

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

**BOARD OF STUDIES MEETING**  
**APRIL 2018**

**DEPARTMENT OF ARCHITECTURE**

### Contents

<b>Minutes</b>	<b>1</b>
<b>Agenda</b>	<b>-</b>
<b>Annexure</b>	<b>3</b>

**Table 1 : Courses where revision was carried out**

<b>Total No. of Courses offered during July December 2015 Session</b>	<b>Revision of Syllabus Carried out (No. of Courses &amp; Course Details)</b>	<b>% of Courses where syllabus revision was done</b>	<b>% change in syllabus from existing</b>	<b>Item/Agenda No.</b>	<b>Fig. No.</b>
45	Total = 0 Architectural Design - III (210301)	<b>Change in Credits</b>	<b>50%</b>	-	78
	Building Construction II (210302)	<b>Change in Credits</b>	<b>50%</b>	-	78
	Graphics II (210303)	<b>Subject Introduced</b>	<b>100%</b>	-	78
	Surveying & Levelling (210304)	<b>Change in Credits</b>	<b>20%</b>	-	78
	History of Architecture - III (210305)	-	<b>20%</b>	-	78
	Structure - III (210306)	-	<b>70%</b>	-	78
	Building Science (Climatology) (AR303)	<b>Subject Dissolved</b>	-	-	78
	Art Major Idea Generation (AR307)	<b>Subject Dissolved</b>	-	-	78

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**Table 2 : New courses added**

Total No. of Courses offered during July-December 2018 Session	Total No. of New courses added	Name of New courses added	Agenda/ Item No.	Pg. No.
45	1	Elective 1 (SWAYAM)	-	10

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

Total No. of Courses offered during July-December 2018 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.
	22	English Language (Architectural Appreciation;	-	7
		Workshop - I	-	7
		Graphic Design	-	9
		SIP - I	-	9
		Elective-II (Graphic Design )	-	58
		Elective-II (Animation )	-	58
		Elective-II (Design Thinking )	-	58
		Project Management & Building Economics	-	58
		Training	-	60
		Planning History & Theories	-	76
		Socio-Economic Basis for Planning	-	76
		Planning techniques	-	75
		Infrastructure & Transportation Planning	-	75

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		Housing & Environmental Planning	-	75
		Studio Course-I	-	75
		Studio Course-II	-	75
		Inclusive Urban Planning (Elective -I)	-	76
		Planning for Tourism (Elective -I)	-	76
		Environment, Development and Disaster Management (Elective - II)	-	76
		Energy, Climate change and Urban Development (Elective - II)	-	76
		Seminar	-	76
		Dissertation	-	76

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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 20<sup>th</sup> April 2018 at 1.30 PM in the office of Head, Department of Architecture.

The following members were present:

1. Dr. Alok Sharma, Professor & Head, Department of Architecture MITS, Gwalior
2. Prof. L. K. Jain, Professor, Department of Architecture MITS, Gwalior
3. Dr. S. S. Jadon, Professor, Department of Architecture MITS, Gwalior
4. Dr. A. S. Patil, Asst. Professor, Department of Architecture MITS, Gwalior
5. Director Representative.

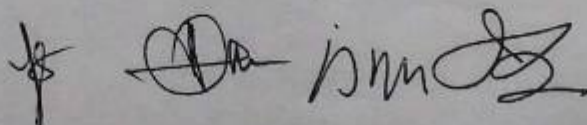
Leave of absence was granted to Dr. S.M.Akhtar, Prof. Sanjeev Singh, Dr. Sandeep Sankat, Ar. Pushpak Pandit and Ar. P. Mishara the member who could not attend the meeting.

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

1. The proposed B. Architecture scheme (New grading scheme) will be of 5 academic years (10 Semester) inclusive of Six month / one semester practical training. This scheme shall be applicable to the students admitted in July 2018 batch, from I semester.
2. Six Month / One Semester Practical training has been proposed during 9<sup>th</sup> semester as per Council of Architecture- minimum Standards of Architecture education Regulations, 2017.
3. This scheme will also be adopted for students batch admitted in July, 2017.(From III Semester onwards)
4. The I and II Semester scheme for Batch July 2017 is as per existing scheme (BOS, 2017)
5. As per Council of Architecture guidelines, the scheme has been proposed with following Structure:

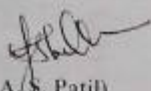
Code	Category	Weightage in terms of credits as per CoA norms (2017 regulations)	No of courses	Total credits	Weightage in terms of credits achieved
DC	Departmental(Professional ) Core Courses	45%	19	126	48.5%
BSAE	Building Science & Applied Engineering	20%	14	57	22%
DE	Departmental(Professional) Elective	10%	7	21	8%
OC	Open Category	5%	3	9	3.5%
PAEC	Professional ability enhancement course	15%	7	31	12%
SEC	Skill Enhancement Course	5%	11	16	6%
MC	Mandatory Course	Audit Course	2	-	-

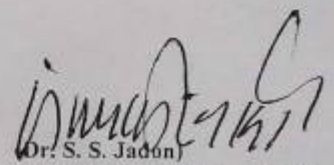
6. The Detailed syllabus of first year & Second Year for the students admitted in July 2018 is prepared.

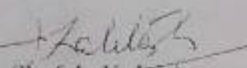


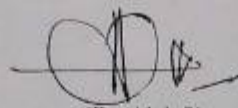
M. Pandit  
(Dr. M. Pandit)  
Dean Academics

7. The detailed syllabus of each subject is divided in five Units..
8. Tour / Seminar / workshop/ training of short term professional courses are proposed at the end of every semester, the study tour will be taken to the places concerning to the Design project of next Semester.
9. Technical reports & presentation of the tour / Seminar/ workshop/ Training of Short term professional courses same will be evaluated in next semester.
10. As per the recommendations of Council of Architecture 30 contact hours per week are considered and minimum 260 Credit are considered for passing the B. Architecture course of Five Years. The student has to achieve 24 additional credits for Honors.
11. Scheme & Syllabus of VII semester to X Semester Grading System (for Students admitted in 2015-16 under CBCS scheme) is prepared.
12. No change in the scheme and syllabus is proposed in the Master of Urban Planning.

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

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

  
(Prof. L. K. Jain)  
Professor, Department of Architecture  
MITS, Gwalior

  
(Dr. Alok Sharma)  
Professor & Head,  
Department of Architecture MITS, Gwalior

(Dr. R.K.Pandit)  
Director  
MITS, 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
OC	Open Category
PAEC	Professional Ability Enhancement Course
SEC	Skill Enhancement Course
MC	Mandatory Course



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## 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

## Range of Credits:

As per the recommendation and Council of Architecture (CoA), Provision of 30 contact hours per week and 260 credits have been made to pass the B. Architecture course of five Years. More over to earn B. Arch. degree with Honours or Minor Specialization, it is required to compute 24 additional credits.

**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. Additionally, to give the students more flexibility to orient themselves as per their interest while retaining the discipline specific knowledge and capabilities, provision for Open Category (OC) Courses have been made.

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**MADHAV INSTITUTE OF TECHNOLOGY & SCIENCE, GWALIOR**  
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**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	126	48.5%
BSAE	Building Science & Applied Engineering	20%	14	57	22%
DE	Departmental(Professional) Elective	10%	7	21	8.00%
OC	Open Category	5%	3	9	3.5%
PAEC	Professional Ability Enhancement Course	15%	7	31	12%
SEC	Skill Enhancement Course	5%	11	16	6%
MC	Mandatory Course	Audit Courses	2	-	-
	<b>TOTAL</b>	100%	61	260	100

**List of Open Category Courses**

- OC1 ✓ Graphic Design ————— Fourth yr VII Sem ————  
 OC2 .. Culturally Responsive Built Environments → Fourth yr. VIII Sem  
 OC3 Product Design —————  
 OC4 Holistic Development Planning —————  
 OC5 Sustainable Development —————

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## Additional Courses

### GROUP -A (I - IV Sem.)

- i. Foreign Language
- ii. Software Training Course
- iii. Mathematical Modeling
- iv. Graphic Design

### GROUP -B (V - VIII Sem.)

- i. Architectural Journalism
- ii. Building Performance & Compliance
- iii. Building system Integration & Management
- iv. Green Buildings & Rating System

### GROUP -C (IX - X Sem.)

- i. Research Methodology
- ii. Sustainable Cities & Communities
- iii. Open category course\*
- iv. SWAYAM/ NPTEL/ MOOC/ Edx Courses

*\*It should be new not opted earlier*

- Additional courses may vary every year as per availability of course experts.
- Student may opt for maximum two additional courses per semester.
- Each additional course will have 3 credits and the student has to achieve 24 additional credits for Honors.





**MADHAV INSTITUTE OF TECHNOLOGY & SCIENCE, GWALIOR**  
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**Scheme of Examination**

**W.E.F. JULY 2018 Batch**

**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 - I	DC-1	100	30	20	50	250	7	2	3	2(1.5)	8
2.	210102	Building Materials	BSAE-1	50	30	20	-	100	3	2	1	-	3
3.	210103	Graphics - I	DC-2	50	30	20	50	200	7	2	3	2	6
4.	210104	Workshop - I	SEC -1	-	-	-	20	50	4	-	-	4	2
5.	210105	History of Architecture- I	DC-3	50	30	20	-	100	3	2	1	-	3
6.	210106	Structure - I	BSAE-2	50	30	20	-	100	3	2	1	-	3
7.	210107	Technical English	SEC -2	50	30	20	-	100	2	1	1	-	2
		<b>Total</b>		<b>350</b>	<b>180</b>	<b>120</b>	<b>120</b>	<b>900</b>	<b>29</b>	<b>11</b>	<b>10</b>	<b>8</b>	<b>27</b>

**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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## Scheme of Examination

**W.E.F. JULY 2018**

### 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 Credits
				Theory Slot		Practical Slot					L	T	P	
				End Sem.	Mid Sem Exam.	Quiz/ Assignment/ Sessional	End Sem.	Lab work & Sessional						
1.	210201	Architectural Design - II	DC-4	100	30	20	50	50	7	2	3	2(1.5)	8	
2.	210202	Building Construction - I	BSAE-3	50	30	20	20	30	5	2	1	2(1.5)	6	
3.	210203	Graphics - II	DC-5	50	30	20	20	30	4	1	1	2	3	
4.	210204	Workshop - II	SEC-3	-	-	-	20	30	4	-	-	4	2	
5.	210205	History of Architecture- II	DC-6	50	30	20	-	-	3	2	1	-	3	
6.	210206	Structure - II	BSAE-4	50	30	20	-	-	3	2	1	-	3	
7.	210207	Theory of Design	DC-7	50	30	20	-	-	2	2	-	-	2	
		<b>Total</b>		<b>350</b>	<b>180</b>	<b>120</b>	<b>110</b>	<b>140</b>	<b>28</b>	<b>11</b>	<b>7</b>	<b>10</b>	<b>27</b>	
<b>Summer Internship Project- I (Institute level) (Qualifier) : Minimum two weeks duration</b>														

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

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**Scheme of Examination**

**For batches admitted in July, 17 & July, 18 (w.e.f. July, 2018)**

**Bachelor of Architecture, Second Year, III Semester**

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. Exam.	Quiz/ Assignment / Sessional	End Sem.	Term work							
								Lab Work & Sessional							
1.	210301	Architectural Design - III	DC-8	100	30	20	50	50	50	7	2	3	2(1.5)	8	
2.	210302	Building Construction - II	BSAE-5	50	30	20	50	50	50	5	2	1	2(1.5)	6	
3.	210303	Graphics - III	PAEC-1	-	-	-	50	50	50	6	-	-	6	3	
4.	210304	Surveying & Levelling	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	2	-	-	2	1	
<b>Total</b>				<b>300</b>	<b>150</b>	<b>100</b>	<b>150</b>	<b>200</b>	<b>900</b>	<b>29</b>	<b>9</b>	<b>8</b>	<b>12</b>	<b>27</b>	
8.	100002	Biology for Engineers/ Architects (Audit Course)	MC-1	50	30	20	-	-	100	3	3	-	-	3	
<b>NSS/NCC</b>															
<b>Qualifier</b>															

\* Compulsory registration for one online course using SWAYAM/NPTEL/MOOC, evaluation through attendance, assignments and presentation.  
Tour/ seminar/ Workshop/ Training during winter break

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

\*100002 will not be included in the aggregate, but it is compulsory to obtain pass marks in this course

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**Scheme of Examination**

**For batches admitted in July, 17 & July, 18 (w.e.f. July, 2018)**

**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				L	T	P	
				End Sem.	Mid Sem. Exam.	Quiz/Assignment / Sessional	End Sem.						
1.	210401	Architectural Design -IV	DC-10	100	30	20	50	250	7	2	3	2(1.5)	8
2.	210402	Building Construction -III	BSAE-8	50	30	20	20	150	5	2	1	2(1.5)	6
3.	210403	Building Services -I	BSAE-9	50	30	20	-	100	3	2	1	-	3
4.	210404	History of Architecture-IV	DC-11	50	30	20	-	100	3	2	1	-	3
5.	210405	Structure -IV	BSAE-10	50	30	20	-	100	3	2	1	-	3
6.	210406	Elective -I (SWAYAM)	DE-1	50	30	20	-	150	4	2	-	2	3
7.	210407	Tour/ Seminar / Workshop/ NAS Training during winter break	SEC-5	-	-	-	-	50	2	-	-	2	1
<b>Total</b>				<b>350</b>	<b>180</b>	<b>120</b>	<b>70</b>	<b>900</b>	<b>27</b>	<b>12</b>	<b>7</b>	<b>8</b>	<b>27</b>
NSS/NCC													
<b>Summer Internship Project- II (Software based): Minimum two weeks duration; Evaluation in V semester</b>													

\* Compulsory registration for one online course using SWAYAM/NPTEL/ MOOC

Seminar / Workshop/ Training during summer break

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






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## Scheme of Examination

**For batches admitted in July, 17 & July, 18**

### 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. Exam	Mid Sem. Exam	Quiz/Assignment/Sessional	End Sem.						
1.	210501	Architectural Design - V	DC-12	100	30	20	50	250	7	2	3	2(1.5)	8
2.	210502	Building Construction -IV	BSAE-11	50	30	20	30	150	5	2	1	2(1.5)	6
3.	210503	Building Services-II (Elev & Plan)	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.	210505	Site Planning And Landscaping	DC-13	50	30	20	30	150	4	1	1	2	3
6.	210506	Elective -II (SWAYAM)	DE-2	50	30	20	-	100	3	2	1	-	3
7.	210507	Summer Internship Project- II	SEC-6	-	-	-	50	50	2	-	-	2	1
		<b>Total</b>		<b>350</b>	<b>180</b>	<b>120</b>	<b>90</b>	<b>900</b>	<b>27</b>	<b>11</b>	<b>8</b>	<b>8</b>	<b>27</b>
8.	100006	Constitution of India/ Essence of Indian Traditional knowledge (Audit course)	MC-3	50	30	20	-	100	3	-	-	-	3
Additional Course for Honors of Minor Specialization				Department level activity/ workshop/ awareness programme to be conducted, certificate of compliance to be submitted by HoD to the Exam Controller through Dean Academics				Permitted to opt for maximum two additional courses for the award of Honors or Minor specialization					

\* Compulsory registration for one online course using SWAYAM/NPTEL/MOOC

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

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

\*100006 will not be included in the aggregate, but it is compulsory to obtain pass marks in this course

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# MADHAV INSTITUTE OF TECHNOLOGY & SCIENCE, GWALIOR

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## Scheme of Examination

**For batches admitted in July, 17 & July, 18**

### Bachelor of Architecture, Third Year, VI Semester

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 Exam.	Quiz/ Assignment / Sessional	End Sem.						
1.	210601	Architectural Design - VI	DC-14	100	30	20	50	100	7	2	3	2(1.5)	8
2.	210602	Building Construction - V	BSAE-14	50	30	20	20	30	5	2	1	2(1.5)	6
3.	210603	DE-3 <i>Building Services</i>	DE-3	50	30	20	-	-	3	2	1	-	3
4.	210604	Working Drawing	PAEC-2	-	-	-	50	50	4	-	-	4	2
5.	210605	Elective III (SWAYAM)	DE-4	50	30	20	-	-	3	1	2	-	3
6.	210606	DE-5 <i>Elective</i>	DE-5	50	30	20	-	-	3	2	1	-	3
7.	210607	Tour/ seminar / Workshop Training during winter break	SEC-7	-	-	-	-	50	2	-	-	2	1
		<b>Total</b>		<b>300</b>	<b>150</b>	<b>100</b>	<b>120</b>	<b>230</b>	<b>27</b>	<b>9</b>	<b>8</b>	<b>10</b>	<b>26</b>
Additional Course for Honors of Minor Specialization													Permitted to opt for maximum two additional courses for the award of Honors or Minor specialization

**Compulsory registration for one online course using SWAYAM/NPTEL/MOOC**

Seminar / Workshop/ Training during summer break will be evaluated in next semester

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

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## Scheme of Examination

**For batches admitted in July, 17 & July, 18**

### 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			L	T	P		
				End Sem.	Mid Sem. Exam	Quiz/ Assignment/ Sessional	End Sem.						Term Work Lab Work & Sessional
1	210701	Architectural Design - VII	DC-15	-	50	50	50	150	7	2	3	2(1.5)	8
2	210702	Building Construction - VII	DC-16	50	30	20	20	30	5	2	1	2(1.5)	6
3	210703	DE-7 <i>Town Planning</i>	DE-6	50	30	20	-	-	3	2	1	-	3
4	210704	Estimating and Costing & Specifications & <del>Buildings</del> <del>Economics</del>	PAEC-3	50	30	20	-	-	3	2	1	-	3
5	210705	Elective IV (SWAYAM)	DE-7	50	30	20	-	-	3	2	1	-	3
6	210706	OC-1	OC-1	70	20	10	-	-	3	2	1	-	3
7.	210707	Summer Internship project-III (04 weeks- Evaluation)	SEC-8	-	-	-	-	50	2	-	-	2	1
<b>Total</b>				<b>270</b>	<b>190</b>	<b>140</b>	<b>70</b>	<b>230</b>	<b>26</b>	<b>12</b>	<b>8</b>	<b>6</b>	<b>27</b>

Permitted to opt for maximum two additional courses for the award of Honors or Minor specialization

\*Compulsory registration for one online course using SWAYAM/NPTEL/ MOOC

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

\*One 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)

**Scheme of Examination**

**For batches admitted in July, 17 & July, 18**

**Bachelor of Architecture, Fourth Year, VIII 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		End Sem.	Practical Slot			L	T	P	
				End Sem.	Mid Sem. Exam								
1.	210801	Architectural Design - VIII	DC-17	-	50	50	100	8	2	2	4(1.5)	10	
2.	210802	Urban Design	DC-18	50	30	20	50	5	2	1	2	4	
3.	210803	Project Management <i>Project Management &amp; Building Economics</i>	PAEC-4	50	30	20	-	3	2	1	-	3	
4.	210804	Dissertation	PAEC-5	-	-	-	50	4	-	-	4	2	
5.	210805	OC-2	OC-2	70	20	10	-	3	2	1	-	3	
6.	210806	OC-3	OC-3	70	20	10	-	3	2	1	-	3	
7.	210807	Tour/ seminar / NASA/Workshop/Training during winter break	SEC-9	-	-	-	50	2	-	-	2	1	
<b>Total</b>				<b>240</b>	<b>150</b>	<b>110</b>	<b>250</b>	<b>28</b>	<b>10</b>	<b>6</b>	<b>12</b>	<b>26</b>	
Additional Course for Honors of Minor Specialization				Permitted to opt for maximum two additional courses for the award of Honors or Minor specialization.									

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





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

**Scheme of Examination**

**For batches admitted in July, 17 & July, 18**

**Bachelor of Architecture, Fifth Year, IX Semester**

S.N o.	Subject Code	Subject Name & Title	Category	Maximum Marks Allotted				Total Marks	Min. Working Hours/Week	Contact Periods per week			Total Credits
				Theory Slot		Practical Slot				L	T	P	
				End Sem.	Mid Sem. Exam	Quiz/ Assignment	End Sem.						
1.	210901	Professional Training	PAEC-6	-	-	-	400	400	32	-	-	32	16
2.	210902	Critical Appraisal (Architectural Case Studies and Book Review)	SEC-10	-	-	-	50	50	4	-	-	4	2
		<b>Total</b>					<b>450</b>	<b>450</b>	<b>36</b>	<b>-</b>	<b>-</b>	<b>36</b>	<b>18</b>
Additional Course for Honors of Minor Specialization													
Permitted to opt for maximum two additional courses for the award of Honors or Minor specialization													


# MADHAV INSTITUTE OF TECHNOLOGY & SCIENCE, GWALIOR

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

## Scheme of Examination

**For batches admitted in July, 17 & July, 18**

### 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				L	T	P	
				End Sem.	Mid Sem. Exam	Quiz/ Assignment / Sessional	End Sem.						
1.	211001	Project	DC-19	-	-	200	400	150	20	-	12	8(1.5)	24
2.	211002	Professional Practice & Ethics (MC)	PAEC-7	50	30	20	-	-	3	2	1	-	3
3.	211003	Innovative Technical Contribution	SEC-11	-	-	-	50	-	2	-	-	2	1
		<b>Total</b>		<b>50</b>	<b>30</b>	<b>220</b>	<b>450</b>	<b>150</b>	<b>25</b>	<b>2</b>	<b>13</b>	<b>10</b>	<b>28</b>
Additional Course for Honors of Minor Specialization													Permitted to opt for maximum two additional courses for the award of Honors or Minor specialization

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

- Contribution in NASA work/ Architecture competition participations, etc will also be evaluated in Subject 211003 through five year work records and presentation.

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First Year First Semester

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	Architectural Design - I	DC -1	100	30	20	50	50	250	7	2	3	2	9 (1.5)

**COURSE OUTCOME:**

After completion of this course student will be able to-

1. Understand the fundamentals of design as a basic creative activity.
2. Understand the characteristics of various graphic elements, shape and form.
3. Learn the art of 2D & 3D compositions with the use of elements and applying principles of design- additive & subtractive forms
4. Learn the art of texture, color compositions applying color theory principles;
5. Learn the art of abstraction - 2D & 3D and form building - geometric & organic forms
6. Develop analytical thinking and move toward spatial analyses of visual culture.

**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 3D COMPOSITIONS / 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 )

Life scale models ( group )

**UNIT-5 PRODUCT DESIGN**

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

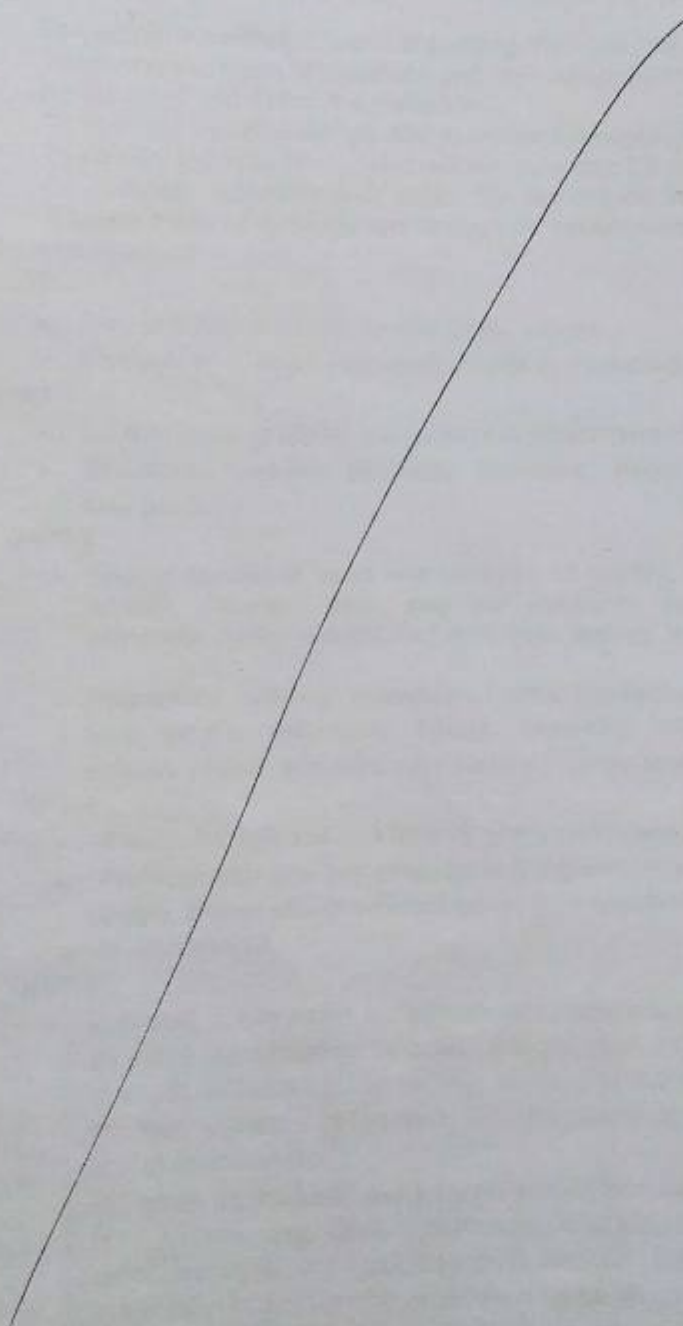
Exercises:

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

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**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. Eida Fezei, Henry Moore, Hamlyn, London, New York, Sydney, Toronto, 1972.
5. Exner, V, Pressel, D, Basics Spatial Design, Birkhanser, 2009.



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First Year First Semester

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	210102	Building Materials	BSAE	50	30	20	-	-	100	3	2	1	-	3

**COURSE OUTCOME:**

The basic idea of the subject is to make them aware of the primary building materials used in construction. Their properties, types and common usage. This will enable students to equip themselves with the knowledge of materials and their judicious usage.

1. To classify the different types of building materials used primarily in building construction work.
2. To identify the types of materials and their compositions.
3. To list, label and define the materials.
4. To illustrate use of materials and ascertain their application.
5. To identify the specific use and related technique for a required material.
6. To evaluate, compare and select the techniques for finalizing specific building materials for different types of buildings and analyze its influence on prevailing architectural styles.

**Course Content:**

**UNIT-1**

- Clay and clay products (bricks, tiles), stones.
- Cement, lime, sand, aggregate mortar and concrete blocks.

**UNIT-2**

- Timber types, qualities and defects in timber seasoning etc. complete.
- Processed materials- plywood, laminates, fiberboards, light weight boards, panels etc. & 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 etc.
- Proprietary building materials:- Paints, Varnishes, distempers wall paper, floor coverings, tiles, vinyl's, polyesters, fittings, furnishing materials for interiors & exteriors polymers, plastics resins and advanced surface finishes for interior and exterior etc.

**UNIT-4**

- Metals- ferrous and non ferrous, glass and its uses in building industries
- Prefabricated and pre-stressed building component: roof slabs, wall units, beams, columns, lintels, shelve etc. of different types, their specification & technique of construction and its use in architecture.

**UNIT-5**

- Low-cost construction techniques and materials, combinations in mud, terra - cotta, 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 etc. of special need.
- 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, saw dust, wooden chips, choir waste, wood wool, tailings etc. their application in components of different types of buildings.

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**SCHEME OF EXAMINATION - BACHELOR OF ARCHITECTURE WEF**


**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 and discussed.

**TEXT BOOKS:**

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

**REFERENCE BOOKS:**

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

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First Year First Semester

S - N o	Subject Code	Subject Name	C a t e g o r y	Maximum Marks Allotted					Total Mark s	CT HR S.	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						
3	210103	Graphics - I	DC -2	50	30	20	50	50	200	7	2	3	2	6

**COURSE OUTCOME:**

After completion of this course student will be able to-

1. Express the language of architecture & buildings as two dimensional and three dimensional representations.
2. To present the fundamental principles of architectural descriptive geometry and its application to architectural problems.
3. To cultivate student's skills of geometric drawing, develop their capability of ideation and modeling with instrumental sketching.
4. To enable the students to describe spatial relationship using sequential thinking.
5. To analyze and solve basic problems involving graphics and spatial manipulations for architectural applications to represent the future forms of her/his projects.
6. To use representation techniques and tools in the spatial concept.
7. To be able to express her/his ideas by drawing.

**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**

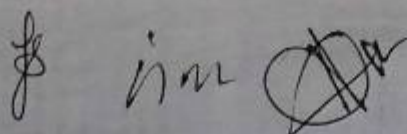
**Isometric view:** Exterior view of a simple residential building showing all building components.

**Axonometric view:** Axonometric view of a room interior showing all interior components.

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**REFERENCES:**

1. K. Venugopal 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.





**First Year First Semester**

S N o	Subject Code	Subject Name	Cate gory	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						
4	210104	Workshop - I	SEC-1	-	-	-	20	30	50	4	-	-	4	2

**COURSE OUTCOME:-**

After completion of this course student will be able to-

1. Review various tools and techniques and incorporate them in visual communication and model making.
2. Develop the ability to appreciate the three dimensional implications of design and techniques of model making.
3. Critique the property of different materials for various products for designing and model making.
4. Incorporate basics of rendering, presentation skills & model making with various materials
5. Produce art works from various materials and will be able to incorporate these materials in further studies

**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.

**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.Duttor Inc., New York, 1982.
4. Thames and Hudson Manual of Rendering with Pen and Ink-Robert W Gill.

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SCHEME OF EXAMINATION - BACHELOR OF ARCHITECTURE WEF

First Year First Semester

S N o	Subject Code	Subject Name	Categor y	Maximum Marks Allotted					Total Mark s	CT HRS	Contact Periods per week			Tot al Cre dits
				Theory Slot			Practical Slot				L	T	P	
				En d Se m.	Mid Se m.	Quiz/ Assignm ent	End Se m.	Lab work & Sessio nal						
5	210105	History of Architecture- I	DC-3	50	30	20	-	-	100	3	2	1	-	3

**COURSE OUTCOME:-**

After completion of this course student will be able to-

1. Acquire basic concepts regarding the historical and architectural development in ancient India and world as this is an integrated expression of art, culture, vernacular material and techniques of the place.
2. Understand the diverse artistic and architectural expressions with regard to the historical context in which they are developed.
3. Utilize visual and verbal vocabularies of Indian, Egyptian, west Asiatic and Eastern Architecture.
4. To gain information about 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, and origin or architecture in Indian context.
5. 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.

**UNIT-1 RIVER VALLEY CIVILIZATIONS OF INDIA**

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

**UNIT-2 BUDDHIST ARCHITECTURE**

Evolution of Ashoka's School of art and architecture - 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 architectural character of south Asian countries- Burma, Thailand, Cambodia etc. Study of relevant examples like Angkor wat Cambodia etc. Introduction to Chinese architecture and typical examples of Pagoda, Pylons, Great Wall of China, temples etc.

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SCHEME OF EXAMINATION - BACHELOR OF ARCHITECTURE WEF

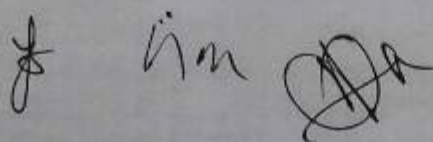
Introduction to Japanese architecture, its characteristic features and typical examples  
Pagoda, temples, monasteries, tea house etc.

TEXT BOOKS:

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

REFERENCE BOOKS:

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



First Year First Semester

S N o	Subject Code	Subject Name	Catego ry	Maximum Marks Allotted					Total Mark s	CT HRS	Contact Periods per week			Total Cred its
				Theory Slot			Practical Slot				L	T	P	
				End Se m.	Mid Se m.	Quiz/ Assignm ent	End Se m.	Lab work & Sessio nal						
6	210106	Structure -I	BSAE-2	50	30	20	-	-	100	3	2	1	-	3

**COURSE OUTCOME:-**

After completion of this course student will be able to-

1. Understand various principles of strength of materials and behavior of forces .
2. Define the pure bending and outline the relationship between the bending to the material property and geometry
3. Apply the pure bending and shear equation to compute the stresses at various level of beam
4. Analysis the stress and strain conditions due to bi-axial stress system
5. Compute the deflection in simply supported, cantilever and over-hang beams for a given set of loading

**Course Content:**

**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.

**TEXT BOOKS:**

1. S.B. JUNNARKAR, "Applied Mechanics"
2. RAMAMURTHAM, "Applied Mechanics"
3. S.B. JUNNARKAR/H.J. SHAH, "Mechanics of Structure Vol.1"
4. DR. B.C. PUNAMIA, "Strength of Materials"

**REFERENCE BOOKS:**

IS Codes

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

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**First Year First Semester**

S N o	Subject Code	Subject Name	Cate gory	Maximum Marks Allotted					Total Mark s	CT HRS	Contact Periods per week			Total Cred its
				Theory Slot			Practical Slot				L	T	P	
				En d Se m.	Mi d Se m.	Quiz/ Assignm ent	End Se m.	Lab work & Sessio nal						
7	210107	Technical English	SEC-2	50	30	20	-	-	100	2	1	1	-	2

**COURSE OUTCOME:-**

After completion of this course student will be able to-

1. Speak convincingly, express their opinions clearly, initiate a discussion, negotiate, and argue using appropriate communicative strategies
2. Develop communication skills in English by through listening, speaking, reading and writing.
3. Develop speaking skills with specific reference to prospective/actual clients, suppliers, business partners and colleagues.
4. Enhance their reading ability of journals, research articles etc& develop their writing skills especially writing project proposals and reports.

**UNIT-1 VOCABULARY & GRAMMAR**

Listening- short talks, interviews and discussions from various media Speaking-negotiating meaning, convincing people- describing places- Reading- texts on architecture-Writing-process descriptions - Vocabulary Development-Abbreviations and Acronyms. Grammar- Suitable tenses to write descriptions and describe.

**UNIT-2 LISTENING & WRITING**

Listening -listen to talks for specific information- Speaking- Speaking- preparing a presentation using the computer, participating in small group discussion- Reading- lengthy articles related to architecture and construction, Writing- writing formal emails , vocabulary- appropriate words to describe topics in architecture, Grammar- suitable grammar for writing a report.

**UNIT-3 SPEAKING & PRESENTATION**

Listening- Descriptions of place, conversations and answering questions, Speaking- making a power point presentation on a given topic, Reading- architecture manuals, Writing- writing a report, writing essays-descriptive essays, Vocabulary- adjectives of comparison, Grammar collocations.

**UNIT-4 REASONING & INTERPRETATION**

Listening- TED talks, Speaking- participating in group discussions, Reading- reading and interpreting visual information, Writing- writing analytical essays and argumentative, Vocabulary suitable words to be used in analytical and argumentative essays, Grammar- subject-verb agreement.

**UNIT-5 CRITICISM & ENQUIRY**

Review Listening- ink talks and longer talks, Speaking- talking about one's project proposal, Reading-reading essays on construction, buildings, different schools of architecture, Writing- writing proposals, Vocabulary- related vocabulary, Grammar- Cohesive devices.

**REFERENCES:**

1. English for Architects and civil Engineers- Sharon Hendenreich Springer, 2014 ISBN 978-3-658-030-63- (e-book)
2. www.cambridgescholars.com
3. www.robertdwatkins.com/Englishworkbook.pdf
4. Chris Mounsey: Essays and Dissertation (Oxford University Press) February 2005.
5. Sidney Greenbaum: The Oxford English Grammar (Oxford University Press) March 2005
6. Krishna Mohan and Meera Banerji: Developing Communication Skills (Mac Millan India Ltd)[2000]
7. Krishna Mohan and Meenakshi Raman: Effective English Communication (Tata Mc-Graw Hill)[2000]

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First Year Second 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	End Sem.	Lab work & Sessional						
1	210201	Architectural Design – II	DC-4	100	30	20	50	50	250	7	2	3	2	8
													(1.5)	

**COURSE OUTCOME:-**

After completion of this course student will be able to-

1. Learn architectural design fundamentals (Relationship between people to built forms & built forms to environment)
2. Classify different functional spaces and analyze their space requirements.
3. Compile data required for architectural designing.
4. Identify the human standards of design based on ergonomics.
5. Innovate, modify and evaluate an existing space.
6. Analyze and study, pre-design process, design process & conceptualization stages in design.
7. Experimental learning of design communication skills – verbal, script & graphics
8. Design objects based on the concept of space and form

**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 : 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

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

**PROJECT 2: 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

- a) Architectural, elements, spaces & terms
- b) Noted projects & architects
- c) Space planning (response to user & purpose with logic & application of standards)

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SCHEME OF EXAMINATION - BACHELOR OF ARCHITECTURE WEF

- d) Site planning (contextual response, response to the natural environment, response to views + general site planning guidelines)
- e) Material, form & structure
- f) Aesthetics & visual perceptions.

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

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.
3. DeChiara and Callender, Time saver standards for building types, Mc Graw hill company
4. Bousmaha Baiche & Nicholas Walliman, Neufert Architect's data, Blackwell science ltd.
5. Ramsey / Sleeper, National Architectural graphic standards, The American Institute of Architects
6. Space Planning Basics - Mark Karlen



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First Year Second 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	End Sem.	Lab work & Sessional						
2	210202	Building Construction -I	BS/AE	50	30	20	20	30	150	5	2	1	2	6
													(1.5)	

**COURSE OUTCOME**

After completion of this course student will be able to-

1. Study materials and systems, their properties and applications, and their intrinsic relationship to structural systems and environmental performance.
2. Study and compare the material and construction techniques through site visit and market surveys.
3. Develop a fundamental understanding of the relationship of materiality to construction systems and techniques.
4. Understand the basic components of a building with its construction details such as Foundation Footing, Wall section, Roofs, and Interior details.
5. Examine the critical role of materials and methods for the design and construction of buildings.
6. Produce detail construction drawings sets of building components and construction techniques.

**UNIT-1 BUILDING MATERIALS**

**Stones, Wood, Bricks & Clay products**

Basic knowledge of different building materials available, Contextual relevance- what are buildings made of- Natural and artificial materials- where they are used. Materials shall be studied by understanding their properties & applications.

**UNIT-2 BASIC BUILDING COMPONENTS**

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

**UNIT-3 Wall and Masonry**

Walls: Types of bricks and stone and their uses.  
Brick, definition and types of masonry- 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.  
Piers and Quoins.

**UNIT -4 Openings**

Doors, Braced, panel, flush doors, carved entrance doors, and partially glassed doors, Windows casement window (Without Mullion), bay window, and French window. Ventilators, Louvered & Top hung ventilator.  
Different types of arches, arches in brick and stone (flat, segmental, semi circular and pointed, plastering and pointing)  
Lintels and sills (in brick and stone)

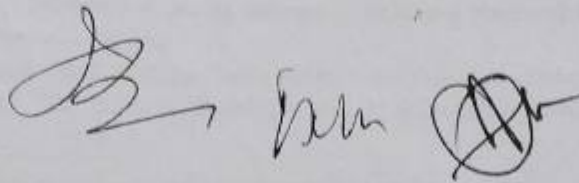
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### UNIT-5 ROOFS

Simple configurations and details of various forms of roofs. (flat, sloped, pyramids and dome)

#### REFERENCES:

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





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	1	1	2	3

**COURSE OUTCOME:-**

- After completion of this course student will be able to-
1. Develop the skill of representation in advance drawing techniques involving perspective, sciography and Measured Drawing.
  2. Effectively visualize their design ideas from various angles and present on paper.
  3. Acquire knowledge of the various drawings which effectively communicate their ideas as designers

**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

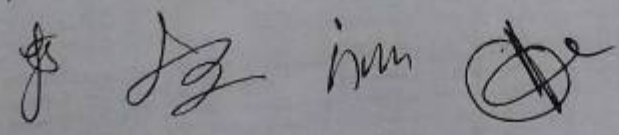
**UNIT-4 SCIOGRAPHY**

- (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).

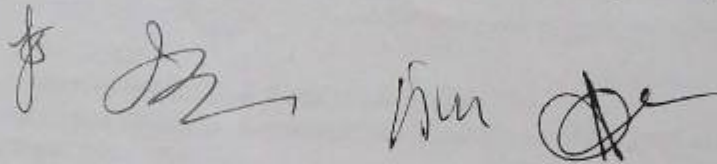
Exercises to include application of shade and shadow in site plan, elevation and exterior perspective.





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



First Year Second 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	End Sem.	Lab work & Sessional						
4	210204	Workshop - II	SEC-3	-	-	-	20	30	50	4	-	-	4	2

**COURSE OUTCOME:-**

After completion of this course student will be able to-

1. Develop the ability to appreciate the three dimensional implications of design and techniques of model making.
2. Critique the property of different materials for various products for designing and model making.
3. Review requirements and critique the design consideration of complementing field of architecture and designing such as photography and set designing.
4. Incorporate basics of rendering, presentation skills & model making with various materials
5. Design a functional model for real life situation.

**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.

**REFERENCES:**

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

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First Year Second Semester

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 & Sessi onal						
5	210205	History of Architecture- II	DC-6	50	30	20	-	-	100	3	2	1	-	3

**COURSE OUTCOME:-**

1. Acquire basic concepts regarding the historical and architectural development in ancient India as this is an integrated expression of art, culture, vernacular material and techniques of the place.
2. Understand the diverse artistic and architectural expressions with regard to the historical context in which they are developed.
3. Utilize visual and verbal vocabularies of Indian Architecture
4. Develop a critical view towards development and expression of Indian architecture, and Value the different architectural developments in ancient India.
5. 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.
6. Develop an appreciation of our varied culture and the resulting architectural productions which are unique in time and place & suitable to the lifestyle of its people.

**UNIT-1 EVOLUTION OF HINDU TEMPLE ARCHITECTURE:**

Hindu forms of worship – evolution of temple form - meaning, symbolism, ritual and social importance of temple - categories of temple - elements of temple architecture - early shrines of the Gupta and Chalukyan periods Tigawa temple - Ladh Khan and Durga temple, Aihole - Papanatha, Virupaksha temples, Pattadakal- Kailasanatha temple, Ellora.

**UNIT-2 NORTHERN INDIAN TEMPLES:**

Temple architecture of Gujarat, Orissa, Madhya Pradesh and Rajasthan - their salient features

Lingaraja Temple, Bhubaneswar - Sun temple, Konark. – Somnath temple, Gujarat, Surya kund, Modhera, Khajuraho, Madhya Pradesh - Dilwara temple, Mt. Abu

**UNIT-3 DRAVIDIAN STYLE TEMPLES:**

Brief history of South India - relation between Bhakti period and temple architecture - of temple towns - Dravidian Order - evolution and form of Gopuram Rock cut productions under Pallavas . Dravidian style – Definition / explanation of Mandapas & Rathas. Masonry temples & Rock cut architecture of Pallavas - Shore temple and five rathas at Mahabalipuram and Kailasanathar temple at Kanchipuram - Dravidian Orders –evolution of Dravidian orders under pallavas, chola's and pandya's. Example of Chola style - Brihadeeswara temple at Tanjore - Evolution of Gopuram & temple complexes – Example of Pandyan style - Meenakshi amman temple, Madurai, temple towns: Madurai, Srirangam and Kanchipuram Hoysala architecture: Belur and Halebid.

**UNIT – 4 INDO ARYAN ARCHITECTURE**

Classification of Indo-Aryan temples, Salient features of an Indo Aryan Temple - Examples of Orissa style - Lingaraja temple at Bhubaneswar & Sun temple at Konark - Example of

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Madhya style - Kandariya Mahadev temple at Khajuraho - Example of Gujarat style - Surya Temple at Modhera.

### UNIT-5 ISLAMIC AND MUGHAL ARCHITECTURE

Introduction to Islamic culture worldwide, Classification of Islamic architecture in Indian, religious and secular typologies of Islamic architecture, Features of an Indian mosque, concept of squinch arches, and its variation. Examples under imperial style - Qutub Complex, Qutubminar and Alai Darwaza at Delhi - Tomb of Ghiasuddin Tughlaq, Lodi garden at Delhi. Characteristics of the provincial styles in different regions through examples - Punjab style - Tomb of Shah Rukni Alam - Bengal style - Chotasona masjid at Gaur - Gujarat style - Jami masjid at Ahmadabad - Deccan style - Golgumbaz at Bijapur and Charminar at Hyderabad.

Characteristics of Mughal architecture, planning, dome construction, materials. Development of the Mughal style under different rulers - Humayun- Humayuns Tomb at Delhi, Akbar- examples - Fatehpur Sikhri (planning, Bulanddarwaza, Diwani Khas, Tomb of Salim Chisti ) and Akbars Tomb at Sikandara, Shahjahan - examples - The Taj Mahal, at Agra - Red Fort at Delhi (Diwan-i- Aam, Diwanikhas, Mumtaz mahal and Rang mahal).

### REFERENCES:

1. Percy Brown, Indian Architecture (Islamic Period) - Taraporevala and Sons, Bombay, 1983
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.
4. Christopher Tadgell, The History of Architecture in India, Longman Group, U.K. Ltd., London, 1990
5. A. Volwahren, 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





First Year Second Semester

S. N. P.	Subject Code	Subject Name	Category	Maximum Marks Allotted					Total Marks	CT 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						
8	210208	Structure -II	BSAE-4	50	30	20	-	-	100	3	2	1	-	3

**COURSE OUTCOME:-**

After completion of this course student will be able to-

1. Identify the concept of various structural elements and system
2. Illustrate the use of different structural systems in building industry
3. Analyze the structural geometry based on strength and stability criteria
4. To critically appraise the built environment based on specific structural system
5. It also delivers the basic principles of structural mechanics & how bending moment and shear force diagrams are used to analyze simple structural behaviour.

**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.

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REFERENCES:

1. Henry J. Cowan, Forrest Wilson, *Structural Systems*, Van Nostrand Reinhold Company, New York.
2. Bjorn N Sandekar et al, *The structural basics of Architecture* – 2<sup>nd</sup> edition, Routledge, New York, 2011.
3. Mario Salvadori, Robert Heller, *Structure in Architecture*, Prentice International Series in Architecture, New Jersey, 1963.
4. Wayne Place, *Architectural structures*, John Wiley & sons, Canada, 2007.
5. Curt Siegel, *Structure and Form in Modern architecture*, Reinhold publishing corporation, New York, 1962.
6. Rowland J. Mainstone, *Developments in Structural form*, Architectural press, Oxford, 1975.

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First Year Second 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	End Sem.	Lab work & Sessional						
7	210207	Theory Of Design	DE-7	50	30	20	-	-	100	2	2	-	-	2

**COURSE OUTCOME:-**

After completion of this course student will be able to-

1. Learn the theoretical aspects of design and understand how it could be manifested in architectural design.
2. Understand the ideologies from works of architects and planners.
3. Develop awareness of the natural and built environments (past and present) through critical observation.
4. Analyze and derive ideas from abstract thinking.
5. Develop a critical approach to architectural thinking and the ability for students to criticize their own work.
6. Learn the design communication skills to enable to put forth the design ideas in graphics and literature.

**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 - anthropomorphism 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 design.

**REFERENCES:**

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

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Second Year Third 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	End Sem.	Lab work & Sessional						
1	210301	Architectural Design - III	DC-8	100	30	20	50	50	250	7	2	3	2	8 (1.5)

**PURPOSE:** Design exercises that explore Architecture as responding to site conditions & personal issues such as occupation, life style, religion etc.

**COURSE OUTCOME:-**

After completion of this course student will be able to-

1. Identify and relate spaces responding to site condition and personal issues such as occupation, lifestyle, religion etc.
2. Design independent residential buildings in urban areas with concepts that respond to personal preference & taste, family lifestyle, culture & site conditions.
3. Develop an understanding of how design responds to site conditions such as size, shape, access, view, topography, landscape features etc.
4. Develop the capacity to design school buildings that respond to a particular educational philosophy, to generate concepts for various activities and explore the integration of classroom spaces with outdoor play areas.
5. Produce sketches, models and photographs for analysis and design.

**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.

**PROJECT 1 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: 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: Time bound Problems of 6 hours to 48 hours.**

**REFERENCES:**

1. Time saver standards for building types, DeChiara and Callender, McGrawhill company.
2. Neufert Architect's data, BousmahaBaiche & Nicholas Walliman, Blackwell science ltd.

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Second Year Third 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	End Sem.	Lab work & Sessional						
2	210302	Building Construction -II	BSAE-5	50	30	20	20	20	150	5	2	1	2 (1.5)	6

**COURSE OUTCOME:-**

After completion of this course student will be able to-

1. Classify the types of corrosion of ferrous and non-ferrous metals and respective preventive measures.
2. Outline rural and traditional materials and their construction techniques.
3. To study more about doors, windows, different types of materials and their use in construction.
4. They also focus on the different water proofing, damp proofing materials & technology available & their application.
5. Also to expose the students to the vertical transportation -designing & detailing.

**UNIT-1 BUILDING MATERIALS**

**Non-Ferrous metals & Plastics**

Properties and uses of aluminum, zinc, lead, copper etc., Thermoplastics and thermosetting plastics – properties and architectural uses of plastics. 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 FOUNDATION AND WALLS**

**Foundation and walls:** Introduction of foundation and wall in stone masonry (Random rubble & Ashlar) foundation and walls in stabilized mud, rammed earth and compact earth blocks. Introduction of different types of Foundation as per structure needs, soil condition and materials need.

**UNIT-3 DOORS, WINDOWS & VENTILATORS**

Timbers doors Study of various types of wooden joint. Different types of doors as per their utility, function., Details of single and double leaf ledged and battened doors, legged braced door, framed braced and battened door Paneled door, flush door, composite door etc. Timbers Windows and ventilators, Different type of windows as per their utility and functions. Casement window and side hug, top hug, fixed light of different size and shape. Sliding pivoted (horizontal and vertical) folding and bay windows. 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. Structural system for the above types sloped slab, cranked slab, cantilevered slab, continuous slab & folded plate, foundation for RCC stair case. Vertical transportation.

**UNIT-5 DAMP PROOFING AND WATER PROOFING**

**Damp proofing:** Hot applied and cold applied—Emulsified asphalt, Bentonite clay. Butyl rubber, silicones, Vinyl's, Epoxy resins and metallic water proofing materials, their properties and uses. **Water proofing:** water proofing membranes such as rag, asbestos, glass felt, plastic and synthetic rubber vinyl, butyl rubber, neoprene, polyvinyl chihide – prefabricated membranes sheet lead, asphalt their properties and uses.

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Application: application of the above in basement floor, swimming pool, and terraces.

**REFERENCES:**

1. W.B. McKay – Building construction Vol. 1 (5<sup>th</sup> edition), Vol. 2 (4<sup>th</sup> edition) and Vol. 3 (5<sup>th</sup> 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

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Second Year Third 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	End Sem.	Lab work & Sessional						
3	210303	Graphics -III	PAEC-1	-	-	-	20	30	50	4	-	-	4	2

**COURSE OUTCOME:-**

After completion of this course student will be able to-

1. The prime objective of this course is to introduce the fundamental concepts of computer systems, hardware and software and to develop basic skills in programming,
2. Application of Information Technology tools and technical in Architecture.
3. produce operation and critical parameters and presentations for large gatherings, corporate clients-using CAD drawings, pictures, 3D images, text etc.

**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.

**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.

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(A Govt. Aided UGC Autonomous Institute Affiliated to RGPV, Bhopal)  
 SCHEME OF EXAMINATION - BACHELOR OF ARCHITECTURE WEF

Second Year Third Semester

S. N o.	Subject Code	Subject Name	Category	Maximum Marks Allotted					Total Marks	CT 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						
4	210304	Surveying & Leveling	BSAE-7	50	30	20	-	-	100	3	2	1	-	3

**COURSE OUTCOME:-**

After completion of this course student will be able to-

1. Interpret the booking for field notes
2. Apply the fundamental of chain and compass surveying for field survey
3. Work out the contour surveying with the help of leveling instrument
4. Determine the triangulation with the help of Theodolite and total station.
5. Define and classify the various types of modern survey
6. Perform survey of the site and will learn how to make layout of building.

**Course Content:**

**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.

**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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Second Year Third Semester

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	210305	History Of Architecture-III	DC-9	50	30	20	-	-	100	3	2	1	-	3

**COURSE OUTCOME:-**

After completion of this course student will be able to-

1. Understand the development of occidental, henceforth mentioned as Western architecture along time scale, with the help of chronological development of civilizations across the globe
2. Learn different styles of Western architecture of different prominent civilizations of west till the advent of Industrial Revolution
3. Understand the evolution of architectural form & space with reference to Technology, Style and Character
4. Analyze social, political, religious, climatologic and financial factors and understand how they have influenced architecture
5. Draw sketches as the principal method of learning - about the prehistoric world, Ancient Egypt, West Asia, Greece, Rome, Medieval times and Renaissance period.

**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, Colosseum, & 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 IN FRANCE, ITALY & ENGLAND**

Romanesque period: Monastic orders & development of Craft and merchant guilds, Influences & architectural character of Romanesque churches in Italy (Pisa complex), France (Abbey AuxHommes) 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. Gothic architecture in Italy & the example of Milan cathedral. Development of English gothic vaulting & the example of Westminster Abbey at London.

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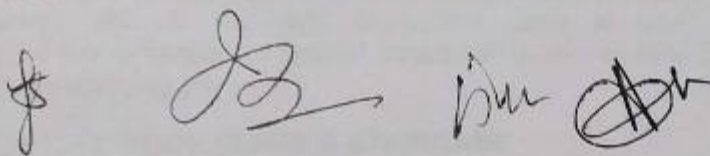
**UNIT-5 RENAISSANCE ARCHITECTURE IN EUROPE**

Idea of rebirth and revival of classical architecture & the development of art & science. Italian renaissance character: Early renaissance & the example of Palazzo Ricardi, Brunelleschi & urban renaissance style exemplified at the Florence cathedral and High renaissance period. Michelangelo & St.Peters cathedral at Rome. The villa architecture of Palladio exemplified at Villa Capra, Vicenza. French renaissance during classical & rococo period – examples of Chateau de Chambord & Louvre Palace.

English Renaissance – works of Sir Christopher Wren (St. Paul Cathedral, London) & Inigo Jones (Banqueting House at Whitehall)- Domestic architecture during Elizabethan, Jacobean & Georgian period.

**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.





Second Year Third 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	End Sem.	Lab work & Sessional						
6	210306	Structures-III	BS/A-7E	50	30	20	-	-	100	3	2	1	-	3

**COURSE OUTCOME:-**

After completion of this course student will be able to-

1. outline the features of IS code provisions regarding limit state method for designing concrete structure
2. Understand the basic principles of limit state design in reinforced concrete structural systems and the interpretation of detail structural drawings for the purpose of construction.
3. Understand 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.
4. Model design of different R.C. Structural components: Beam, Slab, Column, Stair and Foundation.

**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.

**REFERENCES:**

1. Victor E. Sauoma, 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

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Second Year Third 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	End Sem.	Lab work & Sessional						
8	100002	Biology for Architect (Audit Course)	MC-1	50	30	20	-	-	100	3	3	-	-	3

**Course Outcome:**

After completion of this course student will be able to-

1. To familiarize the student with some of the acclaimed sustainable buildings designed within the past decade.
2. Students will get exposure to theoretical and practical aspects of sustainable design and technologies involved in executing them.

**UNIT-1 INTRODUCTION**

Definition, need, History – Biomorphism, Organic Architecture, Metabolist architecture; basic principles; Characteristics – nature as a model, measure and mentor; Three levels of mimicry – the organism, its behaviours, and the ecosystem; Application in fields other than architecture. Approaches – design looking towards biology or Biology influencing design.

**UNIT-2 ORGANISM**

Biomimicry at organism level – mimicry of external forms, Flowers, phyllotaxy, soap bubbles pollen grain, insects, animals etc. Adoption of materials, structural systems and other formal characteristics; Phasing and methodology of construction; Project growth through flexible stages similar to an organism.

Case studies: Matthew Parkes' Hydrological Center for the University of Namibia and the stenocara beetle; Nicholas Grimshaw & Partners' Waterloo International Terminal and the pangolin; Norman Foster's Gherkin Tower; Grimshaw Architects; The Eden Project in Cornwall, England.

**UNIT-3 BEHAVIOUR**

Biomimicry at Behavioural level – Biomimicry beyond imitating morphological aspects of biology to incorporating functional aspects into architectural design; mimicking the functioning of natural systems or organisms; resource optimization for functioning; Structures non-resistant into their environments; Cost effective solutions to environmental issues – structural efficiency; material manufacture; biomimetic products. Functional mimicry of skin by building facades – communication, thermoregulation, water balance, and protection—translation into design concepts.

Case study: Eastgate Centre, Zimbabwe, Mick Pearce Arup Associates; CH2 Building in Melbourne, Australia; Aesthetics Architects, The Qatar Cacti Building.

**UNIT-4 ECOSYSTEM**

Ecosystem level – functioning like an ecosystem and forming part of a complex system by utilizing the relationships between processes mimicking of how the environments many components work together; ability to participate in the hydrological, carbon, nitrogen cycles; Cyclical closed-loop system; Strategy to combat climate change; zero waste systems; Reversal of environmental degradation. Applicable to projects on an urban scale or a larger project with multiple element

Case studies: Lloyd Crossing Project, Portland, USA; Tirau's iconic dog building, New Zealand town; The Cardboard to Caviar Project by Graham Wiles, Wakefield, UK; The Sahara Forest Project by Exploration Architecture; Lavasa, India by HOK (Hellmuth, Obata, and Kassabaum); Tetro Del Agua, Grimshaw Architects, Canary Islands; Adam Joseph.

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### UNIT-5 FUTURE PROSPECTS

Criticisms: Future scope; Sustainability through Biomimicry; Design Challenges; possibilities for architecture and allied fields; Role of computers. Limitations and approaches to overcome them.

#### REFERENCES:

1. Biomimicry in Architecture, Michael Pawlyn.
2. Biomimicry: Innovation Inspired by Nature Paper Back by Janine M. Benyus.
3. Vincent, Julian. Biomimetic Patterns in Architectural Design. Architectural Design 79, no. 6(2009).
4. Design by Nature: Using Universal Forms and Principles in Design, By Maggie Macnab.
5. Architecture Follows Nature-Biomimetic Principles for Innovative Design, by Illaria Mazzoleni.

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**Second Year Fourth 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	End Sem.	Lab work & Sessional						
1	210401	Architectural Design – IV	DC-10	100	30	20	50	50	250	7	2	3	2	8
													(1.5)	

**COURSE OUTCOME:-**

After completion of this course student will be able to-

1. Study the settlement lay out in villages, the rural occupations & life style,
2. Analyze the housing typology, the locally available materials & craftsmanship and the integration of landscape with the built environment.
3. Workshops on building with rammed earth, adobe, compressed stabilized earth blocks, bamboo and other cost effective technologies help the student to explore rural housing solutions.
4. Explore concepts an agglomeration of simple spaces with particular emphasis on the special needs of elderly, handicapped etc
5. Apply bio climatic approach to design and develop the design of buildings in response to climate

**PROJECT 1: 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: 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: Time bound Problems of 6 hours to 48 hours.**

**REFERENCES:**

1. Time saver standards for building types, DeChiara and Callender, McGrawhill company.
2. Neufert Architect's data, BousmahaBaiche & 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.





Second Year Fourth 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	End Sem.	Lab work & Sessional						
2.	210402	Building Construction -III	BSAE-8	50	30	20	20	30	150	5	2	1	2	6
											(1.5)			

**COURSE OUTCOME:-**

After completion of this course student will be able to-

1. Illustrate the preparation of concrete, construction methods, special concrete and concreting methods, the properties and use of architectural glass
2. Apply the special types of Door Window detailing in building application
3. gain knowledge of material properties and construction techniques of Glass, concrete, RCC and special concreting methods and appropriate material and technology
4. Study the advanced construction systems developed by research organizations in India.

**UNIT-1 BUILDING MATERIALS**

**Cement, Concrete & Glass**

**Cement:** Composition of cement, properties & various types of cement and their uses. Concrete: proportioning of concrete, grading of aggregates, water cement ratio, and workability of concrete Estimating yield concreting. Concreting: form work for concreting, mixing, transporting and placing, consolidating and curing of concrete. Various types of cement concrete, the properties and uses. Types of Special concrete and concreting method. Glass - Classification of glass, types of glass, physical properties and uses of glass, special varieties of glass and Architectural glass.

**UNIT -2 RCC FOUNDATION**

Introduction to RCC framed structures, concrete foundation: types of footing – Isolated, combined, continuous, strip raft & piles.

Definition, functions and Design factors of pile foundation.

Tool equipment and plants for piling.

Pre cast 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 RCC beams, columns, slabs (one way slabs, 2-way slab, continuous, flat slab etc.) Concrete beams: singly reinforced, doubly reinforced, cantilever & continuous beams, R.C.C. Colum, beams, slabs, lintel, chajja, staircase, canopy, coffer slab & pergola.

**UNIT-4**

Detailing of R.C.C. retaining wall & constructions of beams, Expansion Joints. Walls, roofs and flooring, detailing of apertures (lintels, sunshades, arches etc.). Study of Various types of pre cast concrete blocks, their extensive uses in Building construction.

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

**UNIT-5 ADVANCED CONSTRUCTION SYSTEMS**

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

**REFERENCES:**

1. Dr. B.C Punmia – Building construction (10<sup>th</sup> 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

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**Second Year Fourth 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	End Sem.	Lab work & Sessional						
3	210403	Building Services-I (Water & Sanitation)	BSAE-9	50	30	20	-	-	100	3	2	1	-	3

**COURSE OUTCOME:-**

After completion of this course student will be able to-

1. Identify the different sources of water, list them and describe the method of intake and water purification
2. List and identify water distribution components and networks and sanitation systems in India and their functioning process.
3. Design Plumbing layout and draw plumbing working drawings with specifications for buildings. To Study Water supply, treatments and plumbing system for all type of buildings.
4. 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.
5. Apply of all the above systems to Buildings, Small Campus and a Residential neighborhood.
6. Produce plumbing and fire fighting layouts for various building typology

**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.

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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.

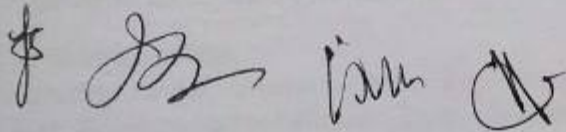
#### UNIT-5 PLUMBING LAYOUT OF SIMPLE BUILDINGS

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.

#### REFERENCES:

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





Second Year Fourth 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	End Sem.	Lab work & Sessional						
4	210404	History Of Architecture-IV	DC-11	50	30	20	-	-	100	3	2	1	-	3

**COURSE OUTCOME:-**

After completion of this course student will be able to-

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

**UNIT-1 INDUSTRIAL REVOLUTION**

Impact of the Industrial Revolution on Architecture. 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, Erich Mendelsohn, Oscar Niemeyer and Alvar Aalto.

**UNIT-3 DECONSTRUCTIVISM**

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

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

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

**UNIT-5 CONTEMPORARY INDIAN ARCHITECTURE**

Architecture in colonial India and after independence, Modernism, Post independent Architecture, Works of contemporary Architects.

**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 calatrova , International Publications, January 2005, New York.
4. Steele James, Hassan fathy - The complete works , London : Thames and Hudson.

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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				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

**COURSE OUTCOME:-**

After completion of this course student will be able to-

1. Learn to impart knowledge & develop understanding about the structural behavior of various types of steel structural systems that are commonly employed in the building construction industry presently.
2. Understand the methods that are used to design a steel structural system for a specific condition & loading. Interpretation of structural detail drawings in the site is also intended.
3. Design of simple and compound sections (Theory only) – Design of lacings and battens
4. Analyze and design of trusses – gusseted plate connections

**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 and 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 – significance 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.

**REFERENCES:**

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



Second Year Fourth 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	End Sem.	Lab work & Sessional						
6.	210406	Elective -I (SWAYAM)	DE-2	50	30	20	-	50	150	4	2	-	2	3

**i. Design thinking:**

Design thinking is perceived as a crucial means of fostering creativity and innovation when employed as a problem-solving

Design solutions invariably lead to new design problems. Design thinking includes tools for critical assessments of design failures as well as successes.

**COURSE OUTCOME:-**

After completion of this course student will be able to-

- Develop an understanding of the interactions and interdependencies between humans and the designed environment.
- Understand that, in addition to the creation of innovative objects and places, design thinking can be applied to the development of new processes, services, interactions, and collaborations.
- Explain design theories and processes that guide and direct design thinking.
- Recognize the interdisciplinary practice of various design professions and the value of design thinking as a means of innovative problem solving across disciplines

**Course Description:**

The design process, visual analysis, design theories, and the socio-cultural implications of design. Students investigate the interactions between humans and their natural, social, and designed environments where purposeful design helps determine the quality of those interactions. Students will learn how design outcomes, whether successes or failures, shape and are shaped by socio/cultural and historical factors. Students of design thinking will learn to critically assess the processes, outcomes and effects of design engagement. During the course, students will have opportunities to test and explore the concepts of design thinking through small-group, hands-on participation in design projects, specifically created to reinforce course content.

**ii. Animation**

**COURSE OUTCOME:-**

After completion of this course student will be able to-  
 Acquire the knowledge of Animation techniques

Course Description

Examination of concepts, characters, and storyboards for basic animation production. Emphasis on creating movement and expression utilizing traditional or electronically generated image-sequences. An introduction to traditional animation; course includes design, storyboarding, stop-motion and character animation. Gives students a working knowledge of animation techniques necessary to design animated sequences. Laboratory fee.

Recommended Texts

The following are some books about drawing, animation, and filmmaking you may want to consider adding to your personal library.

- Cartoon Animation by Preston Blair
- Chuck Reducks by Chuck Jones
- Disney's Illusion of Life by Frank Thomas and Ollie Johnston

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### iii. Graphic Design

#### Objectives:

- To familiarize the student with basic principles and fundamentals in visual art and basic design.
- To develop basic skills using tools and theory used in traditional hand skills and computer.
- To introduce terminology necessary to communicate concepts and theory in art and design.
- To create reflective and computer based projects using Adobe Illustrator.
- This is not an Adobe Illustrator class. The application Illustrator is used to support your basic design projects only.

#### Basic Graphic Design

To familiarize the student with basic principles and fundamentals in visual art and basic design.

To develop basic skills using tools and theory used in traditional hand skills and computer.

To introduce terminology necessary to communicate concepts and theory in art and design. To

create reflective and computer based projects using Adobe Illustrator.

#### Course Description / Objectives (Requirements)

Instructor: Maria Lyle

ACC email [mlyle@austincc.edu](mailto:mlyle@austincc.edu)

Visual Communications web site: [www.austincc.edu/viscom](http://www.austincc.edu/viscom)

#### Course Description:

A study of two-dimensional (2-D) design with emphasis on the visual communication design process. Topics include basic terminology and graphic design principles. Introduction to the fundamentals of design that lead to the discovery and comprehension of the visual language. Form, balance, structure, rhythm, and harmony are studied in black and white and in color. Various media will be used. Foundation laid for advanced courses in design.

#### TEXTBOOK:

- *GRAPHIC DESIGN BASICS EIGHTH EDITION* by David A. Lauer/ Stephen Pentak

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**MADHAV INSTITUTE OF TECHNOLOGY**  
 (An Autonomous Institute under rajivGandhiProroc  
**CBCS SCHEME OF EXAMINATION- BACHELOR**

**FOURTH YEAR SEVENTH SEMESTER**

S.No	Subject Code	Subject Name	Theory			Assignment/Quiz
			End Sem	Mid Sem Test		
1	AR701	Architectural Design – VII	-	50		10
2	AR702	Advance Building Construction – I	50	20		10
3	AR703	Advanced Structure Design	50	20		10
4	AR704	Project Management & Building Economics	50	20		10
5	AR705	Elective-II 1. Conservation 2. Disaster Management & Earthquake resistance Structures, 3. GIS and Remote Sensing				
7	AR706	Dissertation				
		<b>Total</b>	<b>200</b>	<b>130</b>	<b>50</b>	<b>25</b>

Elective-III – 1. Conservation, 2. Disaster Management & Earthquake resistance Structure:

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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 2016**

**FOURTH YEAR EIGHT SEMESTER**

S.No	Subject Code	Subject Name	Maximum Marks Allotted										Credit Allotted		Total credits	
			Theory			Practical			Assignment/Quiz				Theory	Practical		
			End Sem	Mid Sem Test	Assignment/Quiz	End Sem	Studio Work	Assignment/Quiz	End Sem	Studio Work	Assignment/Quiz					
1	AR801	Thesis	-	-	-	150	400	-	-	-	-	-	-	14	4	14
2	AR802	Urban Design	50	20	10	50	50	10	50	50	10	3	1	3	1	3
3	AR803	Professional Practice	50	20	10	-	-	10	-	-	-	3	-	-	-	-
4	AR804	Elective-IV 1. Interior Design, 2. Product Design, 3. Film / Set design 4. Architectural Journalism	50	20	10	50	50	10	50	50	10	2	1	2	1	3
		<b>Total</b>	<b>150</b>	<b>60</b>	<b>30</b>	<b>250</b>	<b>500</b>	<b>30</b>	<b>250</b>	<b>500</b>	<b>20</b>	<b>8</b>	<b>16</b>	<b>24</b>	<b>16</b>	<b>24</b>

*Dr. J. M. D.*

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

**FIFTH YEAR NINTH SEMESTER**

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




**MADHAV INSTITUTE OF TECHNOLOGY & SCIENCE, GWALIOR - 474005**  
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**CBCS SCHEME OF EXAMINATION- BACHELOR OF ARCHITECTURE WEF 2016**

**FIFTH YEAR TENTH 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	AR1001	Training	-	-	-	200	250	-	-	-	18
2	AR1002	General Proficiency	-	-	-	50	-	-	-	-	2
		<b>Total</b>	-	-	-	<b>250</b>	<b>250</b>	-	-	-	<b>20</b>



  




**Department of Architecture**

Board of Studies Meeting of Architecture Department were held on 20<sup>th</sup> April 2018.

Ar 1:	To frame the COs for all core courses from V Semester to VIII Semester to be offered under the <u>Flexible Curriculum</u> based on the present needs of stakeholders and society  <b>The COs for all core courses have been framed as per Annexure 1</b>
Ar 2:	To propose the <u>list of Departmental Electives</u> to be offered, under the Flexible Curriculum, semester wise keeping in view the latest developments and trends/thrust areas  <b>The list of Departmental electives to be offered under Flexible curriculum has been prepared as per Annexure 2</b>
Ar 3:	To propose a <u>list of Open Elective Courses (Lab/theory courses for all branches)</u> to be offered which have inter-departmental interest and relevance  <b>The list of Open Category courses has been proposed as per Annexure 3</b>
Ar 4:	To analyse question papers for Academic Year 2017-18 on the basis of COs and other parameters, separately  <b>Question papers for April May 2018 examination were analyzed and the report is submitted herewith as per Annexure 4 Further format for Question paper setting ( pattern) is discussed in the BoS and is noted with the detailed syllabus as it cannot be the same for all subjects as per Annexure 5</b>
Ar 5:	To critically review the COs and their attainments for all courses beginning with the Academic Year (2014-15) to (2018-19)  <b>The department has worked on COs and enforced from the academic year 2018-19</b>
Ar 6:	To Identify gaps in CO attainment levels for Academic Year 2017-18 and propose corrective measures for improvement  <b>CO attainment level for 2018-19 have to be carefully observed.</b>
Ar 7:	To set attainment targets for all COs for courses being offered in the Academic Year 2018-19)  <b>We have set attainment target of 65%.</b>
Ar 8:	To propose "Equivalence of Subjects" for all courses running in the various schemes  <b>Equivalence has been submitted as per Annexure 6</b>
Ar 9:	To review and submit complete syllabi and scheme separately for the 3 schemes which are running presently <ul style="list-style-type: none"> <li>➤ Batch 2014-18 ( Codes beginning with CEL/MEL/EEL/ELL/CSL...etc</li> <li>➤ Batches 2015-19 &amp; 2016-2020 (Codes beginning with BCEL /BMEL /BEEL /BELL /BCSL...etc</li> <li>➤ Batch 2017-2021 &amp; Batch 2018-2022 (Six digit codes; upto IV semester only)</li> </ul> <b>Syllabus &amp; Scheme of Batches 2015-19 &amp; 2016-2020 &amp; Batch 2017-2021 &amp; Batch 2018-2022 of has been submitted</b>

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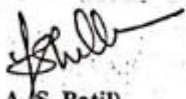


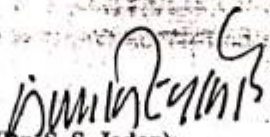
Ar 10: Other matters, if any

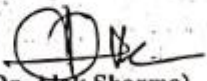
# NPTEL courses can be included and run in traditional mode (without credit transfer)

Note:

1. The minutes of the BoS, containing discussions & proposals on the above 7 Agenda Items, should be communicated item-wise in a single pdf file to the office of the Dean(Academics) maximum by the next day of the scheduled BoS meeting
2. For Item 8 separate pdf file will be prepared
3. For Item 9 three separate pdf files will be prepared

  
(Dr. A.S. Patil)  
Assistant Professor,  
Department of Architecture

  
(Dr. S. S. Jadon)  
Professor,  
Department of Architecture

  
Dr. Alok Sharma)  
Professor and Head  
Department of Architecture

Dr. Manjaree Pandit)  
Dean Academics

(Dr. R.K.Pandit)  
Director



**Madhav Institute of Technology and Science, Gwalior – 474 005**  
(A Govt. Aided UGC Autonomous Institute Affiliated to R.G.P.V. Bhopal, M.P.)

**Department of Architecture**

The COs for all courses have been framed as per Annexure I

**First Year First Semester**


1.	<b>210101</b>	<b>Architecture Design – I</b>
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	
2.	<b>210102</b>	<b>Architectural Materials</b>
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	
3.	<b>210103</b>	<b>Graphics – I</b>
CO1	Visualize the language of architecture & buildings 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 applications to represent the future forms of her/his projects	
CO6	Use representation techniques and tools in the spatial concept and express her/his ideas by drawing	
4.	<b>210108</b>	<b>Structure -I</b>
CO1	Various principles of strength of materials and behavior of forces	
CO2	Define the pure bending and outline the relationship between the bending to the material property and geometry	
CO3	Apply the pure bending and shear equation to	
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	
5.	<b>210105</b>	<b>History of Architecture- I</b>
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	
6.	<b>100103</b>	<b>TECHNICAL ENGLISH</b>
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)

## 7. 210107 Workshop – I

CO1	Review various tools and techniques and incorporate them 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	Illustrate two dimension and three dimension compositions of 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

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## First Year Second Semester

1. 210201 Architecture Design - II	
CO1	Learn architectural design fundamentals (Relationship between people to built forms & built forms to environment)
CO2	Classify different functional spaces and their space requirements.
CO3	Identify the 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, Innovate, modify and evaluate an existing space
CO6	Express their designs through communication skills - verbal, script & graphics
2. 210202 Building Construction - I	
CO1	Study 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
3. 210203 Graphics - II	
CO1	Acquire knowledge of the various drawings which effectively communicate their ideas
CO2	Visualize the design ideas from various angles and present on paper
CO3	Develop the skill of representation in 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
4. 210208 Structure -II	
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
5. 210205 History of Architecture- II	
CO1	Acquire 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	Develop an appreciation of our varied culture and the resulting 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
6. 210206 Theory of Design	
CO1	Learn the theoretical aspects of design and understand how it could be manifested in architectural design
CO2	Discuss 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	Integrate the design communication skills to enable to put forth the design ideas in graphics and literature
7. 210207 Workshop - II	
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	Critique the property 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

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**Second Year Third Semester****1. 210301 Architectural Design – III**

CO1	Identify and relate spaces responding to site condition and personal issues such as occupation, lifestyle, religion etc.
CO2	Develop the capacity to design school buildings that respond to a particular educational philosophy and explore the integration of classroom spaces with outdoor play areas.
CO3	Produce sketches, models and photographs for analysis and design.
CO4	Design independent residential buildings in urban areas with concepts that respond to personal preference & taste, family lifestyle, culture & site conditions.

**2. 210302 Building Construction - II**

CO1	Understand Non-ferrous metals in terms of their properties, manufacturing and their applications in architectural construction.
CO2	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	Understand types Vertical transportation systems in a building.
CO6	Identify Different water proofing and damp proofing materials and applied technology.

**3. 210303 Graphics -III**

CO1	Fundamental principles of using graphical softwares.
CO2	Develop Basic skills in visual composition using Graphics
CO3	Apply productivity tools of 2D drawings.
CO4	Produce operation and critical parameters and presentations for large gatherings, corporate clients-using CAD drawings, pictures, 3D images, text etc.

**4. 210304 Surveying and Leveling**

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.

**5. 210305 History Of Architecture-III**

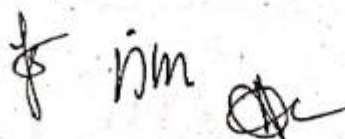
CO1	The chronological development of Civilizations across the globe.
CO2	Observe different styles of Western (Christian) Architecture and it's historical importance
CO3	Illustrate visual and verbal vocabularies associated with christian architecture.
CO4	Understand the evolution of architectural form & space with reference to Technology, Style and Character of the era.
CO5	Analyze Architecture as an outcome of various social, political and economic upheavals.
CO6	Draw sketches as the principal method of learning - about the prehistoric world, West Asia, Greece, Rome, Medieval times and Renaissance period.

**6. 210306 Structures-III**

CO1	Outline the features of IS code provisions regarding limit state method for designing concrete structures
CO2	The basic principles of limit state design in reinforced concrete structural systems with detail structural drawings for the purpose of construction.
CO3	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.

**7.210307 Summer Internship Project –I (Institute Level Evaluation)**

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## Second Year Fourth Semester

1. **210401 Architectural Design – IV**
- |     |   |
|-----|---|
| CO1 | Understand the Settlement pattern in village and socio-cultural, geographic and economic aspects that shape the built environment.    |
| CO2 | To make a comprehensive study of rural settlement that is an exemplar of collective design evolved organically over a period of time. |
| CO3 | Analyze the housing typology, the locally available materials, craftsmanship and integration of landscape with the built environment. |
| CO4 | Explore concepts an 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.  |
2. **210402 Building Construction –III**
- |     |   |
|-----|---|
| CO1 | Understand the preparation of concrete, its construction methods, and its properties  |
| CO2 | Understand properties, characteristics, strength, manufacture, processing and application of materials such as cement, glass, paints and other finishing materials. |
| CO3 |   |
| CO4 | Understand types of Cladding systems and finishes   |
| CO5 | Draw details of RCC Beams, Columns, Slabs, Staircases, etc  |
3. **210403 Building Services-I(Water supply & Sanitation)**
- |     |   |
|-----|---|
| 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.   |
4. **210404 History Of Architecture-IV**
- |     |   |
|-----|---|
| 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.  |
5. **210405 Structures-IV**
- |     |  |
|-----|--|
| CO1 | Learn to impart knowledge & develop understanding about the structural behavior of various types of steel structural systems that are commonly employed in the building construction industry presently. |
| CO2 | Understand the methods that are used to design a steel structural system for a specific condition & loading. Interpretation of structural detail drawings in the site is also intended.                  |
| CO3 | Design of simple and compound sections (Theory only) – Design of lacings and battens   |
| CO4 | Analyze and design of trusses – gusseted plate connections   |
6. **210406 Elective – I VERNACULAR ARCHTECTURE**
- |     |   |
|-----|---|
| CO1 | Understand the concept and significance of vernacular architecture in present day context.                              |
| CO2 | Illustrate various positive aspects of vernacular architecture.   |
| CO3 | Analyze the existing settlement on the basis of various physical, social, and economical parameters.                    |
| CO4 | Develop new ideas through case studies of various live projects which involves the concepts of vernacular architecture. |

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List of Elective Course

**Elective Course**

- 1 Bio- mimicry
- 2 Site Planning
- 3 Ergonomics Furniture Design
- 4 Cultural Impact on Architecture
- 5 Rethinking wood
- 6 Product Design
- 7 Architecture & Film Design
- 8 Architectural of Migration
- 9 Interior Design
- 10 Architectural Journalism
- 11 Town Planning
- 12 Housing
- 13 Methods of Digital fabrication

**Additional Course for (Honors) ?**

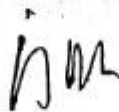
- GROUP -A  
(I - IV Sem.)
- i. Foreign Language ( French & German)
  - ii. Software Training Course ( C++)
  - iii. Mathematical Modeling
  - iv. Graphic Design

- GROUP -B  
(V - VIII Sem.)
- i. Architectural Journalism
  - ii. Building Performance & Compliance
  - iii. Building system Integration & Management
  - iv. Green Buildings & Rating System

- GROUP -C  
(IX - X Sem.)
- i. Research Methodology
  - ii. Sustainable Cities & Communities
  - iii. Open category course\*
  - iv. SWAYAM/ NPTEL/ MOOC/ Edx Courses

*\*It should be new not opted earlier*

- Additional courses may vary every year as per availability of course experts.
- Student may opt for maximum two additional courses per semester.
- Each additional course will have 3 credits and the student has to achieve 24 additional credits for Honors.



Department of Architecture

List of Open Category Courses

- |     |                           |
|-----|---------------------------|
| OC1 | Real Estate Management    |
| OC2 | Kinetic Façade Management |
| OC3 | Green Buildings           |

Three handwritten signatures are present below the course list. The first is a stylized 'f', the second is a circular mark with a horizontal line through it, and the third is 'Nuh'.



**Department of Architecture**

**Question Paper Analysis (End Semester Examination, April - May 2018)**

The department of Civil Engineering has analysed/reviewed the standard of the question paper for End Semester Examination, April - May 2018 Examination by the committee and the complied report is submitted as follows:

**Second Year**

S.N	Subject Name	Subject Code	Syllabus Coverage	% of Theoretical Question asked	% of Numerical Question asked	Difficulty Level paper	Time Requirement to solve the paper	Remark
1.	Architectural Design - IV	A-401	100%	0%	100%	Average	6-12 hours	
2.	Building Construction - III	A-402	100%	100%	0%	Average	3 hours	
3.	Building Services - I (Water and Sanitation)	A-403	100%	100%	0%	Above average	3 hours	
4.	History of Modern Architecture	A-405	100%	100%	0%	Above average	3 hours	

**Third Year**

S.N	Subject Name	Subject Code	Syllabus Coverage	% of Theoretical Question asked	% of Numerical Question asked	Difficulty Level paper	Time Requirement to solve the paper	Remark
5.	Architectural Design - VI	AR601/A 321	100%	0%	100%	Average	18 hours	
6.	Building Construction - V	AR602/A 322	100%	100%	0%	Average	3 hours	
7.	Building Services - II (Electrical and Mechanical)	A323	100%	100%	0%	Above average	3 hours	
8.	Specification, Estimating and costing	AR604/A 324	100%	70%	30%	Above average	3 hours	
9.	Town Planning	AR605	100%	100%	0%	Average	2.5hours	
10.	Elective-II (Sustainable Architecture)	AR 606	100%	100%	0%	Average	2.5hours	

*[Handwritten signatures and initials]*

**Fourth Year**

S N	Subject Name	Subject Code	Syllabus Coverage	% of Theoretical Question asked	% of Numerical Question asked	Difficulty Level paper	Time Requirement to solve the paper	Remark
11	Urban Design	A-422	100%	100%	0%	Average	2.5 hours	
12	Professional Practice	A-423	100%	100%	0%	Difficult	3 hours	
13	Elective-I (Interior Design)	A-424	100%	100%	0%	Average	2.5hours	
14	Elective-I (Journalism)	A-424	100%	100%	0%	Average	2.5hours	

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**Department of Architecture**

**Format for Question paper Setting**

S.NO	SUBJECT	REMARKS
1.	Building Construction (All)	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).
2.	Graphics (All)	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.
3.	Architecture Design –I	Five questions shall be asked. All questions may have equal or varied weightage in end semester exams.
4.	Architecture Design –II	Two small design problems shall be given in End Semester Examination.
5.	Architectural Design – III, IV, V, VI	One design problem shall be given in End Semester Examination.

For other Theory Subjects:

UNIT	QUESTION NO.	MARKS DISTRIBUTION	COMPULSORY/OPTIONAL
		50 MARKS	
UNIT-I	Q.1 (a)	7	COMPULSORY
	Q.1 (b)	3	OPTIONAL
		or	
	Q.1 (c)	3	OPTIONAL
UNIT-II - V		SAME AS ABOVE.	

§



July

Equivalency Report:-Architecture Department

S.No.	Flexi Curriculum Grading System 2018	Grading System New 2017	Subject code& Title CBCS System	Subject code& Title Grading System	Whether Equivalence or Not	Remark
1		210202 Building Construction I	AR202 Building Construction I	A123 Building Construction I	Equivalent	
2		201203 Graphics II	AR203 Graphics II	A122 Graphics II	Equivalent	
3		21204 ANALYSIS OF STRUCTURES	AR204 ANALYSIS OF STRUCTURES	A125 Structure-II	Not Equivale	
4			AR401 Architectural Design IV	A 221 Design IV	Not Equivalent	
5			AR402 Building construction III	A222 Building construction III	Equivalent	
6			AR302 Building construction II	A213 Building construction II	Equivalent	
7			AR503 Building Services II (Electrical & Mechanical )	A323 Building Services II (Electrical & Mechanical )	Equivalent	
8		210106 English language	HUI10 English language		Equivalent	
9		210306 Structures-III	AR304 Structure III	A215 Structure III	Equivalent	
10		210201 Architectural Design II	AR201 Architectural Design II	A121 Design II	Not Equivalent	
11			AR406 Site Planning &landscaping	A325 Site Planning &landscaping	Equivalent	
12			AR404 Structure IV	A225 Structure IV	Equivalent	



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13			AR303 Building Science (Climatology)	A223 Building Science-I (Climatology)	Equivalent	
14	210301 Architectural Design III		AR301 Architectural Design III	A211 Design III	Not Equivalent	
15			AR701 Advance Building Construction-I	A412 Advance Building Construction-I	Equivalent	
16	670101 Planning History And Theory			MUP101 Planning History And Theory	Equivalent	
17	670102 Socio-Economic Basis For Planning			MUP102 Socio-Economic Basis For Planning	Equivalent	
18	670103 Planning Techniques			MUP103 Planning Techniques	Equivalent	
19	670104 Infrastructure And Transportation Planning			MUP104 Infrastructure And Transportation Planning	Equivalent	
20	670105 Housing And Environmental Planning			MUP105 Housing And Environmental Planning	Equivalent	
	670201 City and Metropolitan Planning			MUP201 City and Metropolitan Planning		
	670202 Urban Heritage and Conservation			MUP 202 Urban Heritage and Conservation		
	670203 Urban Development . Finance and Project Planning			MUP 203 Urban Development Finance and Project Planning		
	670204 Legal Issues			MUP 204 Legal Issues and		




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	and Professional Practice		Professional Practice	
	670205 Research Methodology		MUP 205 Research Methodology	
	670206 Studio - I		MUP 206 Studio - I	
21	670207 Studio - II		MUP 207 Studio - II	
	670301 ELECTIVE-I INCLUSIVE URBAN PLANNING		MUP301 ELECTIVE-I INCLUSIVE URBAN PLANNING	Equivalent
22	670302 ELECTIVE-II ENVIRONMENT, DEVELOPMENT AND DISASTER MANAGEMENT		MUP302 ELECTIVE-II ENVIRONMENT, DEVELOPMENT AND DISASTER MANAGEMENT	Equivalent
	670303 Seminar		MUP303 Seminar	
	670304 Pre Dissertation		MUP304 Pre Dissertation	
	670401 Dissertation		MUP401 Dissertation	

*SM*

*JS*





# MADHAV INSTITUTE OF TECHNOLOGY & SCIENCE, GWALIOR

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## Scheme of Examination

**W.E.F. JULY 2018 Batch**

### 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.	Lab work & Sessional						
1.	210101	Architectural Design – I	DC-1	100	30	20	50	50	250	7	2	3	2(1.5)	8
2.	210102	Building Materials	BSAE-1	50	30	20	-	-	100	3	2	1	-	3
3.	210103	Graphics – I	DC-2	50	30	20	50	50	200	7	2	3	2	6
4.	210104	Workshop – I	SEC-1	-	-	-	20	30	50	4	-	-	4	2
5.	210105	History of Architecture- I	DC-3	50	30	20	-	-	100	3	2	1	-	3
6.	210106	Structure -I	BSAE-2	50	30	20	-	-	100	3	2	1	-	3
7.	210107	Technical English	SEC-2	50	30	20	-	-	100	2	1	1	-	2
<b>Total</b>				<b>350</b>	<b>180</b>	<b>120</b>	<b>120</b>	<b>130</b>	<b>900</b>	<b>29</b>	<b>11</b>	<b>10</b>	<b>8</b>	<b>27</b>
<b>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</b>														

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

# MADHAV INSTITUTE OF TECHNOLOGY & SCIENCE, GWALIOR

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## Scheme of Examination

**For batches admitted in July, 17 & July, 18 (w.e.f. July, 2018)**

### Bachelor of Architecture, Second Year, III Semester

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. Exam.	Quiz/ Assignment / Sessional	End Sem.	Term work 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 (Institute Level Evaluation)	SEC- 4	-	-	-	-	50	50	2	-	-	2	1
<b>Total</b>				<b>300</b>	<b>150</b>	<b>100</b>	<b>150</b>	<b>200</b>	<b>900</b>	<b>29</b>	<b>9</b>	<b>8</b>	<b>12</b>	<b>27</b>
8.	100002	Biology for Engineers/ Architects (Audit Course)	MC-1	50	30	20	-	-	100	3	3	-	-	3
<b>NSS/NCC</b>				<b>Qualifier</b>										

\* Compulsory registration for one online course using SWAYAM/NPTEL/ MOOC, evaluation through attendance, assignments and presentation.

Tour/ seminar/ Workshop/ Training during winter break

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

\*100002 will not be included in the aggregate, but it is compulsory to obtain pass marks in this course





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CBCS SCHEME OF EXAMINATION- BACHELOR OF ARCHITECTURE <sup>July</sup> ~~2015~~ <sup>2016</sup> Batch (admitted) & 2016

THIRD YEAR FIFTH SEMESTER

Subject Code	Subject Name	Maximum Marks Allotted							Total credits	
		Theory			Practical			Credit Allotted		
		End Sem	Mid Sem Test	Assignment/ Quiz	End Sem	Studio Work	Assignment/ Quiz	Theory	Practical	
1 AR501	Architectural Design - V	100	20	10	50	100	10	3	3	6
2 AR502	Building Construction - IV	50	20	10	50	50	10	3	2	5
3 AR503	Building Services-II (Electrical & Mechanical)	50	20	10	-	20	10	2	1	3
5 AR504	Disaster Management	50	20	10	-	20	10	2	1	3
6 AR505	Ecology & Environment	50	20	10	-	-	10	2	1	3
7 AR506	Elective-I				50	50	10			
	1. Graphic Design									
	2. Animation									
	3. Design Thinking							-	2	2 <sup>+</sup>
8 AR507	NASA/ Group work	-	-	-	-	100	-	-	2	2
<b>Total</b>		<b>300</b>	<b>100</b>	<b>50</b>	<b>150</b>	<b>340</b>	<b>60</b>	<b>12</b>	<b>12</b>	<b>24</b>





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

For Batch2015-20  
2016-21

**FOURTH YEAR SEVENTH SEMESTER**

Sl. 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	AR701	Architectural Design – VII	-	50	10	100	200	10	4	3	7
2	AR702	Advance Building Construction – I	50	20	10	50	50	10	3	1	4
3	AR703	Advanced Structure Design	50	20	10	-	-	-	3	-	3
4	AR704	Project Management & Building Economics	50	20	10	-	-	-	3	-	3
5	AR705	Elective-II 1. Conservation 2. Disaster Management & Earthquake resistance Structures, 3. GIS and Remote Sensing	50	20	10	50	50	-	3	1	4
7	AR706	Dissertation	-	-	-	50	50	-	-	3	3
<b>Total</b>			<b>200</b>	<b>130</b>	<b>50</b>	<b>250</b>	<b>350</b>	<b>20</b>	<b>16</b>	<b>8</b>	<b>24</b>

Elective-III – 1. Conservation, 2. Disaster Management & Earthquake resistance Structures, 3. G.I.S and Remote Sensing

*Handwritten signatures and initials:* Shukla, J. D. J., V. S. R., R. S., A., M. G., S. K.





**MADHAV INSTITUTE OF TECHNOLOGY & SCIENCE, GWALIOR - 474005**

(An Autonomous Institute under Rajiv Gandhi Pradyogiki Vishwavidyalaya, Anopali)

**SCHEME OF EXAMINATION - BACHELOR OF ARCHITECTURE**

July 2013 admitted Batch

**(A)**

Ref-337-  
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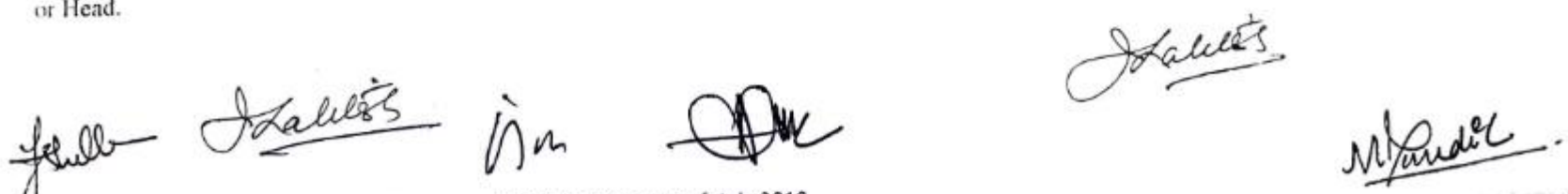
**FIFTH YEAR - NINTH SEMESTER**

**SEMESTER - IX**

S. No.	Course Code	Subjects	Period Per Week		Total Teaching Hours	Distribution of Marks										Grand Total	Total Credits	
						Theory Block					Theory Exam Duration (Hrs.)	Practical Block						
						End Sem exam	MST	Quiz Assignment	Total theory block	Credits		End Sem	Term work/ Sessional	Contin uous Assessment	Total Practical block			Credits
L	STUDIO / T	Total Contact																
1	AR511	Practical training	-	-	-	-	-	-	-	-	-	500	300	200	1000	36	1000	36
Total			-	-	-	-	-	-	-	-	-	500	300	200	1000	36	1000	36

**AR511 - Practical training:**

- The students' work will be evaluated through monthly progress report / diary in the end of each month under continuous Assessment.
- Monthly progress report/diary, duly signed by the Architect, shall be submitted to the department, by the student up to 7<sup>th</sup> date of each month positively, online or in hard copy.
- The students' performance during the training shall be evaluated by a Jury at the end of the semester along with the IX semester examinations.
- 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.



Final Scheme of Examination, (4+1) for Architecture, MITS, Gwalior, w. e. f. July 2010

MVA  
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## *Department of Architecture*

### SCHEME OF EXAMINATION

(FOR 2018- 2020)

&

Detailed Syllabus

For

Master of Urban Planning

COs to be  
added to all courses  
syllabi. ms



MADHAV INSTITUTE OF TECHNOLOGY AND SCIENCE, GWALIOR-5  
(A Govt. Aided UGC Autonomous Institute Affiliated to RGPV, Bhopal)

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

The minutes of board of studies of Master of Urban Planning (MUP) was held on 06/10/2018 at 11:30AM in the office of Head, Department of Architecture.

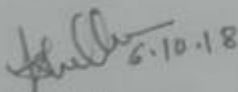
The following members were present:

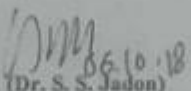
1. Ar. P.N.Mishra, Ret. Add. Director, T.& C, MP, Govt. Bhopal M.P.
2. Dr. Alok Sharma, Professor & Head, Department of Architecture MITS, Gwalior
3. Dr. S.S. Jadon, Professor, Department of Architecture MITS, Gwalior
4. Dr. A.S. Patil, Asst. Professor, Department of Architecture MITS, Gwalior

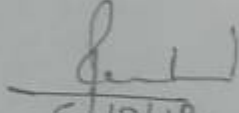
Leave of absence was granted to Dr.S.M. Akhtar, Dr. Sanjeev Singh, Dr Sandeep Sankat and Ar.Pushpak Pandit, the members who could not attend the meeting.

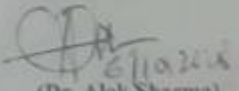
The syllabus for Master of Urban Planning grading scheme first year & second year is prepared & annexed. The following scheme of evaluation and detailed syllabus were discussed and recommended for consideration.

- Nomenclature of subject 670101 – Planning History and Theory is changed to Planning Principles and Theory.
- 'Planning Practices worldwide'- Content is added to the module of subject 670101 Planning Principles and Theory.
- The Module 'Community and Settlement' is deleted from 670102 – Socio-Economic basis for Planning and is added to subject 670201 – City and Metropolitan Planning.
- Nomenclature of subject 670105– 'Housing and Environmental Planning' is changed to 'Housing'.
- Studio assignments are restructured in Studio II - 670107 - Review of City Development Plan, content is revised.
- 670106 – Studio I – Area appreciation exercise is changed to group assignment from individual assignment.
- Studio assignments are restructured in Studio I - 670206 - Preparation of City Development Plan, content is revised.
- Course is revised in subject 670301 – Elective I.
- Course is revised in subject 670302 - Elective II.
- Content is revised in subject 670303 – Seminar.
- Content is revised in subject 670304 – Pre-dissertation.
- The content is revised in subject 670401 – Dissertation.
- The details of professional training are added.

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

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

  
6/10/18  
(Ar. P.N. Mishra)  
Retd. Add. Director,  
T & C, MP Govt.  
Bhopal M.P.

  
(Dr. Alok Sharma)  
Professor & Head,  
Department of Architecture MITS, Gwalior

MADHAV INSTITUTE OF TECHNOLOGY & SCIENCE, GWALIOR - 474005

(An Autonomous Institute under Rajy Garhhi Pradyogik Vaharidhiyaya, Bhopal)

SCHEME OF EXAMINATION - MASTER OF URBAN PLANNING

WEF July 2018

FIRST YEAR FIRST SEMESTER

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	Assign ment/ Quiz	End Sem	Studio Work/ Sessions					
1.	670101	PLANNING PRINCIPLES AND THEORY	70	20	10	-	-	3	1	-	4	100
2.	670102	SOCIO-ECONOMIC BASIS FOR PLANNING	70	20	10	-	-	3	1	-	4	100
3.	670103	PLANNING TECHNIQUES	70	20	10	-	-	3	1	-	4	100
4.	670104	INFRASTRUCTURE AND TRANSPORTATION PLANNING	70	20	10	-	-	3	1	-	4	100
5.	670105	HOUSING	70	20	10	-	-	3	1	-	4	100
6.	670106	STUDIO COURSE-I STUDIO ASSIGNMENTS/FILM APPRECIATION/ LITERATURE REVIEW/ AREA APPLICATION	-	-	-	90	60	-	-	6	6	150
7.	670107	STUDIO COURSE-II SITE PLANNING/ CITY DEVELOPMENT PLAN	-	-	-	90	60	-	-	6	6	150
			350	100	50	180	120	15	5	11	32	800

Scheme and syllabus approved on 06/10/2018

6.10.18  
 [Signature]  
 [Signature]



MADHAV INSTITUTE OF TECHNOLOGY & SCIENCE, GWALIOR - 474005

(An Autonomous Institute under Rajiv Gandhi Prodyogiki Vasthavidyalaya, Bhopal)

SCHEME OF EXAMINATION - MASTER OF URBAN PLANNING

WEF July 2018

FIRST YEAR SECOND SEMESTER

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.	670201	CITY AND METROPOLITAN PLANNING	70	20	10	-	3	1	-	4	100
2.	670202	URBAN HERITAGE CONSERVATION	70	20	10	-	3	1	-	4	100
3.	670203	URBAN DEVELOPMENT FINANCE & PROJECT PLANNING	70	20	10	-	3	1	-	4	100
4.	670204	LEGAL ISSUES & PROFESSIONAL PRACTICE	70	20	10	-	3	1	-	4	100
5.	670205	RESEARCH METHODOLOGY	70	20	10	-	3	1	-	4	100
6.	670206	STUDIO-I	-	-	-	90	-	-	6	6	150
7.	670207	STUDIO-II	-	-	-	90	-	-	6	6	150
			350	120	60	180	15	5	12	32	800

\*Note: The student is required to undertake summer training of minimum 8 weeks after 2 semesters of course work in any government, private or research organization undertaking urban and regional planning works. The practical training will commence during the summer break between second and third semester.

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semester. The students are required to give a presentation specifying the work they were involved in during their internship period. The marks for the same will be incorporated with the marks of Seminar 670303.

SECOND YEAR THIRD SEMESTER

S.No	Subject Code	Subject Name	Maximum Marks Allotted				Teaching Hours per Week			Total credits		
			Theory		Assignment / Quiz	Practical		Lectures (L)	Tutorials (T)		Practical/ Studios	
			End Sem	Mid Sem Test		End Sem	Studio Work/ Sessional					
1.	670301	ELECTIVE -I	70	20	10	-	-	3	1	-	4	100
2.	670302	ELECTIVE- II	70	20	10	-	-	3	1	-	4	100
3.	670303	SEMINAR	-	-	-	-	100	-	-	6	6	100
4.	670304	PRE-DISSERTATION	-	-	-	120	80	-	-	6	6	200
			140	40	20	120	180	6	2	12	20	500

Elective I- 1. Inclusive Urban Planning, 2. Planning for Tourism

Elective II- 1. Environment, Development and Disaster Management, 2. Energy, Climate change and Urban Development

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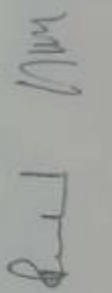
SCHEME OF EXAMINATION - MASTER OF URBAN PLANNING

SECOND YEAR FOURTH SEMESTER

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

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SCHEME OF EXAMINATION - MASTER OF URBAN PLANNING

670101- PLANNING PRINCIPLES AND THEORY

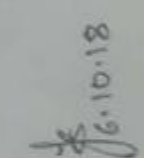
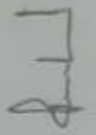
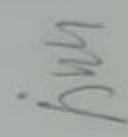

S.No	Subject Code	Subject Name	Maximum Marks Allotted				Teaching Hours per Week			Total credits	
			Theory		Practical		Lectures (L)	Tutorials (T)	Practical/ Studios (P/S)		
			End Sem	Mid Sem Test	Assignment/ Quiz	End Sem					Studio Work/ Sessional
1.	670101	PLANNING PRINCIPLES AND THEORY	70	20	10	-	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.


  
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**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.

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SCHEME OF EXAMINATION - MASTER OF URBAN PLANNING

WEF July 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/ Studies (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; Economics 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.

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SCHEME OF EXAMINATION - MASTER OF URBAN PLANNING

MEF July 2018

670103 - PLANNING TECHNIQUES

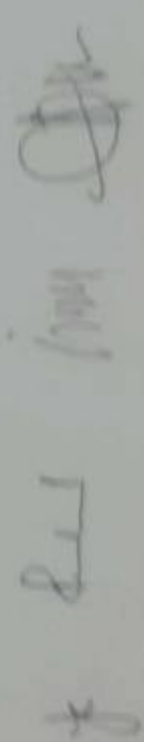
S.No	Subject Code	Subject Name	Maximum Marks Allotted				Teaching Hours per Week			Total credits	
			Theory		Practical		Lectures (L)	Tutorials (T)	Practical/ Studio (P/S)		
			Mid Sem Test	Assignment/ Quiz	End Sem	Studio Work/ Sessional					
1.	670103	PLANNING TECHNIQUES	70	20	20	-	3	1	-	4	100

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 map 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, Isoplethogram, etc.; Planning balance sheet; Threshold analysis; Input output analysis, SMC/ analysis

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**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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SCHEME OF EXAMINATION - MASTER OF URBAN PLANNING

W.E.F. July 2018

670104 - INFRASTRUCTURE AND TRANSPORT PLANNING

S.No	Subject Code	Subject Name	Maximum Marks Allotted					Teaching hours per week			Total credits
			Theory			Practical		Lectures (L)	Tutorials (T)	Practical/ Seminars (P/S)	
			End Sem	Mid Sem	Assignment/ Quiz	End Sem	Work/ Sessions				
1.	670104	INFRASTRUCTURE AND TRANSPORT PLANNING	70	20	10	-	1	1	-	4	300

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.

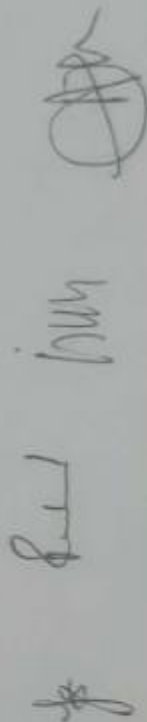
Planning and Management of Water, Sanitation and Storm Water

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;

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**SCHEME OF EXAMINATION - MASTER OF URBAN PLANNING**

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**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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SCHEME OF EXAMINATION - MASTER OF URBAN PLANNING

WEF July 2018

670105 - 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.	670105	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.

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**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. UDPI guidelines, NBC 2005 provisions and Case studies of neighborhood planning.

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SCHEME OF EXAMINATION - MASTER OF URBAN PLANNING

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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-I STUDIO 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).

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## SCHEME OF EXAMINATION - MASTER OF URBAN PLANNING

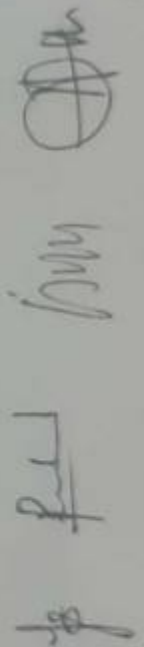
### Area Appreciation (group assignment)

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 a 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.
  - Appreciation / Analysis of ward level data.
  - Perception of areas in terms of legal / illegal / authorized / unauthorized, Slums, UrbanAesthetics.
  - 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.





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670107 - STUDIO III

S.No	Subject Code	Subject Name	Maximum Marks Allotted					Teaching Hours per Week			Total credits	
			Theory		Practical			Lectures (L)	Tutorials (T)	Practical/ Studio (P/S)		
			Mid Sem Test	Assignment/ Quiz	End Sem	Studio Work/ Semestral						
1.	670107	STUDIO COURSE-II SITE PLANNING/ CITY DEVELOPMENT PLAN	-	-	-	90	60	-	-	6	6	3.00

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.

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SCHEME OF EXAMINATION - MASTER OF URBAN PLANNING

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M. URBAN PLANNING – II SEMESTER

670201 - 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.	670201	CITY AND METROPOLITAN PLANNING	70	20	10	.	.	3	3	.	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.

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**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**

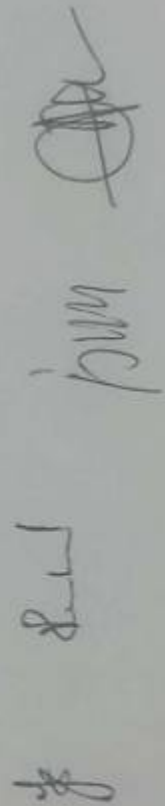
Concepts, approaches, strategies and tools; Policies and programmes at various levels, impact on metro and mega city development.

**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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SCHEME OF EXAMINATION - MASTER OF URBAN PLANNING

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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.

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**SCHEME OF EXAMINATION - MASTER OF URBAN PLANNING**

**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; Imagability 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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SCHEME OF EXAMINATION - MASTER OF URBAN PLANNING

WEF July 2018

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 73<sup>rd</sup> and 74<sup>th</sup> 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

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**MADHAV INSTITUTE OF TECHNOLOGY & SCIENCE, GWALIOR – 474005**

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**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 74<sup>th</sup> 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.

**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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SCHEME OF EXAMINATION - MASTER OF URBAN PLANNING

WEF July 2018

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 PRACTICE	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.

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**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.

**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.

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# MADHAV INSTITUTE OF TECHNOLOGY & SCIENCE, GWALIOR - 474005

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## SCHEME OF EXAMINATION - MASTER OF URBAN PLANNING

WEF July 2018

### 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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SCHEME OF EXAMINATION - MASTER OF URBAN PLANNING

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	Assignments/ 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.

\* R. L. J. M. D. A.

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SCHEME OF EXAMINATION - MASTER OF URBAN PLANNING

W/EF July 2018

670207- 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.	670207	STUDIO-II	-	-	-	90	60	-	-	6	150

**Geo-Informatics Laboratory Training**

- i) The laboratory training will be conducted in accordance with the studio exercise. Introduction to Geo-informatics, introduction to Remote Sensing – Aerial and Satellite; introduction to GIS, Spatial data and Attribute data; Satellite images as input to GIS; Collection and presentation of baseline information.
- ii) The second exercise is a short and intensive exercise of one-month duration. It pertains to topical issues i.e. property tax reforms, informal sector, development of railway land, etc. The study is based on primary surveys and students are expected to analyze the information and arrive at recommendations.

**Note:** The student is required to undertake summer training of minimum 5 weeks after 2 semesters of course work in any government, private or research organization undertaking urban and regional planning works. The practical training will commence during the summer break between second and third semester. The students are required to give a presentation specifying the work they were involved in during their internship period. The marks for the same will be incorporated with the marks of Seminar 670303.

**PROFESSIONAL TRAINING**

To expose the students to the profession of planning and foster links with the industry so as to develop an understanding of professional nature of various organizations involved in the planning profession.

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SCHEME OF EXAMINATION - MASTER OF URBAN PLANNING

WEF July 2016

M. 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.	670301	ELECTIVE -I	70	20	10	-	-	-	3	1	4	100

I) 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.

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**MADHAV INSTITUTE OF TECHNOLOGY & SCIENCE, GWALIOR - 474005**

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**SCHEME OF EXAMINATION - MASTER OF URBAN PLANNING**

WEF July 2018

**Module 4**

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

**II) 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**

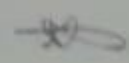

Impacts Relationship between Tourism and Urban Development, Tourism multiplier and forecasting methods: capacity building and carrying capacity planning for tourism projects, tourism and cultural and social change: Socio-cultural problems, environmental degradation.

**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.

  
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SCHEME OF EXAMINATION - MASTER OF URBAN PLANNING

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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.	670302	ELECTIVE-II	70	20	10	-	-	3	1	-	4	100

1) - ENVIRONMENT, DEVELOPMENT AND DISASTER MANAGEMENT

Environment, Development and Disaster Management

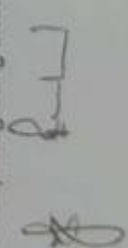
Interface Resource use, exploitation and conservation; Impact of human activities on environment; Environment and economy interaction, introduction to environmental accounting.

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.





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**Policies and Legislation**

Environment and Disaster Management Policies and Legislation at various levels.

**II) 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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SCHEME OF EXAMINATION - MASTER OF URBAN PLANNING

W.E.F July 2018

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	Assignment/ Quiz	End Sem	Studios Work/ Sessional				
1.	670303	SEMINAR	-	-	-	-	-	6	6	6	3(0)

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, technicians, user groups, etc. on the same topic.
- Identification of key issues related to the area of work.

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SCHEME OF EXAMINATION - MASTER OF URBAN PLANNING

W.E.F. July 2018

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	5	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.

*f. S. J. S.*

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MADHAV INSTITUTE OF TECHNOLOGY & SCIENCE, GWALIOR – 474005

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SCHEME OF EXAMINATION - MASTER OF URBAN PLANNING

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M. 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 atleast 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.

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SCHEME OF EXAMINATION - MASTER OF URBAN PLANNING

- Finalization of topic; formulation of problem statement, literature review, working hypothesis, research brief, research methodology, sample determination, data collection and analysis, report structuring.

J. S. S. J. S. S.

Scheme and syllabus approved on 06/10/2018

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