & around buildings – factors affecting indoor air flow, wind shadow etc. - The nature of light, its transmission, reflection – colored light, the Munsell system
– Photometric quantities – illumination, day lighting prediction – the daylight design graph.

UNIT-5 DESIGN FOR CLIMATIC TYPES

Building design & layout planning consideration for warm humid, hot dry, composite & tropical upland climates, climatic data sets – analysis – climate graph – the Mahoney tables & its recommended specification - Exercises on design of small Buildings for various climates.

COURSE OUTCOME:

After completion of this course student will be able to-

CO1	Classify various climatic parameters on micro and macro level of site and design shelters according to different climatic conditions.	
CO2	Elaborate the concept of thermal balance in human beings and its statistical parameters	62
CO3	Apply various aspects of solar geometry in building orientation.	
CO4	Apply various principles of thermal design in buildings.	

REFERENCES

- 1 O.H. Koenigsberger, Manual of Tropical housing and building – Climatic Design, Orient Longman, Chennai, 1975
- 2 M. Evans – Housing, Climate & Comfort, Architectural Press, London, 1980
- 3 E. Schild & M. Finbow – Environmental Physics in construction & its application in Architectural Design, Granadar, London, 1981
- 4 B. Givoni - Man, Climate & Architecture, Applied Science, Essex 1982
- 5 Donald Watson & Kenneth labs – Climatic Design – McGraw hill New York 1983
- 6 A. Konya- Design Primer for Hot Climates, Architectural Press, London, 1980

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5. ELECTIVE- II

Objectives -

The course aims to obtain knowledge of eminent Town planners and their contribution to planning thought. To understand the contemporary issues in urban planning, overall understanding of classification of settlements, land-use, zoning and types of development plan, simple Town planning techniques, various types of journalism, various techniques of Architectural Journalism, changing scenario in the context of globalization, Architectural Journalism in practical.

S. No	Subject Code	Subject Name	Category	Maximum Marks Allotted						Total Marks	CT HRS	Contact Periods per week			Total Credits	
				Theory Slot			Practical Slot		MOOC			L	T	P		
				End Sem	Mid Sem Exam	Quiz/ Assignment / Sessional	End Sem	Lab work & Sessional	Assignment							Exam
5	210511	Human Settlement	DE-2	-	-	-	-	-	25	75	100	4	-	-	4	2

5) HUMAN SETTLEMENT

UNIT - 1 Introduction to Settlement Planning

Evolution of human settlements- man, environment and built structure. Community and settlement patterns. Characteristics of settlements. Growth patterns. Ancient rural and urban settlements. Settlement patterns and birth of early and medieval cities. Renaissance and High Baroque cities. Factory and Company towns.

UNIT - 2 Introduction to Town Planning and Design of Cities

Definitions related to Planning, levels of planning, scope and components. Types of planning, elements and scope. Characters of a town, census definition of urban area, densities of town. Constituents of town/city.

UNIT - 3 Town and Urban Planning Concepts

Evolution of Planning concepts: City beautiful movement, Garden cities, Radburn city and neighbourhood concept. Theories related to growth and decay of settlements- Luis Mumford, Geddesian triad, Ekistics. Utopian Planning theories-Linear city- Tony Garnier, Soriya Y Mata. Planning concepts by Le Corbusier and FLW.

UNIT - 4 Planning Framework and Process for Various Development Plans

Planning process, components and techniques- survey techniques and data collection methods. Concept of master plan, its elements, preparation and implementation. Perspective plans, structure plans, advocacy plans, zonal plans. Participatory and inclusive planning.

UNIT - 5 Problems and Issues of Towns and Settlements

Identification of planning problems of land use distribution and change, communication system, overcrowding, informal growth- slums, blighted areas. Sporadic growth and conurbation, primacy, traffic. UDPFRI Guidelines, MoUD laws, Zoning and developmental controls. Case Study of Existing Settlement

COURSE OUTCOME: After completion of this course the student will be able to:

CO1	Define types of settlements based on different criteria
CO2	Identify the elements of a settlement
CO3	Describe the principle of a settlement pattern.
CO4	Classify constituents of town/city
CO5	Distinguish between different settlements, concepts of planning and techniques of survey
CO6	Review the condition of development/status of urbanization

REFERENCES

1. An Introduction to the Science of Human Settlements by C. L. Doxiadis, Ekistics Hutchinson, London, 1968
2. Housing and Urban Renewal by Andrew D. Thomas, George Allen and Unwin, Sydney, 1986
3. Ministry of Urban Affairs and Employment, Government of India, New Delhi, 1999
4. Sustainable Human Settlements by R. S. Sandhu, Asian Experience, Rawat publications, 2001
5. Living Plans: New concepts for advanced housing by P. Gastek, Birkhauser publications, 2005
- 6.

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S. No	Subject Code	Subject Name	Category	Maximum Marks					Allotted MOOC	Total Marks	CT HRS	Contact Periods per week			Total Credits	
				Theory Slot			Practical Slot					L	T	P		
				End Sem	Mid Sem Exam	Quiz/Assignment / Sessional	End Sem	Lab work & Sessional								
5	210512	Interior Design	DE-2	-	-	-	-	-	25	75	100	4	-	-	4	2

II) INTERIOR DESIGN

UNIT-1 INTRODUCTION TO INTERIOR DESIGN

Introduction to interior design, Design process, style, Behaviour psychology, perception, Basic elements of evolution of creativity, dot, line, plane, volume, 2D, 3D, Basic principles of design, Axis, Symmetry, Balance, Focus, Rhythm, Harmony, Unity, Variety, Contrast, Hierarchy, Scale & Proportion, Movement, Emphasis, Dominance, Fluidity, etc.

UNIT-2 HISTORY OF INTERIOR AND FURNITURE DESIGN

Brief study of the history of interior design context to western through the ages, Relating to historical context and design movement, Brief study of Indian folk arts and crafts with reference to interior design and decoration.

UNIT-3 ELEMENTS OF INTERIOR DESIGN INTERIOR TREATMENT AND FINISHES

Introduction to various elements of interior like floor, ceiling, walls, staircase, opening, services elements, incidental elements etc. And various methods of their treatment involving use of modern building materials and methods of construction in order to obtain certain specific functional, aesthetic and psychological effects.

UNIT-4 ELEMENTS OF INTERIOR DESIGN-LIGHTING & INTERIOR LANDSCAPING

Study of interior lighting –different types of lighting, types of lighting fixtures, their effects and suitability in different context. And accessories used for enhancement of interior. Interior Landscaping-elements like rocks, plants, water, flower, fountains, paving, artifacts etc. Their physical properties and effects on interior space.

UNIT-5 ELEMENTS OF INTERIOR DESIGN- FURNITURE & SPACE PLANNING

Study of human relationship between furniture and spaces, furniture design as related to human comfort and function. Material of furniture types of interior: office furniture, children's furniture, residential furniture, display systems etc. construction, changing trends and lifestyles innovations and design ideas. Study on furniture.

COURSE OUTCOME

After completion of this course the student will be able to:

CO1	Explain basic principles, multiple dimensions and concepts of interior design
CO2	Elaborate concept of interior lighting which includes various lighting fixtures and their effects
CO3	Analyze human relationship between furniture and interior spaces considering material and types of furniture according to different spaces
CO4	Summarize the history of interior design in western context followed by various design movements

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CO5	Analyze various elements of interior design and their methods of treatment by using modern building materials so that attractive and efficient design can be achieved
CO6	Examine various interior landscaping elements, their physical properties and effects on interior space

REFERENCES:

- 1 Francis D.K.Ching, "interior design illustrated" U N R publication NY 1987
PremavathySeetharaman, ParveenPanrv" Interior Design and Decoration" CBS publication, 2015
- 2 Julius Peneo and Martin Zelnik, 'Human Dimensions and Interior Space' Whitney library of design, NY 1979
- 3 SyanneSlesinAnd Stafford Ceiff 'Indian Style,ClarksonN Potter', New York 1990
- 4 Gary Gordon 'Interior Lighting For Designers' John Willey&Sons-2003
- 5 Kathryn B HiesingerAnd George H Marcus, Landmarks Of Twentieth Century Design, Appey Ville Press, 1993.
- 6 Inca/Interior Design Register, Inca Publications, Chennai, 1989
- 7 Steprt-DevanKness, Logan AndSzebely, 'Introduction To Interior Design' Macmillan Publication Co, Newyork 1980.
- 8 NBC, 2016 (Part 4)





30th May 2020

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Self-study, Seminar (SWAYAM/NPTEL & MOOC) (Code - 210508)

S. No	Subject Code	Subject Name	Category	Maximum Marks Allotted						Total Marks	CT HRS	Contact Periods per week			Total Credits	
				Theory Slot			Practical Slot		MOOC			L	T	P		
				End Sem	Mid Sem Exam	Quiz/Assignment / Sessional	End Sem	Lab work & Sessional	Assignment							Exam
6	210508	*Self study Seminar (SWAYAM/NPTEL & MOOC)	SEC-6	-	-	-	-	-	25	75	100	4	-	-	4	2

Note: Any one of the course available on SWAYAM shall be opted and shall not be repeated throughout the course (B Arch)

30th May 2020

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8. Summer Internship Project- II (Code – 210507)

S.No	Subject Code	Subject Name	Category	Maximum Marks Allotted					Total Marks	CT HR S.	Contact Periods per week			Total Credits
				Theory Slot			Practical Slot				L	T	P	
				End Sem.	Mid Sem.	Quiz/ Assignment	End Sem	Lab work & Sessional						
7	210507	Summer Internship Project- II	SEC- 7	-	-	-	50	-	50	2	-	-	2	1

Seminar / Workshop/ Training during previous Summer break will be evaluated








30th May 2020

9. Constitution of India/ Essence of Indian Traditional knowledge (Code – 100006)

Objectives –

The course aims to obtain knowledge of traditional knowledge system in Indian context and its usage in building construction and architecture, constitution of India and various reforms and political, social, civil rights and movements

S.No	Subject Code	Subject Name	Category	Maximum Marks Allotted					Total Marks	CT HR S.	Contact Periods per week			Total Credits
				Theory Slot			Practical Slot				L	T	P	
				End Sem.	Mid Sem.	Quiz/ Assignment	End Sem.	Lab work & Sessional						
8	100006	Constitution of India/ Essence of Indian Traditional knowledge (Audit course)	MC-2	70	20	10	-	-	100	3	-	-	-	-

Unit-1

- Introduction to Basic Structure of Indian Knowledge System
- Homogeneity of modern science and Indian Knowledge Tradition
- Yoga: Promoting positive health and personality
- Case Studies

Unit-2

- Indian Philosophy or Darshanas: Jainism, Buddhism, Yoga, Saiva and Vedanta
- Indian Linguistic Tradition: Panini's Ashtadhyayi
- Indian Art: Mauryanart, Buddhist art, Gupta art, Muslim Art & Culture Contemporary art
- Case Studies

UNIT 3 INTRODUCTION TO POLITICAL SCIENCE

- Nature and scope of political science
- Definition, elements and theories of origin of State (Social Contract and Evolutionary)
- Meaning and features of Civil Society
- Indian Political Thought: Raja Ram Mohan Roy, Swami Vivekanand, Gandhi, Ambedkar

Unit 4 Concept of Government and Its Organs

- Government: Definition and its characteristics
- Types and meaning of Legislature: Composition, Function and Role of the Parliament (Lok Sabha and Rajya Sabha)
- The Powers, Position and Role of the President, Prime Minister and the Cabinet
- The Powers, Position and Role of the Governor and the Chief Minister, Composition and the role of Supreme Court, Judicial Review and Judicial Activism

UNIT 5 SALIENT FEATURES OF INDIAN CONSTITUTION

- Preamble, Conventions, Sovereignty of the Constitution and the Rule of Law
- Parliamentary Democracy, Federalism, Secularism and Socialism
- Fundamental Rights, Directive Principles of State Policies and Fundamental Duties
- Election Commission and Electoral Reforms



 30th May 2020

COURSE OUTCOME -

After completion of this course student will be able to-

CO1	Elaborate basic concept of Traditional and modern knowledge system of India
CO2	Explain the significance of Yoga with respect to health
CO3	Elaborate the concept, significance and evolution of political science
CO4	Summarize the political views of various great Indian politicians
CO5	Apply the various aspects of Indian philosophy and art in contemporary architecture
CO6	Apply the various laws of the Indian government in implementation of projects

Basic Readings:

1. O.P. Gauba, *Political Theory*, Macmillan, (latest edition)
2. D.D. Basu, *Introduction to the Constitution of India*, (Latest Edition)
3. N.G. Jayal & Pratap Bhanu Mehta, *The Oxford Companion of Politics in India*, 2000.
4. W.H. Morris-Jones, *The Government and Politics of India*
5. Swami Jitamanand, *Holistic Science and Vedam*, Bhartiya Vidyabhawan
6. V. Shivramakrishnan (Ed), *Cultural Heritage of India*, Bhartiya Vidyabhawan, Mumbai Fifth Edition, 2014
7. Yoga sutra of Patanjali, Ramakrishnan Mission, Kolkata.
8. Panini Shiksha, Motilal Banarsidas
9. VN Jh, *Language, Thought and Reality*
10. Krishna Chaitanya, *Arts of India*, Abhinav Publications, 1987.
11. SC Chatterjee and DM Datta, *An Introduction to Indian Philosophy*, university of Calcutta, 1984
12. A L Basham, *The Wonder That was India*

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30th May 2020

THIRD YEAR SIXTH SEMESTER

1. Architectural Design – VI (Code – 210601)

Objectives –

The course aims to obtain knowledge of Architecture as a design response to Technology hospitality industry in the first project & requires the student, large scale building with Innovation & experimentations

S.No	Subject Code	Subject Name	Category	Maximum Marks Allotted					Total Marks	CT HR S.	Contact Periods per week			Total Credits
				Theory Slot			Practical Slot				L	T	P	
				End Sem.	Mid Sem.	Quiz/ Assignment	End Sem.	Lab work & Sessional						
1	210601	Architectural Design – VI	DC-13	100	30	20	50	100	300	9	2	2	4*(15)	10

PROJECT I: DESIGN FOR HOSPITALITY INDUSTRY

The project requires the understanding of the special nature and functioning of the hotel industry and to respond with suitable concepts of space planning, circulation, interior design, materials and lighting Example: Hotels- Business, resort, heritage, boutique etc. The student needs to concentrate on site planning, space planning, circulation, services and the various aspects of interior design such as furniture, flooring, ceiling, lighting etc. Students get exposure to the difference between a business hotel & a resort as well as the special needs of heritage and Boutique hotels. Exercises in interior space visualization using computer software is attempted.

PROJECT II: URBAN INFRASTRUCTURE PROJECTS

Contemporary transportation terminals and stadiums are large buildings with multiple entries & exits dealing with large crowds and having multiple levels with large spans, complex services & demanding environmental conditions. Function, convenience and security will become the basic design parameters. Example - Bus terminal / Railway station / Indoor sports complex / Aquatic complex etc. This studio challenges the designer to come up with a feasible structural solution after undertaking a study of large span structural systems. Moreover planning for transport terminals requires understanding of safety norms & to design sport facilities understanding of optimum environmental parameters is the requisite.

OUTCOME:

After completion of this course the student will be able to

CO1	Summarize basic concept of spatial planning of different types of buildings such as Hospitality and Infrastructure projects
CO2	Apply large span structural systems in design
CO3	Apply building bye laws in building design.
CO4	Apply various essential services in complex buildings.
CO5	Analyze the project with respect to various environmental parameters
CO6	Design Hospitality and Infrastructure projects

REFERENCES:

- 1 Time saver standards for building types, De Chiara and Callender, McGraw hill company
- 2 Neufert Architect's data, Bousmaha Baiche & Nicholas Walliman, Blackwell science ltd
- 3 National Building Code - ISI
- 4 New Metric Handbook – Patricia Tutt and David Adler – The Architectural Press

Note: One design problem shall be given in End Semester Examination. 6X3 hours examination.

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2. Building Services-III (Acoustic & Fire Fighting) (Code - 210602)

Objectives -

The course aims to obtain knowledge of the basic principles of acoustics in buildings and their integration with architectural design, suitable materials in the design of auditoria and the method to achieve noise control in built spaces, firefighting services and design alteration for it. Layout of firefighting integrated system in building design.

S.No	Subject Code	Subject Name	Category	Maximum Marks Allotted					Total Marks	CT HR S.	Contact Periods per week			Total Credits
				Theory Slot			Practical Slot				L	T	P	
				End Sem.	Mid Sem.	Quiz/ Assignment	End Sem.	Lab work & Sessional						
2	210602	Building Services-III (Acoustic & Fire Fighting)	BSAE-14	50	30	20	-	-	100	4	3	1	-	4

UNIT-1 INTRODUCTION TO THE STUDY OF ACOUSTICS & SOUND TRANSMISSION, ABSORPTION, INSULATION

Acoustics-Definition, terms related to acoustics. Theory of sound: generation, propagation, transmission, reception of sound, sound waves, frequency, intensity wavelength, sound pressure, measurement of sound scales-decibel scale. Calculation of reverberation time using Sabine's formula. Recommended RT/Volume for different spaces. Acoustical defects-echoes, focusing of sound, dead spots, flutter echo. Room resonances, small enclosures, standing waves, proportioning of room dimensions. Room acoustic phenomena: Reflection (plane, concave and convex surfaces), diffusion, reverberation, absorption. Acoustical requirements of different types of building, sound absorption, absorption co-efficient and their measurements, Sound insulation, materials, STC ratings, sound isolation. Sound absorptive materials and their choices, absorption coefficients and their measurements, NRC value.

UNIT-2 NOISE CONTROL AND SOUND REINFORCEMENT & ACOUSTICS IN BUILDING DESIGN AND CONSTRUCTION

Sources and types of noise, characteristics and effect of noise impact on human beings/behavior, noise curves, transmission of noise - airborne and structure borne, transmission loss. Means of noise control-source (enclosures), path (Barriers and insulations) and receiver (personal controls) Measure of noise control for different constructions - construction details of cavity walls, composite walls, floating floor, wood-joint floors, plenum barriers.

Design: Site selection, shape, volume, treatment for interior surface, basic principles in designing open air theatres, cinemas, broadcasting studios, concert halls, class rooms, lecture halls, theatres - Auditorium

Construction: Constructional detailing, relation to walls/ partition, floor / ceiling/ opening/ windows/ doors. Acoustical requirement of different types of buildings.

UNIT-3 FIRE FIGHTING SERVICES

Fire extinction / suppression technology: constituents of fire, methods of fire extinguishment. Extinguishing agents / media Fire suppression equipment & installations (active fire protection measures) fire detection and alarm systems (automatic fire alarm systems), Heat Detectors, Smoke detectors, flame detectors, Choice / Selection of Fire Detectors. Hydrant systems / installations- stand post and Underground type of hydrants (Sluice Valve Type) Internal Hydrant Systems - Dry-riser system, Wet-riser system, Wet-riser-cum -down-comer system and Down-comer-system. Sprinkler system types. Early Suppression Fast Response Sprinklers (ESFR), water spray systems, automatic drencher systems.

UNIT-4 FIRE FIGHTING SYSTEMS & BUILDING NORMS

Extinguishing Systems - Foam, CO2 and Halon Fire System, first aid firefighting equipment portable fire extinguishers and its types, graphic symbols for fire protection plans, fire protection - safety signs

Building fire hazards: Relationship of Building Fire Hazards with Life Safety, Hazards from Building Contents, Fire Load and Fire Effects, Exposure Hazard, Hazards from Interior Finish and services Hazards in Buildings from Collapse, Explosion, Life hazards in buildings and means of escape / egress / exit : Factors affecting Life Safety of Occupants, Growth and Spread of Fire and Smoke, Design Considerations of Means of Exit, Exit Requirements, Lifts and Escalators as Means of Exit, Occupant load, capacities of exits, internal staircases, fire lifts, Firefighting Shafts, external stairs, horizontal exit, illumination of exits, fire compartmentation, fire tower, refuge areas and ramps.

UNIT-5 FIRE FIGHTING LAYOUT OF BUILDINGS & DESIGN AND DETAILING FOR ACOUSTICS OF MULTIPURPOSE HALLS

Analyze a Fire fighting layout for a commercial building, Reflected ceiling plan of smoke detectors / sprinklers, etc. for a multistoried building.

Discuss and analyses fire accident case studies

Case studies of acoustically designed and treated multipurpose halls. Onsite measurement with Sound measurement equipment's. Design of a multipurpose hall for optimum acoustics - drawings and construction details of acoustical treatment on walls, ceilings and floors.

COURSE OUTCOME :

After completion of this course the student will be able to:

CO1	Summarize concept of acoustics and its various aspects .
CO2	Identify effect of noise while designing a building.
CO3	Apply basic concept of firefighting systems in different types of buildings
CO4	Identify various suitable sound insulation materials and techniques for construction
CO5	Apply the basic principles of acoustics in design
CO6	Explore various techniques of firefighting services in large scale buildings.

REFERENCES:

1. Architectural Acoustics- David Egan, J. Ross Publishing Classics
2. Acoustical Designing in Architecture- Vern.O Knudsen and Cyril M. Harris, Wiley Publisher
3. Acoustics, noise and buildings- Peter.H. Parkins and H.R. Humphreys, Pitman publishing corporation, New York, Chicago
4. Master Handbook of Acoustics-F. Alton Everest and Ken.C. Pohlmann Paper back Publisher

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30th May 2020

3 Site Planning & Landscaping (Code - 210608)

Objectives -

The course aims to obtain understanding of environment, human interventions and its impacts on nature and knowledge about various measures of protecting it, various concepts, ideas and techniques prevalent in landscape architecture, concepts of site planning and effective measures of doing it, the historic development of landscaping and site planning to students.

S No	Subject Code	Subject Name	Category	Maximum Marks Allotted					Total Marks	CT HR S	Contact Periods per week			Total Credits
				Theory Slot			Practical Slot				L	T	P	
				End Sem.	Mid Sem.	Quiz/ Assignment	End Sem.	Lab work & Sessional						
3	210608	Site Planning & Landscaping	DC-14	50	30	20			100	3	2	1		3

UNIT-1 INTRODUCTION & ELEMENTS OF LANDSCAPE ARCHITECTURE AND LANDSCAPE DESIGN

Introduction to landscape architecture, ecology, ecological balance, landscape conservation, reclamation and landscaping of derelict lands, environmental impact assessment. Elements of landscape - land elements, land form plants and planting, water, lighting etc. characteristics and classification of plant materials, basic principles of landscape design, Factors to be considered. Use and application of plant materials in landscape design, and other components involved.

UNIT-2 HISTORY OF LANDSCAPE ARCHITECTURE & URBAN LANDSCAPE

Development of landscape design: Detailed study of selected examples from Eastern, Central and Western traditions; Ancient Heritage - Mesopotamia, Egypt, Greece, Rome, Western Civilization - Europe, Italy, France, and England; The middle-east - The Persian tradition and its far reaching influence Eastern Civilization: China and Japan Ancient and medieval period in India, Mughal and Rajput Landscapes and study of contemporary landscape architecture. Basic principles and elements of Urban landscape, Significance of landscape in urban areas, introduction to street furniture, road landscaping, waterfront development, landscaping of residential areas, Industrial Landscaping.

UNIT-3 INTRODUCTION TO SITE ANALYSIS & SITE INFLUENCING FACTORS

Introduction to Site analysis, Importance of site analysis; interrelationship between nature and human interventions, thematic traditions in site design, history of site design as a source for precedent analysis. On site and off site factors; Analysis of natural, cultural and aesthetic factors: topography, hydrology, soils, landforms, vegetation, climate, microclimate. Influence of water bodies.

UNIT-4 DESIGN OF LANDFORMS IN A SITE & SITE PLANNING PRINCIPLES AND TECHNIQUES

Contours - representation of landforms and landform design, interpolation of contours, slope analysis, uses and function. Grading - Symbols and grading and alignment of paths/roads, angle of repose and use of retaining walls. Grading terraces. Drainage - surface drainage, functional and aesthetic considerations. Site Zoning. Organization of vehicular and pedestrian circulation, parking, street widths, turning radii; street intersections; steps and ramps. Site planning considerations in relation to water systems, sewage disposal, outdoor electrical systems.

UNIT-5 SITE CHARACTERISTICS AND DESIGN REQUIREMENTS & LANDSCAPE EXERCISE

Landscape design of a neighborhood open space (area of 2000 to 3000 sq. meters). Exploration of site planning options for residential, commercial, office, industrial and mixed-use projects; street network, civic space, and open space planning, emphasis on walkable, mixed-use, transit-oriented sustainable development.

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30th May 2020

74

COURSE OUTCOME:

After completion of this course the student will be able to:

CO1	Summarize various elements of landscape architecture and design
CO2	Analyze different aspects of landscape architecture history through various design principles of urban landscape
CO3	Examine various parameters of site analysis along with different site influencing factors like topography, hydrology, soil, landforms etc.
CO4	Illustrate contours as representation of landforms and its application in analysis of various physical characteristics like grading, drainage pattern, etc.
CO5	Apply the various techniques in landscape exercise which includes different site planning projects

REFERENCES:

1. T S S for Landscape Architecture, Mc Graw Hill, Inc. 1995
2. Grant W Reid, From Concept to Form in Landscape Design, Van Nostrand Reinhold Company, 1993
3. Brian Hackett, Planting Design
4. T.K. Bose and Chowdhury, Tropical Garden Plants in Colour, Horticulture And Allied Publishers, Calcutta, 1991.
5. Motloch, J.L., "Introduction to Landscape Design", Van Nostrand Reinhold Publishing Co., New York, 1991., McGraw Hill Book Co., New York, 1981. Sam kubba, " Green construction project management and cost oversight", Elsevier, 2010
6. Kevin Lynch, "Site Planning", MIT Press, 1967
7. Time Savers Standards for Site Planning, McGraw Hill, Inc, 1995
8. Richard Untermann and Robert Small, "Site planning for cluster housing", Van Nostrand Reinhold Company, 1977
9. Michael Laurie, "An Introduction to Landscape Architecture", Elsevier, 1986
10. TSS for Landscape Architecture, McGraw Hill, Inc, 1995
11. John Ormsbee Simonds, "Landscape Architecture: A manual of site planning & design", McGra

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30th May 2020

4 . Working Drawing (Code – 210604)

Objectives –

The course aims to obtain understanding of standards and conventions used for preparation of architectural drawings to develop the skills of preparing various architectural drawings and details used for construction of buildings. drawings in sufficient details such that the contractor is able to construct a building as per the design. Graphical presentation of all the components of a building along with dimensioning and annotations, application of IS Codes. Conventions/ methods of preparing a working drawing along with tabulation of schedules of materials, finishes and hardware/ Linking up working drawings / specifications in an architectural project.

S.N o.	Subject Code	Subject Name	Category	Maximum Marks Allotted					Total Marks	CT HR S.	Contact Periods per week			Total Credits
				Theory Slot			Practical Slot				L	T	P	
				End Sem	Mid Sem	Quiz/ Assignment	End Sem.	Lab work & Sessional						
4	210604	Working Drawing	PAEC-2	-	-	-	20	30	50	4	-	-	4	2

UNIT- 1 BUILDING DRAWING

Centre line plan, Foundation plan, Structural grid plan (in case of framed structures), Basement floor plan, Ground floor plan, Typical floor plan, All elevations, All sections: one at least through staircase and one through toilet, Terrace floor plan giving details of surface drawing etc.

UNIT- 2 SERVICES

Sanitation drawings showing fixtures etc. Electrical layout plan, typical wall profiles sections, detailed drawings of special rooms like kitchens, toilets, staircase etc.

UNIT- 3 SPECIFICATION

In addition to the above, students are expected to prepare a detailed clause by chance specifications for at least one of the 3 projects Specifications writing include the following aspects. Materials, Pre and post installation work.. Test if any, Mode of measurements, Knowledge of manufacturers specifications as a database for writing specifications for the following materials, based on surveys

UNIT- 4 MATERIALS

Glass Plywood and laminates Hardware Electrical wires and accessories Water supply and plumbing fittings and fixtures flooring and cladding.

UNIT- 5 EXERCISE

One working drawing of a previous year architectural design project having load bearing structure with Minimum 150 sq m. carpet area not exceeding 2 stories. Two details such as doors/windows/railings/kitchen etc.

COURSE OUTCOME:

After completion of this course the student will be able to:

CO1	Analyze various finishing materials along with their installation methods.
CO2	Illustrate various relevant architectural and structural layouts of respective buildings
CO3	Incorporate various specification aspects during execution of a project.
CO4	Develop necessary service layout plans of different buildings
CO5	Produce working drawing sets for load bearing and a frame structure architectural Design project.

REFERENCES:

1. Building construction specification – Jack Lerris
2. Standard specification of state governments
3. Specification in detail –Frank W. Makay
4. Building Drawing – M.G. Shah, CM, Kale, S.Y. Paouli
5. Architectural Working Drawings –Ralph W. Liebing, Mimi Ford

30th May 2020

Objectives –

The course aims to obtain knowledge of fundamental concepts and theories of Housing and apply them in their design projects, various types of Housing and its components, the vocabulary of interior design, interior and furniture design and design movements through history, components of interior space and treatment and finishes for the same, the various components of interior design like lighting, landscaping and furniture.

S.No.	Subject Code	Subject Name	Category	Maximum Marks Allotted					Total Marks	CT HR S.	Contact Periods per week			Total Credits
				Theory Slot			Practical Slot				L	T	P	
				End Sem	Mid Sem	Quiz/ Assignment	End Sem.	Lab work & Sessional						
5	210611	Housing	DE-3	50	30	20	-	-	100	3	1	2	-	3

(i) HOUSING**UNIT- 1 INTRODUCTION TO HOUSING AND HOUSING ISSUES.**

Housing demand and need, Role of Government and public agencies in Housing development, National housing policy, comparison of housing policies and programmes of developed and developing country, Housing agencies, housing programmes and resources, Housing finance

UNIT- 2 SOCIO ECONOMIC ASPECTS.

Social factors influencing Housing Design – identity, safety, convenience, access, amenities etc. economic factors -affordability and its relationship to house income, incremental housing concept, Slum Upgrading and sites and services schemes and reconstruction process.

UNIT- 3 HOUSING STANDARDS.

Different types of housing standards – spatial standards, safety standards, standards for amenities. Methodology of formulating standards, UD PFI – guide lines, standard and regulations – DCR – performance standards for housing, TCPO, New norms and amenities

UNIT- 4 MODERN TECHNIQUES IN HOUSING CONSTRUCTION.

Prefabrication techniques –modular house, panelized and precast homes, sustainable practices – zero energy home, eco housing, green homes - Teri – Griha and its rating system, Recent advancement in materials, Design guidelines, Environmental impact of Building materials, Environmental quality

UNIT- 5 HOUSING DESIGN AND PROCESS.

Traditional housing, row housing, cluster housing – apartments and high-rise housing gated community, Government housing – HUDCO financed project for economically weaker section, their Advantages and disadvantages. Methods and approaches to housing design. Various stages and tasks in project development – feasibility study, detailed study.

COURSE OUTCOME:

After completion of this course the student will be able to

CO1	Comprehend the history, demand, policies, and various stakeholders in housing
CO2	Define the socio-economic aspects, schemes and reconstruction process.
CO3	Identify various housing standards, guidelines, regulations, norms, amenities, etc
CO4	Summarize modern housing construction techniques in context of changing scenario and globalization.
CO5	Elaborate design process, stages, tasks, methods, approaches of different type of housing projects with respect to varying requirements.
CO6	Apply the housing principles hereafter.

30th May 2020

REFERENCES:

- Kavita Datta and GA Jones, 'Housing and Finance in Developing Countries' Routledge London, 1999
- Housing Design - Eugene Henry Klaber - Reinhold publishing corp
- Daniel Vallerio and Chris Brasier, Sustainable Design - The science of sustainability and Green Engineering, Wiley, 2008
- Thomas E Glavinich, Green Building Constction, Wiley, 2008
- Geoffrey K Payne, Low Income Housing in the Development World, John Wiley and Sons, Chichester, 1984
- Martin Evans, Housing, Climate and Comfort, Architectural Press, London, 1980
- An introduction to Urban Housing Design - Graham Towers

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30th May 2020

S.N o.	Subject Code	Subject Name	Category	Maximum Marks Allotted					Total Marks	CT HR S	Contact Periods per week			Total Credits
				Theory Slot			Practical Slot				L	T	P	
				End Sem	Mid Sem	Quiz/ Assignment	End Sem	Lab work & Sessional						
5	210614	Architectural Journalism	DE- 3	50	30	20	-	-	100	3	1	2	3	

ARCHITECTURE JOURNALISM

UNIT-1 JOURNALISM

Introduction to journalism, key concepts and objectives of Journalism – Specialized journalism: with emphasis on architectural journalism - Journalism skills: research, reporting, writing, editing, criticism

UNIT- 2 DISCUSSIONS AND ISSUES

Regional, National and International discussion forums, Changes in contemporary and historical design practices. Discussions on topics needed in an architectural journal and current issues - types of journals, works of key architectural journalists, Public Discourse on the Internet, Mass Media and Public Opinion – critique on selected pieces of journalism.

UNIT – 3

Contemporary Architectural Journalism, Digital journalism, Cinematography, Critical appraisal of Technical, Literature, Visual and Media

UNIT-4 FIELD PROGRAM

Exercise on integrating photography in architectural journalism

COURSE OUTCOME:

After completion of this course the student will be able to :

CO1	Elaborate basic concepts of journalism with the main focus on various aspects of architectural journalism.
CO2	Analyze theoretical and contextual needs for conducting journalism through research
CO3	Prepare architectural report (critical, appraisal or research) of a project
CO4	Prepare architectural photography report

REFERENCES:

Huckerby, Martin., The Net for Journalists: A Practical Guide to the Internet for Journalists in Developing Countries UNESCO/Thomson Foundation/ Common wealth Broadcasting Association, 2005.

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30th May 2020

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S. No	Subject Code	Subject Name	Category	Maximum Marks Allotted							Total Marks	CT HRS	Contact Periods per week			Total Credits
				Theory Slot			Practical Slot		MOOC				L	T	P	
				End Sem	Mid Sem Exam	Quiz/Assignment / Sessional	End Sem	Lab work & Sessional	Assignment	Exam						
6		# ELECTIVE -IV	DE-4	-	-	-	-	-	25	75	100	4	-	-	4	2

S no	Elective	Sub code	Sub Name	Remark
1	ELECTIVE-4			opted from NPTEL platform

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6. Tour/ seminar / Workshop/Training during winter break (Code - 210607)

S.No.	Subject Code	Subject Name	Category	Maximum Marks Allotted					Total Marks	CT HR S.	Contact Periods per week			Total Credits
				Theory Slot			Practical Slot				L	T	P	
				End Sem	Mid Sem.	Quiz/ Assignment	End Sem.	Lab work & Sessional						
7	210607	Tour/ seminar Workshop/Training during winter break	SEC-8	-	-	-	50	-	50	2	-	-	2	1

Study Tour/ Seminar / Workshop/ Training during previous winter break will be evaluated

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30th May 2020

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FOURTH YEAR VII SEMESTER

1. Architectural Design – VII 210701

OBJECTIVE: The objective of the subject is to

- Understand design as a function of specific agenda of complex services, acoustics, building byelaws and structure.
- Understand design as a process of problem identification, space analysis, formulation of requirements, evolution of design criteria and design.
- Incorporate elements of site planning and landscape in the design process.
- Prepare computer aided presentation drawings

S.No	Subject Code	Subject Name	Category	Maximum Marks Allotted					Total Marks	CT HR S.	Contact Periods per week			Total Credits
				Theory Slot			Practical Slot				L	T	P	
				End Sem	Mid Sem.	Quiz/ Assignment	End Sem.	Lab work & Sessional						
1	210701	Architectural Design – VII	DC-15	-	-	-	100	100	200	6	-	-	6*(1.5)	9

UNIT-1

The range of design problems shall include projects of progressively increasing complexity. Exercises related to public buildings i.e. Commercial center, hospital, Study and incorporation of building bye-laws should be complete in this Sem.

UNIT-2

The range of design problems shall include projects of progressively increasing complexity. Exercises related to public buildings i.e. Auditorium, sports cinema, sports complex & educational buildings on sloping/ flat sites. Simultaneously, stress should be given on the interior treatment of small and large spaces. Freedom in design is to be given with preliminary introduction of importance and role of bye laws in building design.

Note: The sessional will be in the form of drawings and models along with technical report for the design dealt with. The evaluation should be done in intermediate review consisting of internal /external experts. There should be regular site visits to the building types dealt in the studio problems of which audio-visual should be prepared. The various aspects of the design problem shall be dealt with lectures, group discussions and library research so as to provide the necessary philosophical and attitudinal background to a rational design approach.

COURSE OUTCOME:

After completion of this course the student will be able to

CO1	Analyze and study, pre-design process, design process & conceptualization stages in design.
CO2	Understand the materials and technology required to build the same
CO3	Understand the building byelaws and apply them to the project
CO4	Handle large scale buildings such as projects of progressively increasing complexity
CO5	Design the projects based on the concept of space and form, Innovate Visualization of projects using computer software is also acquired.

REFERENCES

- 1 "Planning by E. & O E" Liffe book Ltd, London
- 2 D E CHIRAIRA & CALLENDAR, "Times Saver Standard for Building Types"
- 3 RUDOLF HERGE, "Nuferts Architects Data", Cross By Lockwood & Sons Ltd
- 4 EDWARD D. MILLS, "Planning the Architects Hand Book"
- 5 National Building Code

30th May 2020

FOURTH YEAR VII SEMESTER

2. Adv Building Construction- 210702

OBJECTIVE: The objective of the subject is to introduce the students about the implementation of new technology concepts which are applied in field of advanced construction and also to study different methods of construction in the field of architecture.

S.N o.	Subject Code	Subject Name	Category	Maximum Marks Allotted					Total Marks	CT HR S.	Contact Periods per week			Total Credits
				Theory Slot			Practical Slot				L	T	P	
				En d Sem.	Mid Sem.	Quiz/ Assig nmen t	En d Sem.	Lab work & Sessio nal						
2	210702	Adv Building Construction	DC - 16	50	30	20	20	30	150	4	2	-	2*(1 5)	5

UNIT-1 SPECIAL STRUCTURES

Definitions, Types – single, double & multilayered grids – two way & three way space grids, connectors. Grids – Domes - various forms - Geodesic domes, Suspended cable structures – types of cable network systems, shapes of cable suspended systems, examples of tensile membrane structures – types of pneumatic structures. Long Span bridges, Cables Structure.

UNIT- 2 ADVANCE CONSTRUCTION SYSTEM

Advance construction systems and techniques developed by research organization in India- Design and detailing of building materials and components developed by research organizations like CBRI, SERC, NBO & BMTPC.

UNIT- 3 PRE STRESSED CONCRETE

Introduction to pre stressed concrete – Pre stressed concrete materials – Methods of pre stressing - Comparison between RCC and pre stressed concrete

UNIT- 4 TALL BUILDINGS

Tall buildings structural systems – Rigid frames – Braced frames – Shear wall – Buildings – Wall frame buildings – Tubular buildings – Tube-in tube buildings – Outrigger braced system – Brief outline of their behavior and their applicability for various heights of buildings.

UNIT- 5 SHELLS AND FOLDED PLATES

Basic concepts of Shells – Types –Relative merits and applicability.
Folded plates – Types – Comparison with shells – Applicability. Arches & its types

COURSE OUTCOME:

After completion of this course the student will be able to

CO1	Study behaviors of various non-conventional and long span structures
CO2	Understand the concept of Shells and Space Frames
CO3	Design and detailing of building materials and components developed by research organizations like CBRI, SERC, NBO & BMTPC
CO4	Appreciate the difference between RCC and pre stressed concrete
CO5	Identify appropriate tall structural systems: shells and folded plates and tensile structure for the space coverage

REFERENCES:

1. Salvadori
2. Sinha N C and Roy S K. Fundamentals of Reinforced Concrete. S Chand & Co. Ltd. New Delhi. 2001

30th May 2020

53

3. Ramamrutham S and Narayanan R, Reinforced Concrete Structures, DhanpatRai Publications, New Delhi, 1997
4. Bryan Stafford and Alex Coull, Tall Building Structures, Analysis and Design John Wiley & Sons, New York, 1991
5. Bandyopadhyay J.N. Thin Shell Structures Classical and Modern Analysis, New Age International Publishers, New Delhi, 1998
6. Ramaswamy G.S, Design of Construction of Concrete Shell Roofs, McGraw Hill Publishing Company, New York, 19

Note: Total five questions shall be asked. Each question will consist of two parts, one of which will be of 7 marks (which shall be compulsory) and another with 3 marks(which shall be optional).

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30th May 2020

(54)

3. Project Management & Building Economics (Code - 210703)

Objective -

The course aims to obtain knowledge of Project planning and project scheduling and project controlling. Role of decision in project management, etc.

S No	Subject Code	Subject Name	Category	Maximum Marks Allotted					Total Marks	CT HR S	Contact Periods per week			Total Credits
				Theory Slot			Practical Slot				L	T	P	
				End Sem.	Mid Sem.	Quiz/Assignment	End Sem.	Lab work & Sessional						
3	210703	Project Management & Building economics	PA-EC-3	50	30	20			100	3	2	1		3

UNIT- 1 INTRODUCTION.

Project planning and project scheduling and project controlling. Role of decision in project management. Method of planning and programming. Human aspects of project management. Work breakdown structure. Life cycle of a project. Disadvantages of traditional management system. Project management constructional organization, delegation of responsibilities. Role of an Architect, Engineer and Contractor.

UNIT- 2 ELEMENTS OF NETWORK & CPM AND PERT ANALYSIS

Event, Activity, Dummy, Network Rules, Graphical guidelines for network, Numbering of events. CPM network analysis & PERT time estimates, time computation & network analysis

UNIT- 3 PROJECT TIME REDUCTION AND OPTIMIZATION

Project cost, indirect cost, direct project cost, Slope of the direct cost curve. Total project cost & optimum duration, contracting the network for cost optimization, steps in cost-time optimization

UNIT- 4 PROJECT UPDATING & RESOURCE ALLOCATION

When to update? Data required for updating, steps in the process of updating. Resource usage profile. Histogram, Resource smoothing and Resource leveling

UNIT- 5 COMPUTERIZED PROJECT MANAGEMENT & PRACTICAL IMPLICATIONS

Introduction: creating a new project, building task. Creating resources and assessing costs, refining your project. Project tracking - understanding tracking, recording actual. Reporting on progress. Analyzing financial progress, Construction site practices, Inspection & quality control

COURSE OUTCOME:

After completion of this course the student will be able to:

CO1	Know about the methodology of executing a project.
CO2	Understand the fundamentals of economics, Land economics and financing
CO3	Compute the money values and demand forecasting
CO4	Develop valuation of property/building through various valuation methods
CO5	Enhance the professional ability as an architect

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30th May 2020

REFERENCES:

1. S.P. Mukhopadhyay, "Project Management for architects and Civil Engineers", IIT, Kharagpur
2. 1974
3. Jerome D. Wiest and Ferdinand K. Levy, "A Management Guide to PERT/CPM", Prentice Hall of India
pub. Ltd. New Delhi 1982
4. S.R.A. Burgess and G. White, "Building production and project management", the
5. construction press, London 1979
6. Dr. Punmia and K.K. Kandelwal - project planning and control with PERT/CPM, Laxmi publications,
New Delhi, 1987
7. Elaine Marnet, Microsoft office project 2003 Bible, Wiley Dreamtact (p) Ltd. New Delhi, 2004

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4. Estimating and Costing & Specifications- 210704

OBJECTIVE- The objective of the subject is to introduce the students about the successful implementation of the project to know about the material required and cost to be incurred before starting a new project

S.N o.	Subject Code	Subject Name	Category	Maximum Marks Allotted					Total Marks	CT HR S.	Contact Periods per week			Total Credits
				Theory Slot			Practical Slot				L	T	P	
				End Sem.	Mid Sem.	Quiz/ Assignment	End Sem.	Lab work & Sessional						
4	210704	Estimating and Costing & Specifications	PA EC-4	50	30	20	-	-	100	3	2	1	-	3

UNIT- 1 INTRODUCTION TO SPECIFICATION

Specification - Definition, purpose, procedure for writing specifications for the purpose of calling tenders, types of specification. General specifications for 1St, 2nd, 3rd and 4th Class buildings. Data base for writing specification.

UNIT- 2 SPECIFICATION FOR DIFFERENT ITEMS

Specifications for the following items – Bricks; sand; cement; coarse aggregate, water, reinforcement, storing and handling of materials; Earth work in foundation; PCC; RCC; First class brick work in cement mortar, half brick thick partition in cement mortar; reinforced brick work; DPC; glazed tiles in skirting and dado; cement plaster; joinery in wood, steel & aluminum, painting to walls –emulsion, enamel paint ; painting to joinery ; varnishing ; French polishing ; based on surveys and Current trends.

UNIT- 3 INTRODUCTION TO ESTIMATION

Estimation – definition; purpose; types of estimate; various methods of approximate estimate of buildings with introduction of computer applications in estimation.

UNIT- 4 DETAILED ESTIMATE

Detailed estimate – data required, factors to be considered, methodology of preparation, abstract of estimate, contingencies, work-charged establishment, bill of quantities, different methods for estimating building works, methods of measurement of works. – With case studies.

UNIT- 5 RATE ANALYSIS

Rate analysis – definition, method of preparation, quantity and labor estimate for unit work, task or outturn work, rate analysis for: earth work, concrete works, first class brick work, reinforced brick work, cement plastering, DPC with cement mortar/ concrete, finishing (cement paint, distemper, acrylic emulsion, enamel paint) to walls & ceiling. Using the current market rates for the materials, labor, tools and equipment

COURSE OUTCOME:

After completion of this course the student will be able to

CO1	Write specifications for various items of civil works with a view of controlling quality of work executed at site.
CO2	Acquire sufficient knowledge of estimation in order that he/she could advice prospective clients on project viability and also monitor/ control project cost
CO3	Analyze different types of estimates and their suitability to different kinds of works
CO4	Calculate the quantity of different items of work using various estimating methods
CO5	Prepare BOQ's for item rate contract.
CO6	Calculate the approximate estimate, detailed estimate for small scale building projects and low cost housing

REFERENCES:

- 1 M Chakraborti, Estimation, Costing, Specification and Valuation in Civil engineering
- 2 Dutta, Estimating and Costing, S. Dutta and Co., Lucknow 1983
- 3 PWD Specifications of Tamil Nadu State Government.
- 4 CPWD Specifications of Government of India

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5. Elective- V

OBJECTIVE-The objective of the subject is to introduce the students about the best teaching learning resources and programs initiated by the Government of India and designed to achieve the three cardinal principles of Education Policy viz . access, equity and quality

The course is opted from NPTEL platform in traditional mode

S. No	Subject Code	Subject Name	Category	Maximum Marks Allotted							Total Marks	CT HRS	Contact Periods per week			Total Credits
				Theory Slot			Practical Slot		MOOC				L	T	P	
				End Sem	Mid Sem Exam	Quiz/ Assignment / Sessional	End Sem	Lab work & Sessional	Assignment	Exam						
5.	21075 1	Structural System in Architecture	DE- 5	-	-	-	-	-	25	25	100	3	2	1	-	3
	21075 2	Urban Landuse and transportation planning		-	-	-	-	-	25	25	100	3	2	1	-	3
	21075 3	Urban governance and Development Management (UGDM)		-	-	-	-	-	25	25	100	3	2	1	-	3

Opted from NPTEL platform (July- Dec 2020)

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30th May 2020

6. Intellectual property Rights-

S.N o.	Subject Code	Subject Name	Cat eg ory	Maximum Marks Allotted					Tot al Mar ks	CT HR S	Contact Periods per week			To tal Cr edi ts
				Theory Slot			Practical Slot				L	T	P	
				En d Se m.	Mid Sem.	Quiz/ Assig nmen t	En d Se m.	Lab work & Sessio nal						
6	100008	Intellectual property Rights	MC-3	70	20	10	-	-	100	3	2	1	3	

COURSE OBJECTIVES

- To acquaint the learners with the basic concepts of Intellectual Property Rights.
- To develop expertise in the learners in IPR related issues and sensitize the learners with emerging issues in IPR and the rationale for the protection of IPR.

UNIT – I: Introduction

Introduction to IPRs, Basic concepts and need for Intellectual Property – Meaning and practical aspects of Patents, Copyrights, Geographical Indications, IPR in India and Abroad. Nature of Intellectual Property, Industrial Property, technological Research, Inventions and Innovations – Important examples of IPR.

UNIT – II: Intellectual Property Rights

The IPR tool kit, Patents, the patenting process, Patent cooperation treaties: International Treaties and conventions on IPRs, TRIPS Agreement, PCT Agreement, Patent Act of India, Patent Amendment Act, Design Act, Trademark Act, Geographical Indication Act.

UNIT – III: Intellectual Property Protections

IPR of Living Species, protecting inventions in biotechnology, protections of traditional knowledge, biopiracy and documenting traditional knowledge. Digital Innovations and Developments as Knowledge Assets – IP Laws, Cyber Law and Digital Content Protection. **Case studies: The basmati rice issue, revocations of turmeric patent, revocation of neem patent.**

UNIT – IV: Exercising and Enforcing of Intellectual Property Rights

Rights of an IPR owner, licensing agreements, criteria for patent infringement. Case studies of patent infringement IPR – a contract, unfair competitions and control, provisions in TRIPS,

UNIT- V: Role of Patents in Product Development & Commercialization

Recent changes in IPR laws impacting patents and copy rights, intellectual cooperation in the science and allied industry. Patentable and non-patentable research. **Case studies**

References

- P.B. Ganguli, Intellectual Property Rights: Unleashing the Knowledge Economy. Tata Mc Graw Hill, 2001.
 Steve Smith, The Quality Revolution. 1st ed., Jaico Publishing House, 2002.
 Kompal Bansal and Praishit Bansal. Fundamentals of IPR for Engineers, 1st Edition, BS Publications, 2012
 Prabuddha Ganguli. Intellectual Property Rights. 1st Edition, TMH, 2012.
 R Radha Krishnan & S Balasubramanian. Intellectual Property Rights. 1st Edition, Excel Books, 2012. M Ashok Kumar & Mohd. Iqbal Ali. Intellectual Property Rights. 2nd Edition, Serial Publications, 2011. VinodV. Scople, Managing Intellectual Property. Prentice Hall of India Pvt.Ltd, 2012.
 Deborah E. Bouchoux. Intellectual Property: The Law of Trademarks, Copyrights, Patents and Trade Secrets. Cengage Learning, 3rd ed. Edition, 2012.
 Prabuddha Ganguli. Intellectual Property Rights: Unleashing the Knowledge Economy. McGraw Hill Education, 2011.
 Edited by Derek Bosworth and Elizabeth Webster The Management of Intellectual Property Edward Elgar Publishing Ltd., 2013.
 B.S. Patil. Legal Aspects of Building and Engineering Contracts, 1974. Wadhwa (2004); Intellectual Property Rights, Universal Law Publishing Co. Ramappa (2010); Intellectual Property Rights Law in India, Asia Law House

30th May 2020

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

1. Imbibe the knowledge of Intellectual Property and its protection through various laws
2. apply the knowledge of IPR for professional development
3. develop a platform for protection and compliance of Intellectual Property Rights & knowledge
4. create awareness amidst academia and industry of IPR and Copyright compliance
5. deliver the purpose and function of IPR and patenting.

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7. (04 weeks- Evaluation)

Summer Internship project- III

S.No.	Subject Code	Subject Name	Category	Maximum Marks Allotted					Total Marks	CT HR S.	Contact Periods per week			Total Credits
				Theory Slot			Practical Slot				L	T	P	
				End Sem.	Mid Sem.	Quiz/Assignment	End Sem.	Lab work & Sessional						
7	210706	Summer Internship project- III (04 weeks-Evaluation)	SEC-9	-	-	-	50	-	50	2	-	-	2	1

Seminar / Workshop/ Training during previous summer break will be evaluated

30th May 2020

FOURTH YEAR EIGHTH SEMESTER

1. Architectural Design – VIII (Code – 210801)

Objectives –

The course aims to obtain knowledge of fundamental concepts and theories of Housing and apply them in their design projects, various types of Housing and its components, the vocabulary of urban design, its components. And utilizing it in design.

S.N o.	Subject Code	Subject Name	Category	Maximum Marks Allotted					Total Marks	CT HR S.	Contact Periods per week			Total Credits
				Theory Slot			Practical Slot				L	T	P	
				En d Sem.	Mid Sem.	Quiz/ Assig nmen t	En d Sem.	Lab work & Sessio nal						
1	210801	Architectural Design –VIII	DC - 17	-	-	-	150	100	250	8	-	-	8(1.5)	12

PROJECT I: HOUSING

The various types of housing projects in a typical urban scenario can be taken with suitable design parameters that get established after conducting a rigorous study. Analysis of existing design trends & user preferences need to be ascertained. Awareness about special building byelaws applicable for Group housing schemes is essential. In addition to design issues such as security, accessibility, identity, social interaction, comfort, economy etc. that would be investigated. The application of Fractals in design can also be explored. Ex. Housing for the poor /Slum dwellers, Multi-storied apartments for Govt. / corporate employees, Multi-storied condominiums for the rich etc.

PROJECT II: URBAN DESIGN OR CONSERVATION

Urban design projects could deal with redevelopment of problem areas such as riverfronts, beach fronts, market areas, bazaars or commercial & residential districts that have reached dead end situation. It could also deal with emerging nodes of transportation with its surrounding areas, the design of city level open spaces such as parks, plazas etc. Alternatively, conservation strategies for heritage areas along with revitalization techniques can also be attempted. The projects thus undertaken as group work will have to ultimately contribute ideas for the improvement of the quality of the urban environment.

OUTCOME: After completion of this course the student will be able to:

CO1	Formulate an intellectual position, explored through architectural design, which reconciles the development of a critical brief with spatial and functional criteria
CO2	Conceptualize a brief for a design project, which, through engagement with a series of contexts, seeks to provide a critique of the built environment by proposing alternative spatial formal, organizational or material solutions.
CO3	Synthesize a design solution, which combines appropriate architectural expression, cultural response and the fulfilment of the functional requirements of a brief
CO4	Produce appropriate drawings, models and other media of an architectural design which explore, test and express its qualities of space, form, organization and response to physical and other contexts.
CO5	Integrate appropriate technologies concerning structure, materiality and services into the design proposal
CO6	Effectively communicate the design or designs through an exhibition incorporating drawings, models, texts and other appropriate media.

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30th May 2020

REFERENCES:

1. Time saver standards for building types, DeChiara and Callender, McGraw hill company
2. Neufert Architect's data, Bousmaha Baiche & Nicholas Walliman, Blackwell science ltd
3. National Building Code - ISI
4. New Metric Handbook - Patricia Tutt and David Adler - The Architectural Press
5. Time saver standards for landscape architecture - Charles W. Harris - McGraw Hill

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30th May 2020

94

2. Urban Design (Code – 210802)

Objective –

The course aims to prepare the students to develop a holistic view of the city as a basis for designing the city/city components in the third dimension

S.No.	Subject Code	Subject Name	Category	Maximum Marks Allotted					Total Marks	CT HR S.	Contact Periods per week			Total Credits
				Theory Slot			Practical Slot				L	T	P	
				End Sem.	Mid Sem.	Quiz/Assignment	End Sem.	Lab work & Sessional						
2	210802	Urban Design	DC - 18	50	30	20	20	30	150	5	2	1	2	4

UNIT- 1 INTRODUCTION

Emergence of urban design as a discipline, need for urban design. Elements of urban design (buildings, streets, public spaces, transports, other elements etc. Principles of urban design-creating form and spatial definition in articulation of urban design expression.

UNIT- 2 STUDY AND ANALYSIS OF URBAN SPACES IN HISTORY AND MODERN CONCEPTS IN

URBAN DESIGN 15 A brief study and analysis of urban spaces in history-in the west(Greek, Roman, Medieval and Renaissance towns)and the east(in India-Vedic towns, temple towns, medieval and Islamic towns). Modern concepts in urban design. Study of Urban design theories of Gordon Cullen and Kevin Lynch. Relevance of historic concepts of urban design in the present context-Critical analysis of Indian cities & understanding the urban design projects of Singapore, China & United States.

UNIT- 3 BASIC PRINCIPLES & TECHNIQUES IN URBAN DESIGN

Components in urban design composition. Urban scale, mass and space, definition of urban fabric, visual surveys and their influence for urban design, various methods of conducting a visual survey. Definition and purpose of open spaces and their hierarchy in urban design-hierarchy of utility spaces for residential, commercial, recreational and industrial use. Special focus on streets-Expressive quality of built forms, spaces in public domain.

UNIT- 4 RENEWAL, RE-DEVELOPEMENT AND FORMULATING URBAN DESIGN

Definition and need for urban renewal and re-development, scope for urban renewal in India challenges and implementation methods of urban renewal for Indian historic towns and cities, impact of public participation. Analysis and formulation of urban design guidelines for new developments. National and international case studies for urban renewal.

UNIT- 5 URBAN DESIGN SURVEY AND PRESENTATION

Conducting an urban design survey of Conservation of historic cities, open-spaces, development of market spaces, transit oriented developments, water front development in India. Analysis of data. Formulating urban design guidelines for an area-practical problem solving, understanding various presentation techniques for urban design presentations.

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COURSE OUTCOME:

After completion of this course, the student will be able to

CO1	Know about the urban forms and spaces
CO2	Understand the urban design issues at the city level
CO3	Analyze the difference between the history and the contemporary needs
CO4	Develop the strategies that are commonly required to overcome the urban issues.
CO5	Develop understanding and strategies towards the society. They will be conversant with the problems in community living and how to address the same.

REFERENCES:

1. The Concise townscape- Gordon Cullen, The Architectural press
2. Image of the city - Kevin Lynch
3. Architecture of town and cities - Paul D. Sperrengon, The MIT press
4. Urban design – Ornament and decoration , Cliff Moughtin, Bath Press
5. Urban design – street and square, Cliff Moughtin, Bath Press
6. Town and square - Paul Zucker
7. The urban pattern - Arthur B Gallion, CBS publishers
8. Architecture and the urban experience - Raymond J Curran, Van Nostrand Reinhold Company
9. Indian city in the arid West - Kulbasha Jain , Aadi Centre
10. Indian mega city and economic reforms - A.K.Jain, Management publishing Company

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3. Professional Practice & Ethics (Code – 210803)

Objective –

The course aims to obtain understanding of the moral values that ought to guide the Engineering profession and to resolve the moral issues in the profession and to justify the moral judgment concerning the profession.

S N o.	Subject Code	Subject Name	Category	Maximum Marks Allotted					Total Marks	CT HR S.	Contact Periods per week			Total Credits
				Theory Slot			Practical Slot				L	T	P	
				En d Sem.	Mid Sem.	Quiz/ Assig nmen t	En d Sem.	Lab work & Sessio nal						
3	210803	Professional Practice & Ethics	PAE C- 5	50	30	20	-	-	100	3	2	1		3

UNIT- 1 THE PROFESSIONAL ROLE OF AN ARCHITECT & SERVICES RENDERED

Architect's role in society, IIA code of conduct, salient features of architect's act 1972, the council of architecture – Architect's office and its management, elementary accountancy required for the same etc. Architectural services- conditions of agreement- scope of work, comprehensive architectural services and architectural competitions, conditions of engagement, remuneration, professional fees and charges as per IIA norms, - copy rights of drawings.

UNIT- 2 ARCHITECTURAL COMPETITIONS & LEGISLATIONS

Regulations governing the conduct of competitions, Types of competition (open & closed competitions), appointment & duties of Assessors, instructions to participants, award of premium. Role of development authorities & urban arts commissions, salient features of the DCR for CMA, important regulations in the Tamilnadu cinema rules 1973 & the TN factory rules 1950, Environmental acts & laws, special rules governing hill area development & coastal area management, Heritage act of India etc.

UNIT- 3 EASEMENTS& ARBITRATION

Easement Rights –Definition, characteristics of an easement, Natural Rights, Various easement rights- Easement of support, Easement of light and air, Easement of right of way, Easement of eave projection, etc. Continuous and Discontinuous easements, extinction of easements, Modes of acquiring easement rights – Need for Arbitration, arbitration agreement, role of arbitrators, umpire etc, excepted matters, arbitral award.

UNIT- 4 TENDER & CONTRACT

Calling for Tenders, tender documents, open & closed tenders, various types such as item rate, lump sum, labour & demolition tenders, conditions of tender, submission, scrutiny, recommendations & award of contract. Conditions of contract, IIA form of contract, articles of agreement, certification of contractor's bills, defects liability, Earnest money deposit, security money deposit etc.

UNIT- 5 VALUATION& RENT

Valuation – purpose of valuation, types of valuation- book value – salvage value- scrap value depreciation- obsolescence- sinking fund- land valuation, building valuation- mortgage and lease- Annuity- definition, Fixation of rent- out going- gross and net income – year's purchase- capital cost standard rent- market rent- economical rent.

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30th May 2020

COURSE OUTCOME:

After completion of this course the student will be able to

CO1	Identify the principal legislative, technical and professional factors influencing the design strategy of a building project
CO2	Describe the components and organizational structures and their interrelationships
CO3	Define the issues that an architect will consider with reference to building contract law
CO4	Determine the factors effecting cost
CO5	Explain the procedures to be followed for compliance with planning and building control regulations

REFERENCES:

1. Hand book on Professional Practice by I. I. A. Image systems, Mumbai, 1998.
2. Estimating and Costing by Dutta
3. CMDA-Development control rules for CMA.
4. TN cinematograph manual, govt central press, Chennai, 1998.
5. Environmental Acts of the Ministry of Environment & forests, Govt.

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4. **Dissertation(Code – 210804)**

Objective –

The course aims to obtain understanding of standards and conventions of doing dissertation . to provide preliminary background information that puts the research in context and to clarify the focus of the study
The subject points out the value of research

S.N o.	Subject Code	Subject Name	Category	Maximum Marks Allotted					Total Marks	CT HR S.	Contact Periods per week			Total Credits
				Theory Slot			Practical Slot				L	T	P	
				En d Sem.	Mid Sem.	Quiz/ Assig nmen t	En d Sem.	Lab work & Sessio nal						
4	210804	Dissertation	PAEC-6	-	-	-	20	30	50	4	-	-	4	2

UNIT-1

First phase of dissertation allows students to identify the broad area / field of Architecture of their interest in which they may intend to do the research. This is to be done by studying and reproducing the brief of technical papers in the form of report review.

UNIT-2

Second phase allows the students to do the study of sample example of research already done by choosing the specific aspect / area relevant to broader field they have selected in first phase. This exercise involves the writing of report / review of book / journal dedicated to that specific aspect or area. This review writing is aimed to understand the method of collecting data (survey methods), analysis of data (statistics and mathematical formulas), drawing inferences and conclusion as attempted by the author of the book.

UNIT-3

Third phase is the writing of detailed dissertation report. Students are expected to choose their own topic of research by referring the area / field already identified in other two phases
NOTE: Sessionals will be submitted in the form of review reports and Dissertation report

COURSE OUTCOME:

After completion of this course the student will be able to:

CO1	Understand the fundamentals of Research methods before attempting final year Project Thesis.
CO2	Study and develop basic research principles and research methods
CO3	Develop a sustained and coherent argument on an agreed topic, supported by both secondary and primary sources
CO4	Communicate the result of a systematic programme of research with clear identification of the topic, research issues, the context and the theoretical perspectives
CO5	Evaluate significant information sources referred to and draw coherent conclusions relevant to the topic and issues initially identified, from the observations, evidence and arguments presented
CO6	Develop the skill of report writing. Prepare a Dissertation report

LIST OF TEXT AND REFERENCE BOOKS:

- Instruction Manuals on report writing

10th May 2020

99

5. Disaster management – 100007

OBJECTIVE -The objective of the subject is to introduce the students about reduce or avoid the potential losses from hazards, assure prompt and appropriate assistance to the victims of a disaster and achieve a rapid and effective recovery

S.No	Subject Code	Subject Name	Category	Maximum Marks Allotted					Total Marks	CT HR S.	Contact Periods per week			Total Credits
				Theory Slot			Practical Slot				L	T	P	
				End Sem.	Mid Sem.	Quiz/ Assignment	End Sem.	Lab work & Sessional						
5	100007	Disaster management (MC)	MC-4	70	20	10			100	3	2	1		3

UNIT- 1 NATURAL HAZARDS AND DISASTER MANAGEMENT

Understanding the Concepts and definitions of Disaster, Hazard, Vulnerability, Risk, Capacity – Disaster and Development, Disaster management and Disaster Management cycle Understanding the Causes and effects of natural calamities - floods, tropical cyclones, landslides, heat waves & Tsunami Institutional and Financial Mechanism National Policy on Disaster Management, National Guidelines and Plans on Disaster Management, Role of Government (local, state and national), Non-Government and Inter-Governmental Agencies

UNIT- 2 ELEMENTARY SEISMOLOGY

Major Historic Earthquakes in the World. earthquake hazard map of India, Causes of Earthquakes Elastic Rebound theory, Continental Drift and Plate Tectonics, Types of Plate Boundaries, types Of faults, seismic waves – classification of body waves and surface waves, magnitude, intensity, epicenter and energy release, Terminologies and Definitions and types of earthquake based on location, size and focal depth characteristics of strong earthquake ground motions, Flexibility of long & short period structures, concepts of response spectrum, Seismological Instruments: Seismograph and Accelerograph, Introduction to Seismic zones, Need for Seismic Zonation, Types of Zonation and Seismic zonation scales

UNIT- 3 LESSONS LEARNT FROM PAST EARTHQUAKES & SEISMIC DESIGN PRINCIPLES

Earthquake Effects - On ground, soil rupture, liquefaction and landslides, Behaviors of various types of buildings, lifelines and collapse patterns, Behavior of Non Structural Elements like services, fixtures, mountings etc., Social & Economic Consequences of earthquakes
Concept of seismic design, stiffness, strength, period, ductility, damping, hysteric energy dissipation, center of mass, center of rigidity, torsion, design eccentricities, Seismic effects related to building configuration, Plan & vertical irregularities, Special Aspects - Torsion, appendages, staircases, adjacency, pounding Ductility based design: Design of energy absorbing devices, Seismic base isolation and seismic active control

UNIT- 4 EARTHQUAKE RESISTANT CONSTRUCTION DETAILS

Various Types and construction details of Foundations, soil stabilization, retaining walls, plinth fill flooring, walls, openings, roofs, terraces, parapets, boundary walls, underground and overhead tanks staircases and isolation of structures
Local practices traditional regional responses

UNIT- 5 CASE STUDIES AND DESIGN GUIDELINES

Earthquakes at Bhuj, Latur, etc., Cyclones in coastal Andhra Pradesh & Orissa, Landslides in Nilgiris Himachal etc. Floods in Bangladesh, and Droughts in Rajasthan & Tsunami in Tamil Nadu Design guidelines for disaster resistant construction at appropriate situations - Engineering architectural landscape & planning solutions for floods, tropical cyclones & Tsunami

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COURSE OUTCOME:

After completion of this course the student will be able to

CO1	Study the various seismic zones
CO2	Understanding various terminologies like recovery, rehabilitation, response, mitigation and their execution
CO3	Apply strategies and technology to overcome the harmful effects of disaster Develop a design the disaster resistant structures

REFERENCES:

1. Aganwal Pankaj, Shrikhande Manish, Earthquake Resistant Design Of Structures, Prentice-Hall of India, New Delhi, 2006
2. S. K. Duggal, Earthquake Resistant Design Of Structures, Oxford University Press, 2007
3. Publications of National Disaster Management Authority (NDMA) on Various Templates and Guidelines for Disaster Management
4. Guidelines For Reconstruction Of Houses Affected By Tsunami, UNDP India, & Government Of Tamil Nadu, 2004
5. Coppola D P, 2007. Introduction to International Disaster Management, Elsevier Science (B/H), London.
6. Manual on natural disaster management in India, M C Gupta, NIDM, New Delhi
7. Disaster Management Act 2005, Publisher by Govt. of India
8. SERC Guidelines for Design and Construction of buildings and structures in cyclone-prone areas. SERC, CSIR, Government of India, 1998.
9. IS 1893(Part 1):2002 'Criteria for Earthquake Resistant Design of Structures: Part 1 General provisions and Buildings'

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10th May 2020

Objective –

The course aims to obtain knowledge of the creation and evolution of objects, structures and systems at human scale that aim to improve the quality of life in the immediate living and working environment while looking at sustainable and innovative use of diverse materials and processes. The course aims to obtain knowledge of decide how to plan, finance and manage urban areas Structures supported by effective land markets, appropriate regulation, good public services, adequate public finance and transparent and accountable city level political systems

S.No	Subject Code	Subject Name	Category	Maximum Marks Allotted					Total Marks	CT HR S.	Contact Periods per week			Total Credits
				Theory Slot			Practical Slot				L	T	P	
				End Sem.	Mid Sem.	Quiz/ Assignment	End Sem.	Lab work & Sessional						
6	210811	Furniture Design	DE-6	50	30	20	-	-	100	3	2	1	-	3

i). **FURNITURE DESIGN****UNIT-1 INTRODUCTION TO ERGONOMICS AND FURNITURE DESIGN**

Introduction to importance of ergonomics for human being in man-made world, Gross human anatomy, Ergonomics for different age group and gender in relation object used in interior.

UNIT-2 HUMAN FACTORS AND FURNITURE DESIGN

Brief study of Anthropometrics –man –machine-environment, static and dynamic, Muscles and work physiology, Static and Dynamic work including maximum capacity, Furniture ergonomics for different age group and gender

UNIT-3 ERGONOMIC FOR BUILT ENVIRONMENT

Built environment for the physically handicapped – Ramp, toilets and corridor design, Spatial Requirements for wheel chair movement-Design issues in the design of old age homes – Criteria to be considered when designing for the Visually handicapped.

UNIT-4 ENVIRONMENTAL ERGONOMICS

Study of Biomechanics, Environmental Condition including, thermal, illumination, noise and vibration, Bio transducers Environmental stress, Psycho Psychological aspects of design.

UNIT-5 ERGONOMICS FOR FURNITURE DESIGN

Study Of Furniture ergonomics for different space like, office, residential, children, Aged and Physically and visually handicapped user.

COURSE OUTCOME:

After completion of this course the student will be able to:

CO1	Introduce the vocabulary of Anthropometry and furniture design.
CO2	Study various components of ergonomics adapted in furniture design
CO3	Relate applied Ergonomics and furniture design with human environment
CO4	Study components of Ergonomics and furniture design like design for special need. Biomechanics, Psychological aspects.
CO5	Design a product for specific purpose

REFERENCES:

1. De Chiara and Callender - Time Savers Standards for Building Types
2. De Chiara and Callender - Time Savers Standards for Architectural data

3. Julius penero and Martin Zelink "Human Dimensions and Interior Space" Whitney Library Of Design NY 1979
4. Time Saver Standards for Interior Design
5. An invitation to Design. Helen Marie Evans
6. Francis D K Ching. Interior Design Illustrated. VNR Publications. New York. 1987

S.No	Subject Code	Subject Name	Category	Maximum Marks Allotted					Total Marks	CT HR S	Contact Periods per week			Total Credits
				Theory Slot			Practical Slot				L	T	P	
				End Sem.	Mid Sem.	Quiz/ Assignment	End Sem.	Lab work & Sessional						
6	210812	City & Metropolitan Planning	DE-6	50	30	20	-	-	100	3	2	1	-	3

ii) CITY & METROPOLITAN PLANNING

UNIT-1 URBAN GROWTH AND SYSTEM OF CITIES

Growth of cities scale, complexity and its impact on national development, cities as engines of growth cities as ecosystems, resources in cities. City, fringe and the periphery - physical and functional linkages, peri-urban development.

UNIT-2 COMMUNITY AND SETTLEMENTS

Social problems of slums and squatter's communities, urban and rural social transformation and their impact on social life, safety, security, Crimes in urban areas and their spatial planning implications, social structure and spatial planning. Role of socio-cultural aspects on growth patterns of city and neighborhood communities, Social planning and policy, and community participation, Marginalization and concepts of inclusive planning, and gender concerns in planning. Settlement Policy. National Commission on Urbanization, Rural Habitat Policy and experiences from developing countries regarding settlement structure, growth and spatial distribution.

UNIT-3 METRO AND MEGA CITIES: PROBLEMS AND ISSUES

Growth trends and processes, characteristics, problems, concepts and concerns of urban sustainability issues related to diversity and unintended growth, economic, social and environmental sustainability, quality of life, inclusivity and equity, climate change, transit-oriented development, participatory planning. Inner city - issues and problems, approach to development.

UNIT-4 HUMAN SETTLEMENT PLANNING, URBAN DEVELOPMENT POLICIES AND PROGRAMMES

Concepts, approaches, strategies and tools, Policies and programmes at various levels, impact on metro and mega city development.

UNIT-5 LAND AND REAL ESTATE DEVELOPMENT

Economic concepts of land, Land Pricing / valuation, Economic principles of land use, demand forecasting for land use, factors affecting land supply and demand, Land development methods. Supply Management, Demand side Management, Real estate markets, type of property development and its impact on supply and demand, method of development, environmental considerations.

UNIT-6 INFORMATION SYSTEM AND URBAN REFORMS

Spatial and Non - spatial information systems, Urban reforms and acts and policies

COURSE OUTCOME: After completion of this course the student will be able to:

CO1	Introduce the vocabulary of urban development
CO2	Study various components of community and settlements
CO3	Study various components of human settlements, urban development policies
CO4	Analyze the land and real estate development in urban areas
CO5	Elaborate spatial and non - spatial information systems

30th May 2020

REFERENCE:

1. Avis, W. R. (2016). Urban Governance (Topic Guide). Birmingham, UK. GSDRC, University of Birmingham.
2. McGranahan, G. & Satterthwaite, D. (2014). Urbanisation concepts and trends. London: IIED.
3. McGranahan, G. & Schensul, D. (2015). Inclusive urbanisation workshop reflections. London: IIED.
4. McIlwaine, C. (2013). Urbanization and gender-based violence: Exploring the paradoxes in the global south. *Environment & Urbanization*, 25, 1, 65-79.

S No	Subject Code	Subject Name	Category	Maximum Marks Allotted					Total Marks	CT HR S.	Contact Periods per week			Total Credits
				Theory Slot			Practical Slot				L	T	P	
				End Sem.	Mid Sem.	Quiz/Assignment	End Sem.	Lab work & Sessional						
6	210813	Advanced Structural Design	DE-6	50	30	20	-	-	100	3	2	1	-	3

III) Adv Structural Design

OBJECTIVE: The objective of the subject is to introduce the students about the fundamentals of stability of Modern structures in R. C. C. and various factors of R. C. C. structure designing

UNIT- 1

Design of continuous and isolated footings

Design of combined footing - types of combined footing, design of combined footing (rectangular and trapezoidal only)

Pre stressed concrete - pre stress and pre stressing methods, type and classification of pre stressing, losses of pre stressed.

UNIT- 2

Design of Flat Slab

Modern construction systems such as lift slab, folded plates, tensile structures etc.

UNIT- 3

Appropriate methods for an analysis for frames by portal method, cantilever method (horizontal forces only)

Space frames, geodesic domes, Large span roofing, special areas, Gymnasium, Airports and Stadiums

UNIT- 4

Specific constructional considerations for earthquake resistance structures, coastal areas

UNIT- 5

Conceptual structural systems for high rise buildings such as veranda trusses, shear wall etc
Domes, shells, vaults, arches (all types) in masonry, R. C. C., timber.

COURSE OUTCOME:

After completion of this course the student will be able to

CO1	Design the structure for stability, strength and serviceability
CO2	Prevent overturning, sliding or buckling of the structure, or parts of it, under the action of loads
CO3	Resist safely the stresses induced by the loads in the various structural members.

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30th May 2020

REFERENCES:

1. SALVADORI, "Structures in Architecture"
2. SALVADORI, "Structural Design in Architecture"
3. ROBERT, E. FISCHER, "New Structure", McGraw Hill Co
4. WOLFGANG SCHUELLER, "The design of building Structures"

NOTE: I) I.S. code 456-2000, SP -16 is permitted in examination.

II) Sessional work should include the analysis and design of simple elements along with the drawings using limit state method only for units from 1 to 3 and for rest only an idea along with sketches shall be taught to the students.

FOURTH YEAR VIII SEM

7. Seminar / Workshop/ Training during previous winter break will be evaluated

S.No	Subject Code	Subject Name	Category	Maximum Marks Allotted					Total Marks	CT HR S.	Contact Periods per week			Total Credits
				Theory Slot			Practical Slot				L	T	P	
				End Sem.	Mid Sem.	Quiz/ Assignment	End Sem.	Lab work & Sessional						
7	210806	Tout/ seminar / NASAWorkshop/Training during winter break	SEC-10	-	-	-	50	-	50	2	-	-	2	1



30th May 2020

105

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MADHAV INSTITUTE OF TECHNOLOGY & SCIENCE, GWALIOR – 474005

(An Autonomous Institute under rajivGandhiProudyogikiVishwavidyalaya, Bhopal)
CBCS SCHEME OF EXAMINATION- BACHELOR OF ARCHITECTURE WEF 2015

FIFTH YEAR NINETH SEMESTER

S.No	Subject Code	Subject Name	Maximum Marks Allotted						Credit Allotted	Total credits	
			Theory			Practical					
			End Sem	Mid Sem Test	Assignment/ Quiz	End Sem	Studio Work	Assignment/ Quiz	Theory	Practical	
1	AR901	Training	-	-	-	300	200	-	-	20	20

- 1) The students' work will be evaluated through monthly progress report / diary in the end of each month under continuous Assessment.
- 2) Monthly progress report diary, duly signed by the Architect, shall be submitted to the department, by the student up to 7th date of each month positively, online or in hard copy by post.
- 3) The students' performance during the training shall be evaluated by a Jury at the end of the semester.
- 4) The constitution of jury shall be - two external examiners, one Academician & one professional and two internal examiners, at least one shall be Professor or Head and training co-coordinator.
- 5) Minimum duration of training for One Semester will be of 14 week.

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MADHAV INSTITUTE OF TECHNOLOGY & SCIENCE, GWALIOR – 474005

(An Autonomous Institute under rajivGandhiProudyogikiVishwavidyalaya, Bhopal)

CBCS SCHEME OF EXAMINATION- BACHELOR OF ARCHITECTURE WEF 2015

FIFTH YEAR TENTH SEMESTER

S. No	Subject Code	Subject Name	Maximum Marks Allotted						Total credits	
			Theory			Practical				
			End Sem	Mid Sem Test	Assignment/ Quiz	End Sem	Studio Work	Assignment/ Quiz		
1	AR1001	Training	-	-	-	200	250	-	18	18

- 1) The students' work will be evaluated through monthly progress report / diary in the end of each month under continuous Assessment.
- 2) Monthly progress report/diary, duly signed by the Architect, shall be submitted to the department, by the student up to 7th date of each month positively, online or in hard copy by post.
- 3) The students' performance during the training shall be evaluated by a Jury at the end of the semester.
- 4) The constitution of jury shall be - two external examiners, one Academician & one professional and two internal examiners, at least one shall be Professor or Head and training co-coordinator.
- 5) Minimum duration of training for One Semester will be of 14 week.

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MADHAV INSTITUTE OF TECHNOLOGY & SCIENCE, GWALIOR – 474005

(An Autonomous Institute under rajivGandhiProudyogikiVishwavidyalaya, Bhopal)
CBCS SCHEME OF EXAMINATION- BACHELOR OF ARCHITECTURE WEF 2015

FIFTH YEAR TENTH SEMESTER

S.No	Subject Code	Subject Name	Maximum Marks Allotted							Credit Allotted	Total credits	
			Theory			Practical						
			End Sem	Mid Sem Test	Assignment/ Quiz	End Sem	Studio Work	Assignment/ Quiz	Theory	Practical		
2	AR1002	General Proficiency	-	-	-	50	-	-	-	2	2	

The student shall prepare a report showing their performance in curricular and extracurricular activities during the course of studies from I Semester to X semester in chronological order and present the same before Examiners for evaluation.
(Extra curricular activities, NASA participation, paper writing and presentation, conferences, seminars and workshops attended, participation in competition, Awards if any, participation in Institute level activities, Social & cultural activities)

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MADHAV INSTITUTE OF TECHNOLOGY & SCIENCE, GWALIOR
(A Govt. Aided UGC Autonomous Institute Affiliated to RGPV, Bhopal)

Scheme of Examination

For batches admitted in Academic Session 2020-21 onwards

Bachelor of Architecture, First Year, I Semester

S.No	Subject Code	Subject Name	Category	Maximum Marks Allotted					Total Marks	CT HRS.	Contact Periods per week			Total Credits
				Theory Slot		Practical Slot		Lab work & Sessional			L	T	P	
				End Sem.	Mid Sem.	Quiz/ Assignments /Sessional	End Sem.							
1.	210101	Architectural Design - I	DC-1	100	30	20	50	50	7	2	3	2*(1.5)	8	
2.	210110	Building Materials	BSAE-1	50	30	20	-	-	3	2	1	-	3	
3.	210103	Graphics - I	DC-2	50	30	20	50	50	7	2	3	2	6	
4.	210108	Structure I	BSAE-2	50	30	20	-	-	3	2	1	-	3	
5.	210105	History of Architecture-I	DC-3	50	30	20	-	-	3	2	1	-	3	
6.	210107	Workshop - I	SEC-1	-	-	-	20	30	4	-	-	4	2	
7.	210111	Professional Communication	SEC-2	50	30	20	-	-	2	1	1	-	2	
		Total		350	180	120	120	130	29	11	10	8	27	
Induction program of three weeks (MC): Physical activity, Creative Arts, Universal Human Values, Literary, Proficiency Modules, Lectures by Eminent people, Visits to local Areas, Familiarization to Dept/ Branch Innovation														

*One Design Studio/ Construction Studio/ Project/ Thesis Period/ Hour shall have 1.5 Credit

M.D.

M. V. S. P. Singh

M. V. S. P. Singh

DEAN (ACADEMICS)
M. V. S. P. Singh
May Revised Aug 2020
GWALIOR

MADHAV INSTITUTE OF TECHNOLOGY & SCIENCE, GWALIOR
(A Govt. Aided UGC Autonomous Institute Affiliated to RGPV, Bhopal)

Scheme of Examination

2017-2018 batch onwards

Bachelor of Architecture, Second Year, III Semester

S.No.	Subject Code	Subject Name	Category	Maximum Marks Allotted					Total Marks	CT HRS	Contact Periods per week			Total Credits
				Theory Slot			Practical Slot				L	T	P	
				End Sem.	Mid Sem. Exam.	Quiz/ Assignment / Sessional	End Sem.	Term work						
1.	210301	Architectural Design – III	DC- 8	100	30	20	50	50	250	7	2	3	2*(1.5)	8
2.	210302	Building Construction -II	BSAE- 5	50	30	20	50	50	200	5	2	1	2*(1.5)	6
3.	210303	Graphics -III	PAEC- 1	-	-	-	50	50	100	6	-	-	6	3
4.	210304	Surveying & Leveling	BSAE- 6	50	30	20	-	-	100	3	1	2	-	3
5.	210305	History of Architecture-III	DC- 9	50	30	20	-	-	100	3	2	1	-	3
6.	210306	Structure-III	BSAE- 7	50	30	20	-	-	100	3	2	1	-	3
7.	210307	Summer Internship Project -I (Institute Level Evaluation)	SEC- 4	-	-	-	50	-	50	2	-	-	2	1
Total				300	150	100	200	150	900	29	9	8	12	27
8.	¹ 100002	Biology for Engineers/ Architects (Audit Course)	MC-1	50	30	20	-	-	100	3	3	-	-	-
NSS/NCC				Qualifier										
Tour/ seminar/ Workshop/ Training during winter break: Evaluation in IV semester														

*One Design Studio/ Construction Studio/ Project/ Thesis Period/ Hour shall have 1.5 Credit

¹100002 Biology for Architects (Audit Course) will not be included in the aggregate and Passing is optional, however a separate marksheet will be issued to those who qualify

MADHAV INSTITUTE OF TECHNOLOGY & SCIENCE, GWALIOR
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Scheme of Examination

2018-2019 batch onwards

Bachelor of Architecture, Third Year, V Semester

S. No	Subject Code	Subject Name	Category	Maximum Marks Allotted					Total Marks	CT HRS	Contact Periods per week			Total Credits
				Theory Slot			Practical Slot				L	T	P	
				End Sem.	Mid Sem Exam	Quiz/ Assignment / Sessional	End Sem	Lab work & Sessional						
1.	210501	Architectural Design – V	DC- 12	100	30	20	50	50	250	7	2	3	2*(1.5)	8
2.	210502	Building Construction -IV	BSAE- 11	50	30	20	20	30	150	5	2	1	2*(1.5)	6
3.	210503	Building Services-II (Electrical & Mechanical)	BSAE- 12	50	30	20	-	-	100	3	2	1	-	3
4.	210504	Building Sciences & Energy Conservation	BSAE- 13	50	30	20	-	-	100	3	2	1	-	3
5.	-	ELECTIVE -II	DE- 2	50	30	20	-	-	100	3	2	1	-	3
6.	210508	* Self study, Seminar (SWAYAM/NPTEL & MOOC)	SEC- 6	-	-	-	-	100	100	4	-	-	4	2
7.	210507	Summer Internship Project- II	SEC- 7	-	-	-	50	-	50	2	-	-	2	1
Total				300	150	100	120	180	850	27	10	7	10	26
8.	¹ 100006	Constitution of India/ Essence of Indian Traditional knowledge (Audit course)	MC- 2	70	20	10	-	-	100	3	-	-	-	-
				Department level activity/ workshop/ awareness programme to be conducted, certificate of compliance to be submitted by HoD to the Exam Controller through Dean Academics										

S no	Elective	Sub code	Sub Name	Remark
1	ELECTIVE-II	210511	Human Settlement	
		210512	Interior Design	
		210513	Architectural conservation and historic preservation	

*Compulsory registration for one online course using SWAYAM/NPTEL/ MOOC, Evaluation through attendance, assignments and presentations.

*One Design Studio/ Construction Studio/ Project/ Thesis Period/ Hour shall have 1.5 Credit

¹100006 Constitution of India/ Essence of Indian Traditional knowledge (Audit course) will not be included in the aggregate and Passing is optional, however a separate marksheet will be issued to those who qualify

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MADHAV INSTITUTE OF TECHNOLOGY & SCIENCE, GWALIOR

(A Govt. Aided UGC Autonomous Institute Affiliated to RGPV, Bhopal)

Scheme of Examination

2017-2018 batch onwards

Bachelor of Architecture, Fourth Year, VII Semester

S. No.	Subject Code	Subject Name & Title	Category	Maximum Marks Allotted						Total Marks	C T H R S	Contact Periods per week			Total Credits	
				Theory Slot			Practical Slot		MOOC			L	T	P		
				End Sem	Mid Sem. Exam	Quiz/ Assignment/ Sessional	End Sem.	Term Work Lab Work & Sessional	Assignment							Exam
1	210701	Architectural Design – VII	DC- 15	-	-	-	100	100			200	6	-	-	6*(1.5)	9
2	210702	Adv Building Construction	DC- 16	50	30	20	20	30			150	4	2	-	2*(1.5)	5
3	210703	Project Management & Building economics	PAEC- 3	50	30	20	-	-			100	3	2	1	-	3
4	210704	Estimating and Costing & Specifications	PAEC- 4	50	30	20	-	-			100	3	2	1	-	3
5	-	ELECTIVE- V	DE- 5	-	-	-	-	-	25	75	100	3	2	1	-	3
6	100008	Intellectual Property Rights	MC-3	70	20	10	-	-			100	3	2	1	-	3
7	210706	Summer Internship Project-III	SEC- 9	-	-	-	50				50	2	-	-	2	1
Total				220	110	70	170	130	25	75	800	24	10	4	10	27
Tour/ seminar/ Workshop/ Training during winter break will be evaluated in VIII semester																

S no	Elective	Sub code	Sub Name	Remark
1	ELECTIVE-V	210751	Structural System in Architecture	opted from NPTEL platform (July- Dec 2020)
		210752	Urban Landuse and transportation planning	
		210753	Urban governance and Development Management (UGDM)	

*One Design Studio/ Construction Studio/ Project/ Thesis Period/ Hour shall have 1.5 Credit

MADHAV INSTITUTE OF TECHNOLOGY & SCIENCE, GWALIOR - 474005
 (An Autonomous Institute under rajivGandhiProudyogikiVishwavidyalaya, Bhopal)
CBCS SCHEME OF EXAMINATION- BACHELOR OF ARCHITECTURE WEF 2016

For Batch 2015-20
2016-21

FIFTH YEAR NINETH SEMESTER

S.No	Subject Code	Subject Name	Maximum Marks Allotted						Credit Allotted		Total credits
			Theory			Practical			Theory	Practical	
			End Sem	Mid Sem Test	Assignment/ Quiz	End Sem	Studio Work	Assignment/ Quiz			
1	AR901	Training	-	-	-	300	200	-	-	20	20
		Total	-	-	-	300	200	-	-	20	20

Sharma *09/01/2020* *Vandha* *Richa* *...* *WG*

Sharma 21.2.20


670111-PLANNING PRINCIPLES AND THEORY

S.No	Subject Code	Subject Name	Maximum Marks Allotted					Teaching Hours per Week			Total credits	
			Theory			Practical		Lectures (L)	Tutorials (T)	Practical/ Studios (P/S)		
			End Sem	Mid Sem Test	Assignment / Quiz	End Sem	Studio Work/ Sessional					
1.	670111	PLANNING PRINCIPLES AND THEORY	70	20	10	-	-	3	1	-	4	100

Evolution of City Building

Relevance of the study of evolution of settlements; Hunter, gatherer, farmer and formation of organized society; Cosmological and other influences, origins and growth of cities, effects of cultural influence on physical form; Human settlements as an expression of civilizations; Basic elements of the city; Concepts of space, time, scale of cities.

Planning History

Town Planning practices worldwide, Town planning in ancient India; Medieval, renaissance, industrial and post industrial cities; City as a living spatial entity; Concepts of landmark, axis, orientation; City form as a living space; City as a political statement: New Delhi, Chandigarh, Washington D.C. Brasilia etc.; Contribution of individuals to city planning: Lewis Mumford, Patrick Geddes, Peter Hall, etc; Dynamics of the growing city, impact of industrialization and urbanization, metropolis and megalopolis.

Definitions and Objectives of Planning

Definitions of town and country planning; Orthodoxies of planning; Goal formulation, objective, scope, limitations; Sustainability and rationality in planning; Components of sustainable urban and regional development.

Theories of City Development and Planning Theories

Theories of city development including Concentric Zone Theory, Sector Theory, Multiple Nuclei Theory and other latest theories; Land use and land value theory of William Alonso; Ebenezer Howard's Garden City Concept; and Green Belt Concept; City as an organism: a physical, social, economic and political entity; Emerging Concepts: global city, inclusive city, safe city, etc.; City of the future and future of the city; Shadow cities, divided cities; Models of planning; Advocacy and Pluralism in Planning; Systems approach to planning: rationalistic and incremental approaches, mixed scanning and middle range planning; Equity planning; Political Economy Model; Types of development plans, plan making process.

Narendra Kumar
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Scheme and syllabus approved on 05/10/2018

670102- SOCIO-ECONOMIC BASIS FOR PLANNING

S.No	Subject Code	Subject Name	Maximum Marks Allotted					Teaching Hours per Week			Total credits	
			Theory			Practical		Lectures (L)	Tutorials (T)	Practical/ Studios (P/S)		
			End Sem	Mid Sem Test	Assignment / Quiz	End Sem	Studio Work/ Sessional					
1.	670102	SOCIO-ECONOMIC BASIS FOR PLANNING	70	20	10	-	-	3	1	-	4	100

Nature and Scope of Sociology

Sociological concepts and methods, man and environment relationships; Socio-cultural profile of Indian society and urban transformation; Tradition and modernity in the context of urban and rural settlements; Issues related to caste, age, sex, gender, health safety, and marginalized groups; Displacement, resettlement and rehabilitation due to compulsory land acquisition.

Elements of Micro and Macro Economics

Concepts of demand, supply, elasticity and consumer markets; concept of revenue costs; Economies of scale, economic and social costs, production and factor market; Different market structures and price determination; market failures, cost-benefit analysis, public sector pricing; Determinants of national income, consumption, investment, inflation, unemployment, capital budgeting, risk and uncertainty, and long-term investment planning.

Development Economics and Lessons from Indian Experiences

Economic growth and development, quality of life; Human development index, poverty and income distribution, employment and livelihood; Economic principles in land use planning; Policies and strategies in economic planning, balanced versus unbalanced growth, public sector dominance; changing economic policies, implications on land.



670103-PLANNING TECHNIQUES

S.No	Subject Code	Subject Name	Maximum Marks Allotted					Teaching Hours per Week			Total credits	
			Theory			Practical		Lectures (L)	Tutorials (T)	Practical/ Studios (P/S)		
			End Sem	Mid Sem Test	Assignment / Quiz	End Sem	Studio Work/ Sessional					
1.	670103	PLANNING TECHNIQUES	70	20	10	-	-	3	1	-	4	100

Survey Techniques and Mapping

Data base for physical surveys including land use, building use, density, building age, etc., and socio-economic surveys; Survey techniques; Land use classification or coding and expected outputs; Techniques of preparing base maps including understanding the concepts of scales, components and detailing for various levels of plans like regional plan, city plan, zoning plan, and local area plan.

Analytical Methods

Classification of regions, delineation techniques of various types of regions, analysis of structure of nodes, hierarchy, nesting and rank size; Scalogram, sociogram, etc.; Planning balance sheet; Threshold analysis; Input output analysis, SWOT analysis;

Demographic Methods

Methods of population forecasts and projections; Lorenz Curve, Ginni Ratio, Theil's index, ratios: urban – rural, urban concentration, metropolitan concentration; Location dimensions of population groups – social area and strategic choice approach – inter connected decision area analysis.

Planning Standards

Spatial standards, performance standards and benchmarks, and variable standards; UDPFI guidelines, Zoning regulations and development control rules and regulations.

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670104-INFRASTRUCTURE ANDTRANSPORT PLANNING

S.No	Subject Code	Subject Name	Maximum Marks Allotted					Teaching Hours per Week			Total credits	
			Theory			Practical		Lectures (L)	Tutorials (T)	Practical/ Studios (P/S)		
			End Sem	Mid Sem Test	Assignment / Quiz	End Sem	Studio Work/ Sessional					
1.	670104	INFRASTRUCTURE ANDTRANSPORT PLANNING	70	20	10	-	-	3	1	-	4	100

Role of Infrastructure in Development

Elements of Infrastructure (physical, social, utilities and services); Basic definitions, concepts, significance and importance; Data required for provision and planning of urban networks and services; Resource analysis, provision of infrastructure, and land requirements; Principles of resource distribution in space; Types, hierarchical distribution of facilities, Access to facilities, provision and location criteria, Norms and standards, etc.

Planning and Management of Water, Sanitation and Storm Water

Water – sources of water, treatment and storage, transportation and distribution, quality, networks, distribution losses, water harvesting, recycling and reuse, norms and standards of provision, institutional arrangements, planning provisions and management issues; Sanitation – points of generation, collection, treatment, disposal, norms and standards, grey water disposal, DEWATS, institutional arrangements, planning provisions and management issues.

Storm water – rainfall data interpretation, points of water stagnation, system of natural drains, surface topography and soil characteristics, ground water replenishment, storm water collection and disposal, norms and standards, institutional arrangements, planning provisions and management issues;

Planning and Management of Municipal Wastes, Power and Fire

Municipal and other wastes – generation, typology, quantity, collection, storage, transportation, treatment, disposal, recycling and reuse, wealth from waste, norms and standards, institutional arrangements, planning provisions and management issues.

Power – Sources of power procurement, distribution networks, demand assessment, norms and standards, planning provisions and management issues.

Fire – History of fire hazards, vulnerable locations, methods of firefighting, norms and standards, planning provisions and management issues.

City Development and Transport Infrastructure Planning, Management and Design

Role of transport, types of transport systems, evolution of transport modes, transport problems and mobility issues; Urban form and Transport patterns, land use – transport cycle, concept of accessibility; Hierarchy, capacity and geometric design elements of roads and intersections; Basic principles of Transport infrastructure design; Traffic and transportation surveys and studies, traffic and travel characteristics; Urban transport planning process – stages, study area, zoning, data base, concept of trip generation Transport, environment and safety issues; principles and approaches of traffic management, transport system management.

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Amulya *of* *Jan* *Raj* *nm*

670115- HOUSING

S.No	Subject Code	Subject Name	Maximum Marks Allotted					Teaching Hours per Week			Total credits	
			Theory			Practical		Lectures (L)	Tutorials (T)	Practical/ Studios (P/S)		
			End Sem	Mid Sem Test	Assignment / Quiz	End Sem	Studio Work/ Sessional					
1.	670115	HOUSING	70	20	10	-	-	3	1	-	4	100

Concepts and Definitions

Shelter as a basic requirement, determinants of housing form, Census of India definitions, Introduction to policies, housing need, demand and supply, dilapidation, structural conditions, materials of constructions, housing age, occupancy rate, crowding, housing shortage, income and affordability, poverty and slums, houseless population

Various housing typologies viz. traditional houses, plotted development, group housing, multi- storied housing, villas, chawls, etc., slums and squatters, night shelters, public health issues related to housing, various theories of housing, concept of green housing, green rating of housing projects.

Social and Economic Dimensions

Housing as social security, role of housing in development of family and community well-being, status and prestige related to housing, safety, crime and insecurity, deprivation and social vulnerability, ghettoism, gender issues, housing for the elderly.

Contribution of housing to micro and macro economy, contribution to national wealth and GDP, housing taxation, national budgets, fiscal concessions, forward and backward linkages.

Housing and the City

Understanding housing as an important land use component of city plan / master plan, considerations for carrying out city level housing studies, projections, land use provisions; Suitability of land for housing, housing stress identification, projecting housing requirements, calculating housing shortages, housing allocation.

Planning for Neighborhoods

Approaches to neighborhood living in traditional and contemporary societies, elements of neighborhood structure, Planning and design criteria for modern neighborhoods, norms and criteria for area distribution, housing and area planning standards, net residential density and gross residential density, development controls and building byelaws, UDPFI guidelines, NBC 2005 provisions and Case studies of neighborhood planning.

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Sharma

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Scheme and syllabus approved on 05/10/2020

670106- STUDIO I

S.No	Subject Code	Subject Name	Maximum Marks Allotted					Teaching Hours per Week			Total credits	
			Theory			Practical		Lectures (L)	Tutorials (T)	Practical/ Studios (P/S)		
			End Sem	Mid Sem Test	Assignment / Quiz	End Sem	Studio Work/ Sessional					
1.	670106	STUDIO COURSE-ISTUDIO ASSIGNMENTS/FILM APPRECIATION/ LITERATURE REVIEW/ AREA APPLICATION	-	-	-	90	60	-	-	6	6	150

Film Appreciation (individual assignment)

Films related to city development and socio-economic issues will be screened for students. The purpose of these films is to educate the students' understanding of various development issues and to absorb them in the planning practice. At the end of the film, a discourse around the film will also be held.

After viewing the films, each student is expected to write about its main focus, city / region context, its applicability to Indian environment by answering the given questions in not more than half a page.

Literature Review (individual assignment)

Each student is expected to read the article given from a journal/book and write a summary of not more than a page (250 words only) highlighting the problem, approach, methodology, analysis, how the author arrived at the conclusion and its relevance to Indian context. There will be a negative marking for writing the same text as in the original (that is copying from the original text given to them).

Area Appreciation (group assignment)

The aim of the area appreciation exercise is to enable the students to understand and contextualize the location of the area in relation to the city, zone and area in which the particular place is situated. This is done in relation to the socio-economic, spatial and cultural characteristics of that city, zone, location, etc. The main purpose is to make the students appreciate the locational attributes of land parcels for future development in a city.

Due to the size of the area, this exercise is done in groups of students being assigned to an area.

The following planning issues at area level should be identified:

- Review of the Master Plan / Zonal / Area plan in relation to the selected areas.

Vereha
Shrivastava

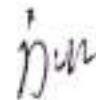
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- Appreciation / Analysis of ward level data.
 - Perception of areas in terms of legal / illegal / authorized / unauthorized, Slums, Urban Aesthetics.
 - Social Categorizations of people - Type of population living, people's perception about area and its planning problems.
 - Land use including Agriculture land and land use conflicts, extent (%) of broad land use such as commercial, industrial, residential, institutional and recreational.
 - Extent of formal / informal activities present in the area including their location and conflicts. General land tenure of the area and land value for different uses.
 - Major types of transport, type of roads, hierarchy of roads, type of transport modes used.
 - Amenities: Location of social and physical infrastructure and their problems as perceived by local population.
 - Look for specific infrastructure such as Water supply, drainage (water logging areas), waste collection and disposal system, sanitation, etc.
- Environmental Issues: Open Spaces – Availability and extent of open space to built-up area, garbage disposal, encroachment (through photographic evidences and sketches). Locating the study area in the zone, city and regional context with respect to all the above aspects.

Vaibhava
Sharma



670107- STUDIO II

S.No	Subject Code	Subject Name	Maximum Marks Allotted					Teaching Hours per Week			Total credits	
			Theory			Practical		Lectures (L)	Tutorials (T)	Practical/ Studios (P/S)		
			End Sem	Mid Sem Test	Assignment / Quiz	End Sem	Studio Work/ Sessional					
1.	670107	STUDIO COURSE-IISITE PLANNING/ CITY DEVELOPMENT PLAN	-	-	-	90	60	-	-	6	6	150

Site Planning (individual assignment)

Site planning is a process whereby the optimum utilization of potential of site is considered recognizing the constraints the site has. It uses 3-dimensional space of the site and the associated locational advantages, human activities and the regulations that are assigned to a particular site. The site is developed using a set of standards / norms in a given context which varies from location to location. A student is expected to understand the intricacies and interface between various variables such as soil conditions, topography, environmental dimensions, location, spatial standards applicable to the site, etc.

Review of city development plan - (group assignment)

The students are required to understand the dynamics of various components of the city and how and what level interventions can be made to achieve that vision mentioned in the CDP. A group of students are expected to study a city in terms its present problems and issues and review the futuristic vision.

Vesha
Amish *J* *San* *BP* *im*

Master of URBAN PLANNING – II SEMESTER**670211 – CITY AND METROPOLITAN PLANNING**

S.No	Subject Code	Subject Name	Maximum Marks Allotted					Teaching Hours per Week			Total credits	
			Theory			Practical		Lectures (L)	Tutorials (T)	Practical/ Studios (P/S)		
			End Sem	Mid Sem Test	Assignment / Quiz	End Sem	Studio Work/ Sessional					
1.	670211	CITY AND METROPOLITAN PLANNING	70	20	10	-	-	3	1	-	4	100

Urban Growth and System of Cities

Growth of cities scale, complexity and its impact on national development, cities as engines of growth, cities as ecosystems, resources in cities. City, fringe and the periphery - physical and functional linkages, peri-urban development.

Community and Settlements

Social problems of slums and squatter's communities, urban and rural social transformation and their impact on social life, safety, security; Crimes in urban areas and their spatial planning implications, social structure and spatial planning; Role of socio-cultural aspects on growth patterns of city and neighborhood communities; Social planning and policy, and community participation; Marginalization and concepts of inclusive planning, and gender concerns in planning. Settlement Policy: National Commission on Urbanization, Rural Habitat Policy and experiences from developing countries regarding settlement structure, growth and spatial distribution.

Metro and Mega Cities: Problems and Issues

Growth trends and processes, characteristics, problems, concepts and concerns of urban sustainability, issues related to diversity and unintended growth, economic, social and environmental sustainability, quality of life, inclusivity and equity, climate change, transit-oriented development, participatory planning. Inner city – issues and problems, approach to development.

Human Settlement Planning, Urban Development Policies and programmes

Concepts, approaches, strategies and tools; Policies and programmes at various levels, impact on metro and mega city development.

Land and Real Estate Development

Economic concepts of land, Land Pricing / valuation; Economic principles of land use; demand forecasting for land use: factors affecting land supply and demand; Land development methods, Supply Management, Demand side Management; Real estate markets, type of property development and its impact on supply and demand, method of development, environmental considerations.

Information System and Urban Reforms

Spatial and Non - spatial information systems; Urban reforms and acts and policies.

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670202- URBAN HERITAGE CONSERVATION

S.No	Subject Code	Subject Name	Maximum Marks Allotted					Teaching Hours per Week			Total credits	
			Theory			Practical		Lectures (L)	Tutorials (T)	Practical/ Studios (P/S)		
			End Sem	Mid Sem Test	Assignment / Quiz	End Sem	Studio Work/ Sessional					
1.	670202	URBAN HERITAGE CONSERVATION	70	20	10	-	-	3	1	-	4	100

Introduction to Urban Heritage

Typology / classification, inventories, mapping; Human habitation in historical context; Heritage as a motivating force in sustainable urban conservation and development,

Heritage Conservation

Natural heritage conservation - typologies, policies for conservation, regulatory measures, community participation; Concept of Historic Urban Landscapes; Built heritage conservation - determinants of built form on heritage; Historic urban infrastructure and traditional water harvesting systems.

Integration of historic monuments

Areas / cores / urban systems in the developmental process and land use, regulatory measures and community involvement; Intangible cultural heritage and development: issues, conservation strategies. Preparation of conservation and heritage management plans.

Heritage and Tourism, Policies and Programmes, Legislation

Cultural and heritage-based tourism - nature, potential and prospects, marketing aspects; Acts and laws recognizing conservation / regeneration; Heritage toolkit; Implications of 74th Constitution Amendment Act.

Design in Human Habitation

Social / cultural / ecological / energy determinants of design; Imageability of the city; Structure of urban spaces – location criteria of activities and urban uses; Urban Regeneration, renewal, rehabilitation, revitalization, reconstruction and redevelopment - concepts, interventions, processes, approaches and methods, tools.

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670203- URBAN DEVELOPMENT FINANCE & PROJECT PLANNING

S.No	Subject Code	Subject Name	Maximum Marks Allotted					Teaching Hours per Week			Total credits	
			Theory			Practical		Lectures (L)	Tutorials (T)	Practical/ Studios (P/S)		
			End Sem	Mid Sem Test	Assignment / Quiz	End Sem	Studio Work/ Sessional					
1.	670203	URBAN DEVELOPMENT FINANCE & PROJECT PLANNING	70	20	10	-	-	3	1	-	4	100

Legislations pertaining to Urban Governance

Social and economic context; State in India – political culture of the Indian State – Centre – State – Local political economy, Institutional frame and mechanism for urban governance as envisaged in the 73rd and 74th Constitution Amendment Acts.

City and the State

State as a manager of resources – property rights, norms and standards – Government market and market by Government – Regulatory State, Reforming State, and Rent Seeking State – their spatial implications; Development planning and the Indian state – Centralization, powerlessness and decentralization; spatial politics and competition; Politics of the State and bureaucracy; New State spaces, invited and contested spaces – changing role of the state

Municipal Finance

Urban reform incentive fund, Sources of revenues; Equities; Loans; Debt financing; City challenge fund, Pooled finance development fund, National urban infrastructure fund, Municipal Bonds, Miscellaneous sources; Structure of finances, fiscal problems and issues of financial management, implications of 74th Constitution Amendment Act for municipal finance, expenditure pattern, Bilateral and multi-lateral lending intuitions mobilizing resources for a project - financial resources, land resources, project resources, and other resources.

Investment Planning and Financing Mechanism

Link with spatial plans, process, components, investment needs, budgeting, financial investments in infrastructure and services. Financing of urban development, infrastructure and services – mechanisms and instruments, subsidy reduction, cost recovery, public private partnerships; Financial appraisal, investment appraisal; Financial Risk – Sources, Measures and perspectives on risk, Sensitivity analysis.

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Project Formulation and Appraisal

Introduction to Projects; Nature of planning projects; Project Life Cycle; Identification of projects
Relationship between projects and planning issues including sectoral policy at: Local, State and National levels Project appraisal: Market analysis – Macro environment survey, survey methods, market characterization, demand forecasting; Technical Analysis – Magnitude, processes, materials, equipment, factors of production availability, implementation schedule; suitability of the plans, layout and design, location of the project; location analysis; supporting infrastructure requirements- Capital Budgeting – Estimation of costing of components; developing over project cost; Social cost benefit.

Project Management and Implementation, and Project Evaluation and Monitoring

Project characteristics - pitfalls in management of a project; Techniques of management; Planning milestones - responsibility charts and principle responsibility, principles of activity planning; Project Implementation – methods, hurdles, facilitative factors; Project culture: line management, steering committee, role of project manager; Project Control: cost and time, quality - ISI standards and its application to Indian context; Introduction to Project Management Software (MS Projects) and its usage. Types of evaluation - concurrent, ex-ante and ex-post. Methods of evaluation, techniques of evaluation, end results, Presentation of evaluation findings, Techniques of Monitoring of Development Works.

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670204- LEGAL ISSUES & PROFESSIONAL PRACTICE

S.No	Subject Code	Subject Name	Maximum Marks Allotted					Teaching Hours per Week			Total credits	
			Theory			Practical		Lectures (L)	Tutorials (T)	Practical/ Studios (P/S)		
			End Sem	Mid Sem Test	Assignment / Quiz	End Sem	Studio Work/ Sessional					
1.	670204	LEGAL ISSUES & PROFESSIONAL	70	20	10	-	-	3	1	-	4	100

Need of Urban Policy, its nature and process of making urban policy

Recent trends in urban policy planning, growth control and decline of management. Nature of urban problems, need of urban policies and its analysis.

Theoretical frameworks, the role of institutions in the policy process, and the motivation of urban policy actors. Steps in Policy Analysis: How are policies made, who influences the policy agenda and what issues affect policy's 'success' and 'failure'? what can we learn from how different nations approach similar policy problems? Case studies in policy process analysis, policy integration: possible areas of integration.

Concept of law, Indian Constitution and planning

Sources of law: custom, legislation and precedent; Meaning and terms of law: legislation, ordinance, bill, act, regulation, and bye-laws; Significance of law and its relationship to urban and regional planning. Statutory powers and responsibilities of the Central Government with respect to Urban Development and the role of implementing agencies. Critical appraisal of the 73rd and 74th Constitutional amendments, their effect on urban governance and local bodies. Legislative competence of Local, State and Central government to deal with various matters concerning Town and Country Planning.

Evolution of planning legislation & concepts

Planning in India – Overview, an over view of legal tools connected with urban and regional planning and development. Town and Country Planning Act, Improvement Trust Act, Development Authorities Act: objectives, content, procedures for provision an implementation of regional plans, master plans and land pooling schemes. Concept of Arbitration, betterment levy development charges and public participation in statutory planning process, concept of structure plan, local plan and action plan under the Law.

Amulya *Vivek* *J* *for* *ES* *for*

Syllabus approved on 05/10/2018

Policies and acts

National Environmental Policy Act; Environmental Protection Act; Land Acquisition Act: Concepts, procedure for compulsory acquisition of property and determination of compensation. Regulatory Frameworks Governing Projects. National Rehabilitation and Resettlement Policy (2007) - Social Impact mitigation; National Environmental Policy (2006) – Environmental Impact Assessment (EIA) and Environmental Management Plan (EMP)
Various Acts related to urban governance, planning and development organizations, land resources, environment protection, and public participation in statutory planning process; Approaches of formulation of policies, appraisal of policies.

Professional Practice

Aims and objectives of professional Institutes, sister bodies, professional role and responsibility of planning consultants, professional ethics, code of conduct and scale of professional charges; Formulation of project proposal and outlines, consultancy agreements and contracts, managerial aspects; Role in inter disciplinary groups: Appreciation of the decision-making processes and the process in relation to varied consultancy assignments of planning.

Shreeta *Vedha* *J* *R.A.S.* *im*

670205- RESEARCH METHODOLOGY

S.No	Subject Code	Subject Name	Maximum Marks Allotted					Teaching Hours per Week			Total credits	
			Theory			Practical		Lectures (L)	Tutorials (T)	Practical/ Studios (P/S)		
			End Sem	Mid Sem Test	Assignment / Quiz	End Sem	Studio Work/ Sessional					
1.	670205	RESEARCH METHODOLOGY	70	20	10	-	-	3	1	-	4	100

To introduce the students to basic principles & methods of Research, specifically in Design at Urban scale, and towards helping them conducting their own authentic & independent research. Research basics, defining research problem, Research Design, Developing a Research Plan, Plagiarism, IPR and other techno-legal aspects. Measurement and Scaling Techniques, Methods of Data Collection, Guidelines for Constructing Schedule. Sampling Fundamentals, Analysis of variance and co-variance, testing of hypothesis, Multivariate analysis technique and importance in research.

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670206- STUDIO- I

S.No	Subject Code	Subject Name	Maximum Marks Allotted					Teaching Hours per Week			Total credits	
			Theory			Practical		Lectures (L)	Tutorials (T)	Practical/ Studios (P/S)		
			End Sem	Mid Sem Test	Assignment / Quiz	End Sem	Studio Work/ Sessional					
1.	670206	STUDIO-I	-	-	-	90	60	-	-	6	6	150

City Development Plan (Group assignment)

A City is a multi-dimensional, dynamic and a futuristic space. Understanding city involves appreciating this multi direction and include them in the city making process. A job of physical planner does not merely understand the current conflict in development but to emerge out of this and to come out with a vision for the city. To arrive at this vision, a planner needs to understand the dynamics of various components of the city and how and what level interventions can be made to achieve that vision. A group of students are expected to study a city in terms its present problems and issues and project a futuristic vision in terms of scenario building.

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Master of URBAN PLANNING – III SEMESTER**670301 ELECTIVE I –**

S.No	Subject Code	Subject Name	Maximum Marks Allotted					Teaching Hours per Week			Total credits	
			Theory			Practical		Lectures (L)	Tutorials (T)	Practical/ Studios (P/S)		
			End Sem	Mid Sem Test	Assignment / Quiz	End Sem	Studio Work/ Sessional					
1.	670311/ 670312	<u>ELECTIVE – I</u>	70	20	10	-	-	3	1	-	4	100

I) 670311-INCLUSIVE URBAN PLANNING

Module 1- Understanding Inclusive Planning Definitions and components

Module 2- Stakeholders Profile and Needs, Access to Shelter, Services and Livelihoods Urban Poor, Informal Sector, Gender, Children, Elderly, Disabled, Displaced people, etc.; Slums - dimensions, causative factors, determinants, location characteristics of settlements; Informal sector - growth, characteristics, functions, economic contributions, linkages with formal sector, impact on Urban Development

Module 3- Participatory Planning Process and Policies, Programmes and Legislation Methods, role of stakeholders (including civil society organizations), etc.; Related Acts, Five-year plans, policies and programmes at various levels.

Module 4- Planning Interventions Inclusive zoning, development and building regulations, Slum Improvement.

Amrita

Vishu

J

Am

BJ

Am

II) 670311- PLANNING FOR TOURISM

Introduction-Introduction to Tourism Definitions, scope, nature, classification and dimension, tourism as an industry, tourism in developed and developing world.

Tourism Sector – impacts Relationship between Tourism and Urban Development, Tourism multiplier and forecasting methods: capacity building and carrying capacity planning for tourism projects, tourism and cultural and social change: Socio-cultural problems, environmental degradation.

Planning for Tourism Nature and scope of a tourism plan- key issues and stages, data requirements, surveys, role of key players / stake holders in tourism policy and planning, sustainable tourism development planning; community planning and tourism; implementation and management, role of travel and tourism promoting agencies, monitoring the tourism development; Tourism marketing - concept, techniques and strategies.

Policies and Programmes - Tourism policies at various levels.

670302 ELECTIVE II-

S.No	Subject Code	Subject Name	Maximum Marks Allotted					Teaching Hours per Week			Total credits	
			Theory			Practical		Lectures (L)	Tutorials (T)	Practical/ Studios (P/S)		
			End Sem	Mid Sem Test	Assignment / Quiz	End Sem	Studio Work/ Sessional					
1.	670313/ 670314	ELECTIVE –II	70	20	10	-	-	3	1	-	4	100

Alvanti *Vinod* *J* *Am* *ES* *ES* *ES*

I) -670313 ENVIRONMENT, DEVELOPMENT AND DISASTER MANAGEMENT

Environment, Development and Disaster Management – Interface Resource use, exploitation and conservation; Impact of human activities on environment; Environment and economy interaction, introduction to environmental accounting.

Environmental Assessment & Management- Environmental Impact Assessment, thresholds, indicators, audits, environmental certification, lifecycle analysis, environment and poverty links, environmental policy, Acts and regulations; Environmental education, participatory approaches, emerging concepts. Disaster classification, concepts, hazards, vulnerability, risks, human response to disaster, impacts

Disaster Mitigation and Management- Relevance of disaster management in development and environment, disaster preparedness, prevention, displacement and development, Role and responsibilities of government and non- government organizations, Disaster Education – awareness of individuals, communities and participation at various levels; Integrating disaster mitigation in the spatial planning process, provision of infrastructure for disaster mitigation.

Policies and Legislation- Environment and Disaster Management Policies and Legislation at various levels.

II) 670314 - ENERGY, CLIMATE CHANGE AND URBAN DEVELOPMENT

Introduction- Energy, Climate change and Urban Development Interface.

Energy Generation and Consumption- Energy Supply and Demand, Energy Consumption in cities, determinants of energy demand, phenomenon of climate change, factors influencing climate change, impacts of climate change

Energy Planning and Management, and Mitigation and Adaptation to Climate Change- Energy efficient development, Compact city form, Transit oriented development. Mechanisms and measures for mitigating and adapting to climate change at various levels

Plans, Policies and Strategies. Policies Related to energy planning, conservation, climate change mitigation and adaptation.

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670303 – SEMINAR

S.No	Subject Code	Subject Name	Maximum Marks Allotted					Teaching Hours per Week			Total credits	
			Theory			Practical		Lectures (L)	Tutorials (T)	Practical/ Studios (P/S)		
			End Sem	Mid Sem Test	Assignment / Quiz	End Sem	Studio Work/ Sessional					
1.	670303	SEMINAR	-	-	-	-	100	-	-	6	6	100

The students are required to present a seminar ensuring the following criterion.

- Identification of topic of interest having relevance to planning profession.
- Book reviews and journal article reviews to establish the body of work existing in the selected area of work.
- Exposure to multiple view points and colloquial arguments by the stakeholders, decision makers, urban managers, advocates, technocrats, user groups, etc. on the same topic.
- Identification of key issues related to the area of work.

Amresh

Vishal

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670304 – PRE - DISSERTATION

S.No	Subject Code	Subject Name	Maximum Marks Allotted					Teaching Hours per Week			Total credits	
			Theory			Practical		Lectures (L)	Tutorials (T)	Practical/ Studios (P/S)		
			End Sem	Mid Sem Test	Assignment / Quiz	End Sem	Studio Work/ Sessional					
1.	670304	PRE-DISSERTATION	-	-	-	120	80	-	-	6	6	200

To undertake work on topics of relevance to the planning profession. Students would be encouraged to select topics of relevance in contemporary context and undertake research on past initiatives and future possibilities in the area. The work would include literature review of previous initiatives in the area of research, tools and techniques developed, survey of stake holders' and expert opinions and reporting of findings in a technical report format. The student will be required to make two seminar presentations and submit a report at the end of the semester which will qualify as the literature review and research methodology component of his/her thesis in the forthcoming semester.

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Master of URBAN PLANNING – IV SEMESTER

670401 – DISSERTATION

S.No	Subject Code	Subject Name	Maximum Marks Allotted					Teaching Hours per Week			Total credits	
			Theory			Practical		Lectures (L)	Tutorials (T)	Practical/ Studios (P/S)		
			End Sem	Mid Sem Test	Assignment / Quiz	End Sem	Studio Work/ Sessional					
1.	670401	DISSERTATION	-	-	-	200	300	-	-	20	20	500

The students are required to carry out independent research and prepare a thesis on a topic on urban planning selected by them and approved the faculty under the supervision of a research guide allocated by the department. Final internal presentation of each student before a committee constituted jointly by the HOD and guide is mandatory before submission. MUP dissertation can be submitted only after at least one paper is presented in international conference or published in journal. The students are required to proceed in the following manner: -

- Identification of topic of interest having relevance to planning profession, integration and application of the learnt research processes to the pre-thesis work. Book reviews and journal article compilation to establish the body of work existing in the selected area of work
- Collection of data and opinions by the stakeholders, decision makers, urban managers, advocates, technocrats, user groups, etc. on the topic selected.
- Based on the literature review and inputs from the colloquial arguments, the topics shall be finalized for thesis in the subsequent semester.
- Selection of study area, identification of extent and spread of intervention; collection of data for preparation of base map.
- Development of research thrust and work methodology.
- Identification of data sources.
- Data collection and analysis: sample determination, data tabulation (coding, de-coding, etc.), quantitative and qualitative data analysis. Appropriate and relevant data analysis 32 methods would need to be studied by individual students based on thesis topic and research area.
- Finalization of topic; formulation of problem statement, literature review, working hypothesis, research brief, research methodology, sample determination, data collection and analysis, report structuring.

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