



**AMITY UNIVERSITY**  
— R A J A S T H A N —

**Amity School of Architecture & Planning**  
**(ASAP)**

**Bachelor of Architecture**

**12040**

**Duration – 5 Years Full Time**

**A. Program Learning Outcomes**

**B. Program Structures –**

**C. Curriculum & Scheme of Examination**

## PREAMBLE

Amity University aims to achieve academic excellence by providing multi-faceted education to students and encourage them to reach the pinnacle of success. The University has designed a system that would provide rigorous academic and professional program with necessary skills to enable a student to excel in career.

This booklet contains the Program Structures, the Detailed Curriculum and the Scheme of Examination. The Program Structure includes the courses (Core and Elective), arranged semester wise. The importance of each course is defined in terms of credits attached to it. The credit units attached to each course has been further defined in terms of contact hours i.e. Lecture Hours (L), Tutorial Hours (T), Practical Hours (P) and Studio hours (ST). Towards earning credits in terms of contact hours, 1 Lecture as well as 1 Tutorial per week are rated as 1 credit each, 1 Studio hour is rated as 1 credit while 2 Practical hours per week are rated as 1 credit. Thus, for example, an L-ST-P structure of 1-2-2 will have 5 credits, 1-2-0 will have 3 credits, and 2-0-0 will have 2 credits.

**Lecture (L):** Lecture is a one- way mode of transferring information/ concepts/ theory to students, usually delivered by an instructor. To check the understanding of concepts, frequent tests and quizzes are supplemented with lecture.

**Tutorial (T):** For completing class assignments, one -to-one practice sessions conducted by and with faculty member(s) are tutorials.

**Studio(ST):** Studios are peculiar to design & construction technology based courses where Content discourse, Training, Research, Project development, Project review, Concept generation, Peer Discussion and Final Solution/s are generated with one-to one interaction with Faculty as well as field experts in an iterative manner. Learning process also involves amalgamation of knowledge from various courses of the program as well are from other disciplines.

**Practical (P):** Practical are sessions where students are required to actually do (Hands-on) instead of writing/presenting ideas/thoughts and to demonstrate, practice or apply skills& knowledge using various mediums/resources individually or in groups.

The Curriculum and Scheme of Examination of each course includes the course objectives, course contents, scheme of examination and the list of text and references. The scheme of examination defines the various components of evaluation and the weightage attached to each component. The different codes used for the components of evaluation and the weightage attached to them are given below. Depending upon the course requirement, the weightage may slightly vary.

<u>Components</u>	<u>Codes</u>	<u>Weightage (%)</u>
Case Discussion/ Presentation/ Analysis	C	05 - 10
Home Assignment	H	05 - 10
Project	P	05 - 10
Seminar	S	05 - 10
Viva	V	05 - 10
Quiz	Q	05 - 10
Class Test (Usually Mid Term)	CT	20
Term Paper	TP	10-15
Attendance	A	05
End Semester Examination	EE	50

**The Bachelor of Architecture (B. Arch.)** course is a professional course spanning duration of FIVE Years. The course is governed by the guidelines laid by the Council of Architecture modified as up to date. The course structure, scheme of examination and the syllabus was discussed and finalized in the Board of Studies meetings of the ASAP held on time to time to take the necessities of the changing times. The included Course structure was implemented 2020 batch intake onwards. The Course Structure was developed as result of credit re-structuring to match COA guidelines and progressive incorporation of recommendations from 11th BOS as well as 26th Academic Council. The finalized Course Structure with total of 299 credits was presented and approved in 12<sup>th</sup> BOS held on 05-12-2020.

The course has an inbuilt component of training. This training component is spread over the entire duration of the course. Professional Internship for a period of ONE semester has been incorporated in 8<sup>th</sup> Semester (Stage-II) with the idea that the students could get best advantage of it while preparing the Dissertation and Final project in the 10<sup>th</sup> semester. The courses of studies have been revised in a manner that the students get best advantage of teaching & training in achieving the goals of profession. This shall also help the evaluators at ASAP to judge the impact of training on the academics.

There are many subjects that are taught right from the First Semester to the Seventh Semester and have varying credits. This continuity shows importance of the subject and the credits assigned reflect importance of the same. For example Architectural Design is the most important aspect of the B Arch Course. This subject has the maximum credits as well as the maximum teaching hours assigned to it with an idea that the students get exposure in handling problems of different complexities. The complexity is least in the first semester where basics and methodologies are introduced. In the coming semesters more and more difficult problems are introduced. The problems of the subsequent semester also involve the use of other subject studied by the student in the same or the previous semester. Similarly the subject Building material and construction shall be taught in a manner that first the simpler building materials shall be introduced to learn their properties and uses and then the processes of their application of using them in construction of spaces shall be introduced. The architectural design and building material and construction are the subjects that go hand in hand. The material one learned shall also be used in design and construction. These activities can be simultaneous as well.

Architectural design is the course that helps a student in generating imaginative, creative & logical solutions for identified problems related to built-environment. In the initial stages imagination is allowed with full freedom. In the initial semesters one could think of any shape which one could dream of and it could really be a fantasy. But with the increasing semesters and with increasing understanding of materials and construction processes the design shall be with limiting factors. The final design or the thesis project is the ultimate design where all aspects of design, construction and services including the impact of working in office of a professional shall be assessed. This shall show how professional project drawings are prepared and how its related report is prepared and submitted. The final project should be done in a way that anybody could understand the project, even in absence of the designer. The final is a kind of full dress rehearsal for joining the profession.

Structural Design and systems is a subject that lets the designer learn as to how he can see his design constructed. Initially the students shall be introduced the basic of the mathematical aspects of calculation of forces and the scientific procedures of giving shape to architectural design. This subject is really very

important for ensuring if the fantasy of architectural design could be converted to reality or not. One should remember that though there is nothing impossible as far as the engineering is concerned provided one is ready to bear the cost. Your imagination can be given a realistic shape. One needs only to assess and weigh the importance of cost to the design fantasy. As one advances in this subject, various design trends shall be introduced so that one could adopt advanced structural systems in one's design. This subject though is mathematical and little complicated, need be given due attention as it shall help the designer to be little realistic and economical as well.

Building Services is a subject without which none of the buildings could be functional. These services include the water supply, sanitary and waste management, electrical services, heating, ventilation and air-conditioning (HVAC) services, mechanical services such as lifts escalators etc. Today many advanced services are becoming essential to the buildings and their importance is increasing with the typology and importance of the building. These services would include the security systems, personal management systems and intelligent building management systems. Attempt shall be that the students are exposed to all possible available systems related to different types of buildings so that depending the type of the building they could be incorporated at the architectural design level.

History is very important to know our own roots. It also helps us to understand the development. 'Architecture is known as mother of all arts'. Once you learn the history of architecture you learn the developmental history of mankind besides other aspect. Realizing importance of the subject, teaching of history has been spread to different semesters. Attempt shall be made to make the student aware of the development of architecture around the world and in our own country to showcase as how we have been able to reach our present stage of development. Students shall learn the materials used in different period, technologies available and how grandeur could be achieved under different socio-economic and administrative conditions.

A large flexibility has been incorporated in the Course Structure through introduction of the CBCS and the student is allowed to select Choice Based Credits from within the School as well as from other schools of the University. If a student learns the same subject in consecutive five semesters he/she gets a Minor Track Certificate at the end of the studies.

AUR hopes that the students passing out of ASAP shall be fully equipped to face and handle independently the intricacies of architecture and shall efficiently and proficiently help in Nation Building.

## **PROGRAMME LEARNING OUTCOMES (PLOs)**

Following are the Program Learning Outcomes of Bachelor of Architecture:

**PLO 1:** To develop critical and analytical approach in handling architecture designs of all types of buildings through demonstrating self-reflective process of conceptualizing and design thinking.

**PLO 2:** To create ability to identify social, economic, cultural and ecological issues and their impact on architectural design & apply theoretical knowledge gained from history, humanities & science to achieve sustainable architecture with emphasis on energy efficiency.

**PLO 3:** To Impart sound knowledge of building materials and their use in construction including structural systems.

**PLO 4:** To produce integrated architecture design solutions by incorporating appropriate building technologies and building services.

**PLO 5:** To build ability to understand ethical and professional responsibilities, comprehending realistic aspects of architectural practice, documenting & communicating effectively through graphical presentations while working in interdisciplinary groups.

**AMITY SCHOOL OF ARCHITECTURE & PLANNING**  
**Bachelor of Architecture**  
**(05 Years / 10 Semesters)**

**CREDIT SUMMARY**

Semester	Core Course (CC)	Domain Electives (DE)	Value Added Course (VAC)	Open Electives (OE)	Non- Teaching Credit Courses (NTCC)	Total
<b>I</b>	23	0	6	0	0	<b>29</b>
<b>II</b>	24	0	6	3	0	<b>33</b>
<b>III</b>	21	1	6	3	0	<b>31</b>
<b>IV</b>	22	2	6	3	0	<b>33</b>
<b>V</b>	23	2	6	3	0	<b>34</b>
<b>VI</b>	23	2	6	3	0	<b>34</b>
<b>VII</b>	22	4	4	0	0	<b>30</b>
<b>VIII</b>	0	0	0	0	25	<b>25</b>
<b>IX</b>	20	4	0	0	0	<b>24</b>
<b>X</b>	20	6	0	0	0	<b>26</b>
<b>Total</b>	<b>198</b>	<b>21</b>	<b>28</b>	<b>15</b>	<b>37</b>	<b>299</b>

**CC = Core Course**

**DE = Domain Elective**

**OE = Open Elective**

**VA = Value Added Course**

**NTCC = Non - Teaching Credit Courses (NTCC)**

**AMITY SCHOOL OF ARCHITECTURE & PLANNING**  
**Bachelor of Architecture**

**Total Credits = 299**

**STAGE -I PROGRAM STRUCTURE**

**Note:- Lecture (L) - 1 Hr. = 1 Credits**

**Studio (ST) - 1 Hr. = 1.5 Credits**

**Practical (P) - 2 Hrs. = 1 Credit**

**FIRST SEMESTER**

Course Code	Course Title	Univ. Category	CoA Category	L/T/ST/P Per Week			Credits	Teaching hours
				L	ST	P		
BAR 101	Design -I	CC	PC	0	6	0	9	6
BAR 102	Materials & Construction Technology – I	CC	BS & AE	1	1	1	3	3
BAR 103	Structural Design & Systems – I	CC	BS & AE	2	0	0	2	2
BAR 104	Graphics Skills - I	CC	PC	0	0	4	2	4
BAR 105	History of Built Environment	CC	PC	2	0	0	2	2
BAR 106	Architectural Workshop	CC	PC	0	0	2	1	2
BAR 107	Theory of Design	CC	PE	2	0	0	2	2
BAR 108	Visual Arts & Appreciation	CC	PE	0	0	2	1	2
BAR 109	Presentation Techniques	CC	PE	0	0	2	1	2
AND 001	Aanandam-I	VA	SEC	0	0	4	2	4
BCS 101	English	VA	SEC	1	0	0	1	1
BSS 105	Behavioral Science – I(Understanding Self for Effectiveness)	VA	SEC	1	0	0	1	1
	Foreign Language - I							
FLT 101	French	VA	SEC	2	0	0	2	2
FLG 101	German							
FLS 101	Spanish							
FLC 101	Chinese							
	<b>TOTAL</b>			<b>11</b>	<b>7</b>	<b>15</b>	<b>29</b>	<b>33</b>

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**Total Credits = 299**

**STAGE -I PROGRAM STRUCTURE**

**Note:- Lecture (L) - 1 Hr. = 1 Credits**  
**Studio (ST) - 1 Hr. = 1.5 Credits**  
**Practical (P) - 2 Hrs. = 1 Credit**

**SECOND SEMESTER**

Course Code	Course Title	Univ. Category	CoA Category	L/T/ST/P Per Week			Credits	Teaching hours
				L	ST	P		
BAR 201	Design – II	CC	PC	0	6	0	9	6
BAR 202	Materials & Construction Technology – II	CC	BS & AE	1	1	1	3	3
BAR 203	Structural Design and Systems – II	CC	BS & AE	2	0	0	2	2
BAR 204	Graphics Skills – II	CC	PC	0	0	4	2	4
BAR 205	History of Architecture – I	CC	PC	2	0	0	2	2
BAR 206	Building Services – I	CC	BS & AE	2	0	0	2	2
AND 002	Aanandam-II	VA	SEC	0	0	4	2	4
EVS 001	Environment Science	CC	BS & AE	4	0	0	4	4
BCS 201	English	VA	SEC	1	0	0	1	1
BSS 205	Behavioural Science – II (Problem Solving & Creative Thinking)	VA	SEC	1	0	0	1	1
	Foreign Language - II							
FLT 201	French	VA	SEC	2	0	0	2	2
FLG 201	German							
FLS 201	Spanish							
FLC 201	Chinese							
	Open Elective/Minor Track	OE/MT	OE	3	0	0	3	3
	<b>TOTAL</b>			<b>18</b>	<b>7</b>	<b>9</b>	<b>33</b>	<b>34</b>

**AMITY SCHOOL OF ARCHITECTURE & PLANNING**  
**Bachelor of Architecture**

**Total Credits = 299**

**STAGE -I PROGRAM STRUCTURE**

**Note:- Lecture (L) - 1 Hr. = 1 Credits**

**Studio (ST) - 1 Hr. = 1.5 Credits**

**Practical (P) - 2 Hrs. = 1 Credit**

**THIRD SEMESTER**

Course Code	Course Title	Univ. Category	CoA Category	L/T/ST/P Week			Credits	Teaching hours
				L	ST	P		
BAR 301	Design – III	CC	PC	0	6	0	9	6
BAR 302	Materials & Construction Technology – III	CC	BS & AE	1	1	1	3	3
BAR 303	Structural Design and Systems – III	CC	BS & AE	2	0	0	2	2
BAR 304	Graphics Skills – III	CC	SEC	0	0	4	2	4
BAR 305	History of Architecture – II	CC	PC	2	0	0	2	2
BAR 306	Building Services - II	CC	BS & AE	2	0	0	2	2
BAR 307	Surveying & Leveling	CC	BS & AE	0	0	2	1	2
<b>Domain Elective – I (Select any One DE)</b>								
BAR 308	Photography	DE	PE	0	0	2	1	2
BAR 309	Vernacular Architecture	DE	PE					
BAR 310	Model Making Workshop	DE	PC					
AND 003	Aanandam-III	VA	SEC	0	0	4	2	4
BCS 301	Communication Skills – I	VA	SEC	1	0	0	1	1
BSS 305	Behavioral Science III (Interpersonal Communication)	VA	SEC	1	0	0	1	1
Foreign Language - III								
FLT 301	French	VA	SEC	2	0	0	2	2
FLG 301	German							
FLS 301	Spanish							
FLC 301	Chinese							
	Open Elective/Minor Track	OE/MT	OE	3	0	0	3	3
<b>TOTAL</b>				<b>14</b>	<b>7</b>	<b>13</b>	<b>31</b>	<b>34</b>

**AMITY SCHOOL OF ARCHITECTURE & PLANNING**  
**Bachelor of Architecture**

**Total Credits = 299**

**STAGE -I PROGRAM STRUCTURE**

**Note:- Lecture (L) - 1 Hr. = 1 Credits**

**Studio (ST) - 1 Hr. = 1.5 Credits**

**Practical (P) - 2 Hrs. = 1 Credit**

**FOURTH SEMESTER**

Course Code	Course Title	Univ. Category	CoA Category	L/T/ST/P Per Week			Credits	Teaching hours
				L	ST	P		
BAR 401	Design – IV	CC	PC	0	6	0	9	6
BAR 402	Materials & Construction Technology – IV	CC	BS & AE	1	1	1	3	3
BAR 403	Structural Design & Systems – IV	CC	BS & AE	2	0	0	2	2
BAR 404	Graphics Skills – IV	CC	SEC	0	0	4	2	4
BAR 405	History of Architecture – III	CC	PC	2	0	0	2	2
BAR 406	Building Services – III	CC	BS & AE	2	0	0	2	2
BAR 408	Architectural Climatology - Theory & Lab	CC	BS & AE	1	0	2	2	3
<b>Domain Elective – II (Select any One DE)</b>								
BAR 409	Bamboo Architecture	DE	PE	2	0	0	2	2
BAR 410	Architecture Documentation	DE	PE					
BAR 411	Barrier Free Architecture	DE	PE					
AND 004	Aanandam-IV	VA	SEC	0	0	4	2	4
BCS 401	Communication Skills – II	VA	SEC	1	0	0	1	1
BSS 405	Behavioural Science – IV(Relationship Management)	VA	SEC	1	0	0	1	1
	Foreign Language - IV	VA	SEC	2	0	0	2	2
FLT 401	French	VA						
FLG 401	German	VA						
FLS 401	Spanish	VA						
FLC 401	Chinese	VA						
	Open Elective/Minor Track	OE/MT	OE	3	0	0	3	3
	<b>TOTAL</b>			<b>17</b>	<b>7</b>	<b>11</b>	<b>33</b>	<b>35</b>

**AMITY SCHOOL OF ARCHITECTURE & PLANNING**  
**Bachelor of Architecture**

**Total Credits = 299**

**STAGE -I PROGRAM STRUCTURE**

**Note:- Lecture (L) - 1 Hr. = 1 Credits**

**Studio (ST) - 1 Hr. = 1.5 Credits**

**Practical (P) - 2 Hrs. = 1 Credit**

**FIFTH SEMESTER**

Course Code	Course Title	Univ. Category	CoA Category	L/ T/ ST /P Per Week			Credits	Teaching hours
				L	ST	P		
BAR 501	Design –V	CC	PC	0	8	0	12	8
BAR 502	Materials & Construction Technology – V	CC	BS & AE	1	1	1	3	3
BAR 503	Structural Design & Systems – V	CC	BS & AE	2	0	0	2	2
BAR 504	Graphics Skills – V (Computer Aided)	CC	SEC	0	0	4	2	4
BAR 505	Building Bye - Laws & Codes Practices	CC	PC	2	0	0	2	2
BAR 506	Building Services – IV	CC	BS & AE	2	0	0	2	2
<b>Domain Elective – III (Select any One DE)</b>								
BAR 507	Building Appreciation	DE	PE					
BAR 508	Energy Conservation Architecture	DE	PE	2	0	0	2	2
BAR 509	Digital Architecture	DE	SEC					
AND 005	Aanandam-V	VA	SEC	0	0	4	2	4
BCS 501	Communication Skills – III	VA	SEC	1	0	0	1	1
BSS 505	Behavioural Science – V (Group Dynamics and Team Building)	VA	SEC	1	0	0	1	1
Foreign Language – V								
FLT 501	French	VA	SEC	2	0	0	2	2
FLG 501	German							
FLS 501	Spanish							
FLC 501	Chinese							
	Open Elective/Minor Track	OE/MT	OE	3	0	0	3	3
<b>TOTAL</b>				<b>16</b>	<b>9</b>	<b>9</b>	<b>34</b>	<b>34</b>

**AMITY SCHOOL OF ARCHITECTURE & PLANNING**  
**Bachelor of Architecture**

**Total Credits = 299**

**STAGE -I PROGRAM STRUCTURE**

**Note:- Lecture (L) - 1 Hr. = 1 Credits**  
**Studio (ST) - 1 Hr. = 1.5 Credits**  
**Practical (P) - 2 Hrs. = 1 Credit**

**SIXTH SEMESTER**

Course Code	Course Title	Univ. Category	CoA Category	L/T/ST/P Per Week			Credits	Teaching hours
				L	ST	P		
BAR 601	Design – VI	CC	PC	0	8	0	12	8
BAR 602	Materials & Construction Technology – VI	CC	BS & AE	1	1	1	3	3
BAR 603	Structural Design & Systems – VI	CC	BS & AE	2	0	0	2	2
BAR 604	Quantity Surveying & Specification	CC	PC	2	0	0	2	2
BAR 605	Landscape Design & Site Planning	CC	PC	2	0	0	2	2
BAR 606	Building Services - V	CC	BS & AE	2	0	0	2	2
<b>Domain Elective – IV (Select any One DE)</b>								
BAR 608	Intelligent Buildings	DE	PE	2	0	0	2	2
BAR 609	Vaastu in Architecture	DE	PE					
BAR 610	Architecture Pedagogy	DE	PE					
AND 006	Aanandam-VI	VA	SEC	0	0	4	2	4
BCS 601	Communication Skills – VI	VA	SEC	1	0	0	1	1
BSS 605	Behavioural Science – VI (Stress and Coping Strategies)	VA	SEC	1	0	0	1	1
	Foreign Language -VI	VA		2	0	0	2	2
FLT 601	French							
FLG 601	German		SEC					
FLS 601	Spanish							
FLC 601	Chinese							
	Open Elective/Minor Track	OE/MT	OE	3	0	0	3	3
	<b>TOTAL</b>			<b>18</b>	<b>9</b>	<b>5</b>	<b>34</b>	<b>32</b>

**AMITY SCHOOL OF ARCHITECTURE & PLANNING**  
**Bachelor of Architecture**

**Total Credits = 299**

**STAGE -II PROGRAM STRUCTURE**

**Note:- Lecture (L) - 1 Hr. = 1 Credits**  
**Studio (ST) - 1 Hr. = 1.5 Credits**  
**Practical (P) - 2 Hrs. = 1 Credit**

**SEVENTH SEMESTER**

Course Code	Course Title	Univ. Category	CoA Category	L/T/ST/P Per Week			Credits	Teaching hours
				L	T/ST	P		
BAR 701	Design – VII	CC	PC	0	10	0	15	10
BAR 702	Materials & Construction Technology – VII	CC	BS & AE	1	1	1	3	3
BAR 703	Construction & Project Management	CC	PAECC	2	0	0	2	2
BAR704	Housing & Town Planning	CC	PC	2	0	0	2	2
<b>Domain Elective – V (Select any One DE)</b>								
BAR 705	Architectural Conservation	DE	PE	2	0	0	2	2
BAR 706	Modular Construction Technology	DE	PE					
BAR 707	Colors	DE	PE					
<b>Domain Elective – VI (Select any One DE)</b>								
BAR 708	Bioclimatic Architecture	DE	PE	2	0	0	2	2
BAR 709	Professional Presentation Techniques	DE	PE					
BAR 710	Design of Logo & Signages	DE	PE					
BCS 701	Communication Skills – VII	VA	SEC	1	0	0	1	1
BSS 705	Behavioral Science – VII (Individual, Society & Nation)	VA	SEC	1	0	0	1	1
<b>Foreign Language -VII</b>								
FLT 701	French	VA	SEC	2	0	0	2	2
FLG 701	German							
FLS 701	Spanish							
FLC 701	Chinese							
<b>TOTAL</b>				<b>13</b>	<b>11</b>	<b>1</b>	<b>30</b>	<b>25</b>

**AMITY SCHOOL OF ARCHITECTURE & PLANNING**  
**Bachelor of Architecture**

**Total Credits = 299**

**STAGE -II PROGRAM STRUCTURE**

**Note: - Lecture (L) - 1 Hr. = 1 Credits**

**Studio (ST) - 1 Hr. = 1.5 Credits**

**Practical (P) - 2 Hrs. = 1 Credit**

**EIGHTH SEMESTER**

Course Code	Course Title	Univ. Category	CoA Category	L/T/ST/P Per Week			Credits	Teaching hours
				L	T/ST	P		
BAR 801	Practical Training	NTCC	PAECC	0	0	0	25	0

Practical Training will be conducted during Eighth semester. Evaluation (Viva) will be conducted one week after the last date for Ninth Semester Student Re-Registration as announced by AUR.

**NINTH SEMESTER**

Course Code	Course Title	Univ. Category	CoA Category	L/T/ST/P Per Week			Credits	Teaching hours
				L	T/ST	P		
BAR 901	Design – VIII	CC	PC	0	10	0	15	10
BAR 902	Advanced Materials & Construction Technology	CC	BS & AE	1	1	1	3	3
BAR 903	Dissertation	CC	PAECC	0	0	4	2	4
<b>Domain Elective – VII (Select any One DE)</b>								
BAR 904	Light and Architecture	DE	PE	2	0	0	2	2
BAR 905	Intelligent Interiors	DE	PE					
BAR 906	Disaster Resistant Architecture	DE	PE					
<b>Domain Elective – VIII (Select any One DE)</b>								
BAR 907	Tensile Construction	DE	PE	2	0	0	2	2
BAR 908	Interior Design	DE	PE					
BAR 909	Set Design	DE	PE					
	<b>TOTAL</b>			5	11	5	24	21

**AMITY SCHOOL OF ARCHITECTURE & PLANNING**  
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**Total Credits = 299**

**STAGE -II PROGRAM STRUCTURE**

**Note:- Lecture (L) - 1 Hr. = 1 Credits**  
**Studio (ST) - 1 Hr. = 1.5 Credits**  
**Practical (P) - 2 Hrs. = 1 Credit**

**TENTH SEMESTER**

Course Code	Course Title	Univ. Category	CoA Category	L/T/ST/P Per Week			Credits	Teaching hours
				L	ST	P		
BAR 1001	Architectural Thesis Project	CC	PC	0	12	0	18	12
BAR 1002	Professional Practice & Management	CC	PAECC	2	0	0	2	2
<b>Domain Elective – IX (Select any One DE)</b>								
BAR 1003	Product Design	DE	PE	2	0	0	2	2
BAR 1004	Cost Effective Architecture	DE	PE					
BAR 1005	Geographical Information System	DE	PE					
<b>Domain Elective – X (Select any One DE)</b>								
BAR 1006	Architectural Journalism	DE	PE	2	0	0	2	2
BAR 1007	Building Economics & Legislation	DE	PE					
BAR 1008	Building Information Management	DE	SEC					
<b>Domain Elective – XI (Select any One DE)</b>								
BAR 1009	Environmental Impact Assessment	DE	PE	2	0	0	2	2
BAR 1010	Prefabrication	DE	PE					
BAR 1011	Virtual Architecture	DE	PE					
	<b>TOTAL</b>			<b>8</b>	<b>12</b>	<b>0</b>	<b>26</b>	<b>20</b>

Note: Stage -I and Stage -II must be completed in 8 years as per COA

Students completing Stage -I can be awarded Bachelors of Building Science Degree but B. Arch Degree will be awarded after completion of Stage -I & Stage -II

# BAR 101 DESIGN – I

Course Code: BAR 101

Credit Units: 09

L/0-ST/6-P/0 Teaching hours: 06

## Course Objectives:

- To create visual compositions using elements and principles in theory of design and understand its application in built-environment
- To measure, draw and comprehend relationship between human dimensions and those of built-environment.
- To investigate forms and subsequently analyze existing built-forms and spaces through Measured drawings so as to derive design criteria from the Case Studies
- To create architecture design for single purpose space employing the architectural design process
- To practice direct application of learning in BAR107 Theory of Design

## Course Contents:

### **Module I: Design of 2D & 3D Compositions - 2 weeks**

Exercise to design compositions with 2D Shapes and 3D Forms (geometric and irregular) using elements and principles of design

### **Module II: Transformations and Form Analysis– 3 weeks**

Transformations of Forms -Addition, Subtraction, Extrusion – Space division, Space derivation, positive and negative spaces , Form Analysis, 2d representation of 3d form in terms of plan, section and elevation, Application in built- environment such as Façade design, Door elevation, Carpet design; Floor tile design & floor design, Mural design etc.

### **Module III: Anthropometrics - 2 weeks**

Human dimensions – static and dynamic; proportions, space dimensions for various human postures and activities; Modular and Golden Section

### **Module IV: Measured Drawings of Architectural Spaces – 2 weeks**

Importance of Case Study in design learning, Study of various existing architectural spaces through preparation of measured drawing with furniture layout

### **Module V: Design and Representation of Single purpose space unit – 5 weeks**

Design project of Single Space unit structure with respect to Visual Language of Form (Art), Functional Space, Material & Structure (Technology) and culture; Suggestive Studio Projects involving activity spaces such as Living area, sleeping area, washroom, cooking area etc. – for example, cabin design, Entrance gate, kiosk, Toilets, Kitchen, Study room, Exhibition stall etc. *An A4 Design Report - documenting the process & progress of work through clippings of sketches/ photographs of models highlighting design concept as well as the final proposal drawings etc- shall be an essential part of submission.*

## Examination Scheme:

Components	A	S1	S2	CT	Viva	EE
Weightage (%)	05	15	20	10	20	30

## Text Books/Reference Books/Journals/Other Study Material:

- ‘Ching Francis, (1979), Architecture Form, Space and Order, Van Nostrand Reinhold Company, New York.
- Neufert Ernst, (1970), Architect’s Data, Crosby Lockwood and Sons, London.
- Chiara JD and Calender, (1983), Time Savers Standards for Building Types, McGraw Hill Book Company, New York.
- Broomer, F. Gerald (1974) Elements of Design: Space, Davis Publications Inc., Worcester, Massachusetts.
- Wagenknecht, Kay and Herte (1989) Site + Sculpture – A collaborated design Process, Van Nostrand Reinhold, NY.
- Allen, Edward and Iano, Joseph (2006), The Architect’s Studio Companion: Rules of Thumb for Preliminary Design, Wiley; 4<sup>th</sup> edition.
- Frederick, Matthew (2007), 101 Things I Learned in Architecture School, The MIT Press.
- Pearson, David (2001), New organic architecture: the breaking wave, University of California Press.
- Fawcett, Peter (2003), Architecture: design notebook, Architectural Press, 2nd edition

## Online Resources

- <https://www.archdaily.com>
- <http://www.architectmagazine.com>
- <https://www.architecture.com/knowledge-and-resources/resources-landing-page>

# BAR 102 MATERIALS AND CONSTRUCTION TECHNOLOGY - I

Course Code: BAR 102      Credit Units: 03    L/1-ST/1-P/1 Teaching hours: 03

## Course Objective:

To understand the use of traditional building materials in simple building works.

To familiarize students with basic building components, their function and behavior under various conditions with specific reference to “Load Bearing Construction”

## Course Contents:

### **Module I: Building Materials and Construction Technology - 3 weeks**

Introduction to components of building from foundation to roof: Foundation, plinth, plinth beam, damp proof course (D. P.C.), sill, lintel, beam and slab, parapet, mummy etc. Detailed Section through 2 story building, Introduction to various methods, technology, materials, tools and equipment commonly used in – Excavation, Masonry works and carpentry.

### **Module II: Clay and Clay products, Stone - 2 weeks**

Mud including stabilized earth, burnt bricks, brick tiles, blocks, lime and its product, stone and its varieties etc, Classification, availability, preparation and uses of above materials and their structural, visual and textural properties.

### **Module III: Brick and Stone Masonry -3 weeks**

Terminology: Bricks and its types, bats and closures used in different Brick Bonds

Bonding: Types of bonds: English, Single, double, Flemish and rat trap bond.

Corbelling, String courses and decorative brickwork.

**Stone masonry:** Types of stones, dressing and different bonds in stone, Random Rubble, Coursed Rubble, Ashlar.

### **Module IV: Stone and brick masonry Foundation - 3 weeks**

Foundations: Need for foundations, its preliminary design criteria.

Detail of spread foundation for load bearing walls of various thicknesses.

### **Module V: Openings - 2 weeks**

Openings – Types and construction details of Lintels, arches, sill, jam etc. necessary to make openings

**Exercises:** preparation of drawings on above topics.

## Examination Scheme:

Components	A	CE	CT	EE
Weightage (%)	05	25	20	50

## Text Books/Reference Books/Journals/Other Study Material:

- Building construction W.B.McKay
- Building construction R Berry
- Building construction Chudley
- Building construction Francis D.K. Ching.

# BAR 103 STRUCTURAL DESIGN & SYSTEM- I

Course Code: BAR 103 Credit Units: 02

L/2-sT/0-P/0

Teaching hours: 02

## Course Objective:

- To introduce the structural system in a building with all the basic components to understand the functions of various elements and building technologies used in various types of buildings.

## Course Contents:

### **Module I: Simple Stresses and Strains- 3 Weeks**

Elasticity, Stress, Strain, Types of Stresses, Elastic limit, Hook's Law, Modulus of Elasticity, Stresses in Composite Bars, Poison's ratio, shear stress, Basic, Deformation of a body due to self-weight & force acting on it.

### **Module II: Principal stresses and strains-3 Weeks**

Introduction, principal planes & their stresses, Analytical methods for the stresses on an oblique section of a body, stresses on an oblique section of a body subjected to a direct stress in one plane & two mutually perpendicular directions.

### **Module III: Centre of gravity-2 Weeks**

Introduction, Centroid, methods for Centre of gravity, Centre of gravity by geometrical & moments consideration, axis of reference, Centre of gravity of plane figures, symmetrical & unsymmetrical sections.

### **Module IV: Moment of inertia-2 Weeks**

Definition, Important theorems, section Modulus, Calculation of M.I by Integration method and its application to architecture system

### **Module V: Elements of Static-2 Weeks**

Law of parallelogram of forces, resolution of a forces, law of triangular of forces, polygon of forces, Theorem of resolved parts resultant of number of concurrent coplanar forces, conditions of equilibrium, moment of a forces. Moment and arm of a couple, theorems on couples

### **Module VI: Shear force and bending moment-2 Weeks**

Various types of support & loads in Beams, Calculation of reactions in loaded beams, Cantilever & simply supported, Point load, udl & uvl. Calculation of shear force & bending moment & also its diagrammatic representation.

## Examination Scheme:

Components	A	CE	CT	EE
Weightage (%)	05	25	20	50

## Text Books /Reference Books/Journals/Other Study Material:

- Elements of Structure, Morgan
- Salvadori, Structures in Architecture,
- Everet, Structure and Fabric,
- Khurmi R. S., Strength of Materials,
- R.K. Bansal, Engineering Mechanics
- Khurmi R. S, Applied Mechanics and Strength of Materials.
- Salvadori and Heller, Structure in Architecture.

# BAR 104 GRAPHIC SKILLS – I

Course Code: BAR 104      Credit Units: 02      L-0 ST-0 P-4 Teaching hours: 04

## Course Objective:

To familiarize the students with various drawing tools to give basic knowledge of drafting and lettering techniques. To provide a clear understanding about the scale of measurement and orthographic projections used as drawing technique.

## Course Contents:

### **Module I: Introduction to basics drafting, Lettering & Scales**

Introduction and setting to the drawing equipment, Concept of line, its types, Line thickness quality, grade, divisions and angles, Concept of polygons, circles, geometrical curves, helix etc., Concept of Dimensioning & dimension line, BIS codes of drawings.

Free hand and Architectural lettering, proportion of letter size as per scale and size of the sheet. Scales: Engineers scale, Graphical scale and Representation factor (R.F). Scales on drawings. Types of scales: Plain scale and Diagonal scale.

### **Module II: Projection- Point, Lines, Planes**

Definition, meaning and concept, Principles and Methods of projection. Projection of point, Lines & planes.

### **Module III: Projection-Solid**

Projections of regular rectilinear and circular solids (prisms, pyramids, cones, cylinders, spheres etc.) in different positions. Sections of regular rectilinear and circular solids in varying conditions of sectional plane.

### **Module IV: Surface Development**

Introduction and Methods of development of surfaces. Development of lateral surfaces of right solids like Cubes, Prisms, Cylinders, Pyramid, Cone etc.

### **Module V: 3D Drawing Views**

Types, uses & advantage. Isometric, Axonometric & oblique view -solids, compositions & buildings. Metric drawings, projections and their dimensions.

## Examination Scheme:

Components	A	CE	CT	EE
Weightage (%)	05	25	20	50

## Text Books /Reference Books/Journals/Other Study Material:

### *Text:*

- Architectural Graphics, C. Leslie Martin
- Architectural Graphics, Ching Frank
- Engineering Drawing, N.D. Bhatt

### *References:*

- A.J. Metric Handbook, editors, Jan Bilwa and Leslie Fair weather  
Architectural Graphic standards editor, Boaz Joseph
- Neufert's Architect's data
- Time Saver standards for building types, Editor Joseph D.C. and John Callender. Rendering with pen and ink
- Practical Plane and Solid Geometry, H. Joseph and Morris

# BAR 105 HISTORY OF BUILT ENVIRONMENT

Course Code: BAR 105

Credit Units: 02

L/2-T/0-P/0

Teaching hours: 02

## Course Objectives:

- To make them understand the importance of study history of Architecture, development of civilizations and evolution of design as a by process of it
- To familiarize students with the factors influence the development of architecture in the history. Such as socio-economic, historical political influences of that time.
- To inform them about the technologies, materials used in the historical developments and their impact on the present day knowledge of architecture and design.
- To familiarize them the regional architecture.

## Course Contents:

### **Module I: Introduction to History of Human Settlements and Its Importance - 2 weeks**

**Pre-Historic Period till 3000B.C.** - The type of settlement development during the period taking few examples of the different periods – Neolithic, Mesolithic, Bronze age, Iron Age with advancements of construction techniques, material used , human progression over the time period.

### **Module II: Introduction to Valley Civilization-1 - 4 weeks**

**Nile Valley Civilization (3000 B.C. – 100 A.D.)**- Introduction to Egyptian Architecture and civilization, building characteristics and developments over the period in respect of different styles, construction technology, building materials used, evolution of form with significant changes over the time period.

Examples like- Tomb Architecture- Mastabas, Pyramids, Temples at Giza , Thebes ,Karnak Etc.

**Mesopotamian Civilization (2500 B.C. – 600 B.C.)**- Mesopotamian Civilization comprising of Babylonian, Assyrian, Akkadian Sumerian civilization in respect of buildings styles, construction technology, building materials used, evolution of form and art work development with significant changes over the time period

Examples like - Forts ,Temples ,Dwellings ,Ziggurats at Uruk ,Ashur ,Babylon etc.

### **Module III: Introduction to Valley Civilization-2 - 4 weeks**

**Indus Valley Civilization (3300B.C. – 300 B.C.)**- The era of development in the Indus valley. Development of Harappan civilization. Iron Age of India explaining with examples of planning and buildings, construction technology, building materials used, evolution of form and art work development with significant changes over the time period.

**Vedic Architecture (1750 B.C.)**- The Aryan civilization- explain with examples of the buildings, construction technology, building materials used, evolution of form and art work development with significant changes over the time period.

### **Module IV: Introduction to Rajasthani Civilization - 4 weeks**

**Introduction to Regional Architecture of Rajasthan**- Māru-Gurjara Architecture and Rajputana design from different regions with examples of Jaipur City and nearby areas:

Forts & Palaces – Amer Fort, City Palace , Nahargarh Fort, Udaipur Palace, Kumbhalgarh Fort , Mehrangarh fort etc.

Havelis – in Shekhawati like at Nawalgarh , Fatehpur , Ramgarh ,Mandawa etc.

Stepwells & Temples – Chand Baori at Abhaneri , Ranakpur Temple , Dilwara Temple ,Rani Sati Temple ,Eklingji Temple Etc.

Introduction to Planning of Old Jaipur City with characteristics and material significance according to climate . Study the examples of vernacular buildings like Hawa Mahal , City Palace, Albert Hall , Jantar Mantar etc. with developing the understanding of different elements like jharokhas , jalis , chhatris etc. locally available materials , their application , construction techniques, evolution of form and characteristics changed over time period

*Detailed Presentation exercise to be combined with local educational tour, heritage walks to be organized at regular intervals during the semester comprising of analysis of existing structures with respect*

## Examination Scheme:

Components	A	CE	CT	EE
Weightage (%)	05	25	20	50

## Text Books /Reference Books/Journals/Other Study Material:

- Sir Bannister Fletcher, (1975) “The History of Architecture”
- G.K.Hiraskar (2018)“Great Ages of World Architecture”
- Yatin Pandya, (2005) “Concepts of space in Traditional Indian Architecture”
- Deependra Prashad, Saswati Chetia, (2007)“New Architecture and Urbanism: Development of Indian Traditions”
- Vibhuti Chakrabarti,(1998) “Indian Architectural Theory and Practice: Contemporary Uses of Vastu Vidya”

# BAR106 ARCHITECTURAL WORKSHOP

Course Code: BAR 106

Credit Units: 01

L/0-T/0-P/2

Teaching hours: 02

## Course Objectives:

To introduce various building materials like carpentry, materials testing methods within the site and Working methods of Architectural components like Arches, Dome and Vaults etc.

## Course Contents:

### **Module I: Introduction to carpentry - 4 weeks**

Introduction to the carpentry tools, processes, joints and wood working machines. Preparation of various carpentry joints, fixing of plywood, commercial boards etc. and their application in furniture. Painting and polishing on different surfaces and textures

### **Module II: Introduction to Building materials - 6 weeks**

Building materials Manufacturing process, on site quality tests of types of bricks, cement, lime, sand, aggregate. Types and uses of mortar and concrete. Superstructure: Types of bonds, ends and junctions, attached and detached piers, jointing and pointing in brick masonry and stone masonry.

### **Module III: Building Components and construction - 4 weeks**

Types of arches in bricks and stone, centering of arches. Types of Dome, Construction method of Dome, Assembling of Glass curtain wall.

## Examination Scheme:

Components	A	CE	CT	EE
Weightage (%)	05	25	20	50

## Text Books/Reference Books/Journals/Other Study Material:

### Text:

- Cassells Carpentry and Joinery by Paul N. Hasluck
- The Very Efficient Carpenter: Basic Framing for Residential Construction Paperback by Larry Haun
- Complete Book of Framing: An Illustrated Guide for Residential Construction 2nd Edition by Scot Simpson
- The Basics of Building with Arches, Vaults and Cupolas by Thierry Joffroy
- Building of the Arch Enlarged 9th Edition by R. Artaega
- Brunelleschi's Dome: How a Renaissance Genius Reinvented Architecture by Ross King
- Illustrated Dome Building by Gene Hopster
- Dome Builder's Handbook No. 2 by William Yarnall
- Building Materials by S.K. Duggal
- Building Material and Construction (WBSCTE) by S.S. Bhavikatti

### Online Resources

- <http://www.gobrick.com/docs/default-source/read-research-documents/technicalnotes/30-bonds-and-patterns-in-brickwork.pdf?sfvrsn=0>
- <https://civilengineering.blog/2017/10/27/types-of-bonds-in-brick-masonry/>

# BAR 107 THEORY OF DESIGN

Course Code: BAR 107

Credit Units: 02

L/2-ST/0-P/0 Teaching Hours : 02

## Course Objectives:

- To enable student to develop understanding of “Design” as problem solving process for everyday life
- To enable student to interpret “Architecture Design” as integration of Visual Form, Functional space, Human measure, building technology (material and structural systems), economy, culture and environment.
- To enable student for direct application of design theories in studio projects of course BAR101 Design –I

## Course Contents:

### **Module I: Design and Built Environments - 2 weeks**

Introduction to Design – Creative problem solving, Aspects of Design – Art and Science, Design for Built Environment, Role of Architect, Interior Designer & Engineer, Aspects of Architecture Design– Visual Language of Form(Art) , Functional Space, Material & Structure (Technology) and culture.

**Suggested Activities:**i) Student will be asked to use online and Library resources to select images of any one product from everyday life and images of any one building of his/her choice to investigate aspects of design embedded in them. Student will present the investigation and learning in the form of PowerPoint presentation. ii) Group reading and discussion from extracts of “A Pattern Language: Towns, Buildings, Construction – Christopher Alexander”

### **Module II: Visual Language – 4 weeks**

Introduction to how we see forms and perceive them and its importance in design, Visual Elements of Design - **point, line, surface, solids, colour, texture** etc; Principles of Design-**Balance, Symmetry, Repetition, Rhythm, Datum, Hierarchy** etc.; Built Forms and their aesthetics, Order-Character- meaning (symbolism) of Built Forms, Abstraction

**Suggested Activities:**i) Student will be asked to do online search for optical illusions and present them in class to appreciate how we perceive things ii) Student will be asked to disintegrate/explode a given built form into its constituent elements by sequential representation in drawing from whole form to surfaces to lines till points.iii) Student will be asked to sketch any one Building Façade in vicinity to identify and disintegrate it into its constituent design elements. Student needs to present the identified design principle that binds the elements together in the selected building façade iv) Students will be asked to search for built-forms that with strong association in cultural meaning and present them

### **Module III: Function: Activities, Spaces and Anthropometrics – 4 weeks**

Types of Built- Environment - Enclosures; Human activities- space function; Types of Spaces – Primary, Supporting (Ancillary) and Link; Positive and Negative spaces; Relationship between Built-Form and Space & its function; Elements of Space making ; Anthropometrics – Human being as measure of everything, Modular and Golden Section.

**Suggested Activities:**i) *In Group*:- Rectangles of different sizes shall be marked in an open area and students shall be asked to use anthropometrics to suggest activities that can be done in the marked area. Students will enact the suggested activities within the area to evaluate their comprehension of space and anthropometrics ii) *In Group* : Students will be asked to create enclosure around the marked area and comprehend the psychological difference w.r.t space which the sense of enclosure creates in the user. Students shall now be asked to re-suggest the activities within the enclosure and enact them to evaluate their comprehension of space and anthropometrics iii) Composition using Golden Section

### **Module IV: Technology and Design - 2 weeks**

Role of Material and technology in Design for Built- Environments; Brief introduction to types of Structural systems and their influence on built form; key materials used in Building Design (interior and exterior); Relationship between Material, Structure, function and form.

**Suggested Activities:**i) Student will be assigned a building/ built-form to deduce the influence of material and structure system on built-form ii) Redesign of a given built-form by altering material and structural system to presented through conceptual sketch/ model

### **Module V: Design Process in Architecture– 2 weeks**

Iterative problem solving process of Design (Design Cycle); Design Process for Built-forms – sequence and stages; Different drawing types to represent different Design Stages – Bubble Diagram, Space Matrix, Conceptual Drawing, Architectural Presentation Drawing and Working Drawing.

**Suggested Activities:**i) Student will draw Design Process cycle, Bubble Diagram, Space Matrix, conceptual drawing and Presentation drawing for Studio Project in the course BAR101 Design-I

## Examination Scheme:

Components	A	CE	CT	EE
Weightage (%)	05	25	20	50

## Text Books /Reference Books/Journals/Other Study Material:

- A Pattern Language: Towns, Buildings, Construction- Christopher Alexander
- Structure in Architecture, Heller Robert and Salvadori Mario
- Design Fundamental in Architecture, Walter Gropius
- Pattern of Nature, Peter Streens
- Elements of Architecture, Meiss Pieree Von
- Architecture: Form, Space and Order, Francis D.K. Ching
- Elements of Space Making – Yatin Pandya
- Sketch Book by Tony Hunt

# BAR 108 VISUAL ART AND APPRECIATION

Course Code: BAR 108 Credit Units: 01 L/0-ST/0-P/2 Teaching hours: 02

## Course Objectives:

- To familiarize the students with the fundamentals and vocabulary of design.
- To expose the students to the practice of arts appreciation
- To enable the students, represent their ideas in different media through aesthetically pleasing compositions.

## Course Contents:

### **Module I: Principles of design- 2 weeks**

Introduce the students to the fundamental elements of art -line, shapes, form, space, colour, value & texture. Exercises will involve application of these elements.

Impart conceptual and procedural knowledge about principles of design- Balance, unity, pattern, emphasis, movement, rhythm, and contrast. Exercises will require implementation of these principles

### **Module II: Fundamentals of Colours- 3 weeks**

Introduce the students to the fundamental terminologies of colour - hue, intensity, value, shades, tints, warm & cool colours- Learning their synthesis and application through exercises.

Enable the students to comprehend the qualities of colours - Colour wheel - Primary, Secondary & Complementary colours. Learning their synthesis and application through exercises.

### **Module III: Various Mediums of Drawings -3 weeks**

Familiarize the students with the different mediums of drawing- Pencils, ink and water colour. Exercises will include creation of simple art works using the various mediums

### **Module IV: Free hand drawing - 2 weeks**

Upskill the students with techniques of free hand drawing. Exercises will involve drawing of still life objects and outdoor sketches like buildings, streets, etc.

### **Module V: Art Appreciation - 2 weeks**

Expose the students to the practice of interpretation of visual representation like ideas, emotions, and activities. Demonstrate examples to students. Exercises will include synthesis of graphics art with a background expression.

## Examination Scheme:

Components	A	CE	CT	EE
Weightage (%)	05	25	20	50

## Text Books /Reference Books/Journals/Other Study Material:

- Wayne Enstice, Melody Peters, "Drawing space, Form, Expression", Prentice hall, Englewood Cliffs, New Jersey, 1990.
- Palmer John, "Drawing & Sketching", Brock Hampton Press, London, 1993.
- "Learn to Paint and Draw", Victoria House Publishing Ltd., Bath, UK, 1981.
- Goodman Sue & Porter Tom., "Designer Primer", Butter Worth Architecture, London, 1988.

# BAR 109 PRESENTATION TECHNIQUES

Course Code: BAR 109

Credit Units: 01

L/0-ST/0-P/2

Teaching hours: 02

## Course Objectives:

- To familiarize the students with the fundamentals and vocabulary of design.
- To expose the students to the practice of arts appreciation
- To enable the students, represent their ideas in different media through aesthetically pleasing compositions.

## Course Contents:

### Module I: Principles of design- 2 weeks

Introduce the students to the fundamental elements of art -line, shapes, form, space, colour, value & texture. Exercises will include application of these elements.

- Impart conceptual and procedural knowledge about principles of design- Balance, unity, pattern, emphasis, movement, rhythm, and contrast. Exercises will require implementation of these principles

### Module II: Fundamentals of Colours- 3 weeks

Introduce the students to the fundamental terminologies of colour - hue, intensity, value, shades, tints, warm & cool colors- Learning their synthesis and application through exercises. Enable the students to comprehend the qualities of colours -Colour wheel - Primary, Secondary & Complementary colours. Learning their synthesis and application through exercises.

### Module III: Various Mediums of Drawings -3 weeks

Familiarize the students with the different mediums of drawing- Pencils, ink and water colour. Exercises will include creation of simple art works using the various mediums.

### Module IV: Free hand drawing - 2 weeks

Up skill the students with techniques of free hand drawing. Exercises will involve drawing of still life objects and outdoor sketches like buildings, streets, etc.

### Module V: Art Appreciation - 2 weeks

Expose the students to the practice of interpretation of visual representation like ideas, emotions, and activities. Demonstrate examples to students. Exercises will include synthesis of graphics art with a background expression.

## Examination Scheme:

Components	A	CE	CT	EE
Weight age (%)	05	25	20	50

## Text Books /Reference Books/Journals/Other Study Material:

- Architectural Graphics, C. Leslie Martin
- Architectural Graphics, Francis D.K. Ching
- Rendering with Pen & Ink: Robert W. Gill
- The Color Source Book for Graphic Designers: Sadao Nakamiva
- Time Saver standards for building types, Editor Joseph D.C. and John Callender
- Neufert's Architect's Data
- Architectural model making by Nick Dunn
- Architectural Model Building by Roark T. Congdon

# AND 001 AANANDAM-I

Course Code: **AND 001** Course Type: **VA** Credit Units: **02** L/0-ST/0-P/4 Teaching hours: **04**

## Course Objectives:

The objective of this course is to make students aware and empathetic about community issues and to increase interaction among students as well as with the community to enlarge social network.

## Course Contents:

### Directions for Students

- Students should do at least one individual act of goodness each day and Record this act in a dedicated diary/register
- Students should share this dedicated diary/register in Aanandam period with the mentor and share experience with the class.
- Students must take up one Community Service Project in a group of 8-12 students.
- The students must take photographs to document their work
- The students can obtain certificate from the NGO/ Government Agency they are working with for Group Community Service Project
- The students may submit newspaper cuttings
- The students must participate in the Aanandam Day by displaying charts of their Group Community Service Project
- Students must submit Group Community Service Project Report at the end of semester.
- The students may prepare power point presentations/video of their project which will help them get better grades.

### Guidelines for the Report

The project report shall contain:

- Synopsis: clearly stating objectives and activities to be undertaken. Problem identifying and problem-solving projects to be taken up.
- Details of the Mentor and the Participants are to be given (name of mentor, name of participants, phone number/mobile no, email, and address)
- Location / community where the work was carried out
- Details of Activities performed are to be given with date
- Number of beneficiaries and impact on the society (the object should be to empower the community and make them self-reliant)
- Photographs taken for documentation of work should be submitted
- Media coverage of the projects should be attached if any
- Students should also submit their certificates from the government bodies and or nongovernment bodies they collaborate with, if any
- Photographs of **Display charts** or **ppt/video** prepared while presentation on the group community service in the **Aanandam Day** must be submitted along with the report
- The Group Community Service Project Report will be submitted by the Student group leader under the guidance of the mentor to the Director/HoI of the Department.

### Activity Suggestion

The students as per their interest would support activities of community service such as:

- Literacy programs, in today's digital age many organizations/individuals might also need help with email and websites
- Livelihood projects,
- Time giving activities to adopted communities (awareness regarding Govt. programmes) sports like yoga, meditation, drills, and physical exercises in adopted areas
- Activities on arts and culture such as restoration of traditional art and culture and monuments.
- Understand their responsibility in taking care of environment and appreciating cultural diversity
- While some students would be interested in awareness about environment such as protecting and preserving natural resources and animal species (the flora and the fauna). Plantation and animal care centers
- A few would be concerned with healthcare like medical and dental missions, first-aid training, etc.
- Another group may be formed for attending to old people (who have money but need assistance for market and groceries) [Time Bank]
- Another group may be formed for civic activities, awareness programmes.
- Local social problems to be taken up and solutions devised
- Innovations and Startups to be encouraged
- Help plant a community garden, help out at a children's camp
- Integration of these projects with ongoing design and construction may be explored.

### Assessment Scheme:

**Final Evaluation: 50 (Marks)**

(Based on Innovative solution of community issue, Participation and Documentation inform of report)

Components	CE			EE
	Innovation	Participation	Report	
Weightage (%)	30	10	10	--

*Note: Submission of register of everyday activity is mandatory (if register is not submitted by the student, he/she will not be evaluated and considered for the award)*

## BCS 101ENGLISH

Course Code: BCS101

Credit Units: 01

Teaching hours: 01

### Course Objective:

The course is intended to give a foundation of English Language. The literary texts are indented to help students to inculcate creative & aesthetic sensitivity and critical faculty through comprehension, appreciation and analysis of the prescribed literary texts. It will also help them to respond form different perspectives.

### Course Content :

<b>Module I: Vocabulary</b>	Use of Dictionary Use of Words: Diminutives, Homonyms & Homophones
<b>Module II: Essentials of Grammar - I</b>	Articles Parts of Speech Tenses
<b>Module III: Essentials of Grammar - II</b>	Sentence Structure Subject -Verb agreement Punctuation
<b>Module IV: Communication</b>	The process and importance Principles & benefits of Effective Communication
<b>Module V: Spoken English Communication</b>	Speech Drills Pronunciation and accent Stress and Intonation
<b>Module VI: Communication Skills-I</b>	Developing listening skills Developing speaking skills
<b>Module VII: Communication Skills-II</b>	Developing Reading Skills Developing writing Skills Written English communication Progression of Thought/ideas Structure of Paragraph Structure of Essays
<b>Module IX: Short Stories</b>	Of Studies, by Francis Bacon

	<p>Dream Children, by Charles Lamb</p> <p>The Necklace, by Guy de Maupassant</p> <p>A Shadow, by R.K.Narayan</p> <p>Glory at Twilight, Bhabani Bhattacharya</p>
<b>Module X: Poems</b>	<p>All the Worlds a Stage - Shakespeare</p> <p>To Autumn - Keats</p> <p>O! Captain, My Captain. - Walt Whitman</p> <p>Where the Mind is Without Fear - Rabindranath Tagore</p> <p>Psalm of Life - H.W. Longfellow</p>

**Text & References:**

1. Madhulika Jha, Echoes, Orient Long Man
2. Ramon & Prakash, Business Communication, Oxford. Sydney Greenbaum Oxford English Grammar, Oxford.
3. Successful Communications, Malra Treece (Allyn and Bacon) Effective Technical Communication, M. Ashraf Rizvi.

**\* 30 hrs Programme to be continued for Full year**

# BSS 105 BEHAVIOURAL SCIENCE – I (Understanding Self for Effectiveness)

**Course Code: BSS 10**

**Credit Units: 01**

**Teaching hours : 1**

## Course Objective:

This course aims at imparting an understanding of:

Understanding self & process of self-exploration

Learning strategies for development of a healthy self esteem

Importance of attitudes and its effective on personality

Building Emotional Competency

## Course Contents:

<b>Module I: Self: Core Competency</b>	Understanding of Self Components of Self – Self identity Self-concept Self confidence Self-image
<b>Module II: Techniques of Self Awareness</b>	Exploration through Johari Window Mapping the key characteristics of self Framing a charter for self Stages – self-awareness, self-acceptance and self-realization
<b>Module III: Self Esteem &amp; Effectiveness</b>	Meaning Importance Components of self esteem High and low self esteem Measuring your self esteem
<b>Module IV: Building Positive</b>	Attitude Meaning and nature of attitude Components and Types of attitude Importance and relevance of attitude
<b>Module V: Building Emotional Competence</b>	Emotional Intelligence – Meaning, components, Importance and Relevance Positive and negative emotions Healthy and Unhealthy expression of emotions
<b>Module VI: End-of-Semester Appraisal</b>	Viva based on personal journal Assessment of Behavioral change as a result of training Exit Level Rating by Self and Observer

## Examination Scheme:

Components	SAP	A	Mid Term Test (CT)	VIVA	Journal for Success (JOS)
Weightage (%)	20	05	20	30	25

## Text & References:

Organizational Behaviour, Davis, K.

Hoover, Judith D. Effective Small Group and Team Communication, 2002, Harcourt College Publishers  
Dick, Mc Cann & Margerison, Charles: Team Management, 1992 Edition, viva books

Bates, A. P. and Julian, J.: Sociology - Understanding Social Behaviour

Dressler, David and Cans, Donald: The Study of Human Interaction  
Lapiere, Richard. T – Social Change

Lindzey, G. and Borgatta, E: Sociometric Measurement in the Handbook of Social Psychology, Addison – Welsley, US.

Rose, G.: Oxford Textbook of Public Health, Vol.4, 1985.

LaFasto and Larson: When Teams Work Best, 2001, Response Books (Sage), New Delhi

J William Pfeiffer (ed.) Theories and Models in Applied Behavioural Science, Vol 2, Group (1996); Pfeiffer & Company

Smither Robert D.; The Psychology of Work and Human Performance, 1994, Harper Collins College Publishers

# FOREIGN LANGUAGE 101

## FLF 101 FRENCH - I

**Course Code: FLF 101**

**Credit Units: 02**

**Teaching hours : 2**

### Course Objective:

To familiarize the students with the French language with the phonetic system with the syntax with the manners with the cultural aspects.

### Course Contents:

**Module A: pp. 01 to 37: Unités 1, 2, Unité 3 Objectif 1, 2**

Only grammar of Unité 3: objectif 3, 4 and 5

### Contenu lexical :Unité 1 : Découvrir la langue française : (oral et écrit)

1. se présenter, présenter quelqu'un, faire la connaissance des autres, formules de politesse, rencontres
2. dire/interroger si on comprend
3. Nommer les choses

### Unité 2 : Faire connaissance

1. donner/demander des informations sur une personne, premiers contacts, exprimer ses goûts et ses préférences
2. Parler de soi: parler du travail, de ses activités, de son pays, de sa ville.

### Unité 3 :Organiser son temps

- dire la date et l'heure
- **Contenu grammatical :** 1. organisation générale de la grammaire
  - article indéfini, défini, contracté
  - nom, adjectif, masculin, féminin, singulier et pluriel
  - négation avec « de », "moi aussi", "moi non plus"
  - interrogation : Inversion, est-ce que, qui, que, quoi, qu'est-ce que, où, quand, comment, quel(s), quelle(s)
    - Interro-négatif : réponses : oui, si, non
  - pronom tonique/disjoint- pour insister après une préposition
- futur proche

### Examination Scheme:

Components	CT1	CT2	C	I	V	A
Weightage (%)	20	20	20	20	15	5

C – Project + Presentation

I – Interaction/Conversation Practice

**Text & References:**le livre à suivre: Campus: Tome 1

# FLG 101GERMAN - I

**Course Code:FLG 101**

**Credit Units: 02**

**Teaching hours : 2**

## **Course Objective:**

To enable the students to converse, read and write in the language with the help of the basic rules of grammar, which will later help them to strengthen their language.

To give the students an insight into the culture, geography, political situation and economic opportunities available in Germany

## **Course Contents:**

Self introduction: heissen, kommen, wohnwn, lernen, arbeiten, trinken, etc. All personal pronouns in relation to the verbs taught so far.

### **Module I: Introduction**

Greetings: Guten Morgen!, Guten Tag!, Guten Abend!, Gute Nacht!, Danke sehr!,Danke!, Vielen Dank!, (es tut mir Leid!),Hallo, wie geht's?:Danke gut!, sehr gut!, prima!, ausgezeichnet!, Es geht!, nicht so gut!, so la la!, miserabel!

### **Module II: Interviewspiel**

To assimilate the vocabulary learnt so far and to apply the words and phrases in short dialogues in an interview – game for self-introduction.

### **Module III: Phonetics**

Sound system of the language with special stress on Diphthongs

### **Module IV: Countries, nationalities and their languages**

To make the students acquainted with the most widely used country names, their nationalitie and the language spoken in that country.

### **Module V: Articles**

The definite and indefinite articles in masculine, feminine and neuter gender. All Vegetables, Fruits, Animals, Furniture, Eatables, modes of Transport

### **Module VI: Professions**

To acquaint the students with professions in both the genders with the help of the verb “sein”.

### **Module VII: Pronouns**

Simple possessive pronouns, the use of my, your, etc.

### **Module VIII: Colours**

The family members, family Tree with the help of the verb “to have”

All the color and color related vocabulary – colored, colorful, colorless, pale, light, dark, etc.

### **Module IX: Numbers and**

### **calculations – verb “kosten”**

The counting, plural structures and simple calculation like addition, subtraction, multiplication and division to test the knowledge of numbers.

“Wie viel kostet das?”

### **Module X: Revision list of Question pronouns**

W – Questions like who, what, where, when, which, how, how many, how much, etc.

**Examination Scheme:**

<b>Components</b>	<b>CT1</b>	<b>CT2</b>	<b>C</b>	<b>I</b>	<b>V</b>	<b>A</b>
<b>Weightage (%)</b>	0	20	20	20	15	5

C – Project + Presentation

I – Interaction/Conversation Practice

**Text & References:**

Wolfgang Hieber, Lernziel Deutsch

Hans-Heinrich Wangler, Sprachkurs Deutsch

Schulz Griesbach, Deutsche Sprachlehre für  
Ausländer P.L Aneja, Deutsch Interessant- 1, 2 & 3

Rosa-Maria Dallapiazza et al, Tangram Aktuell A1/1,2

Braun, Nieder, Schmöe, Deutsch als Fremdsprache 1A, Grundkurs

# FLS 101 SPANISH – I

**Course Code: FLS 101**

**Credit Units: 02**

**Teaching hours : 2**

## **Course Objective:**

To enable students acquire the relevance of the Spanish language in today's global context, how to greet each other. How to present / introduce each other using basic verbs and vocabulary

## **Course Contents:**

### **Module I**

A brief history of Spain, Latin America, the language, the culture...and the relevance of Spanish language in today's global context.

Introduction to alphabets

### **Module II**

Introduction to 'Saludos' (How to greet each other. How to present / introduce each other).

Goodbyes (despedidas)

The verb *llamarse* and practice of it.

### **Module III**

Concept of Gender and Number

Months of the years, days of the week, seasons. Introduction to numbers 1-100, Colors, Revision of numbers and introduction to ordinal numbers.

### **Module IV**

Introduction to *SER* and *ESTAR* (both of which mean To Be). Revision of 'Saludos' and 'Llamarse'. Some adjectives, nationalities, professions, physical/geographical location, the fact that Spanish adjectives have to agree with gender and number of their nouns. Exercises highlighting usage of *Ser* and *Estar*.

### **Module V**

Time, demonstrative pronoun (Este/esta, Aquel/aquella etc)

### **Module VI**

Introduction to some key AR /ER/IR ending regular verbs.

## **Examination Scheme:**

Components	CT1	CT2	C	I	V	A
Weightage (%)	20	20	20	20	15	5

C – Project + Presentation

I – Interaction/Conversation Practice

## **Text & References:**

Español, En Directo I A

Español Sin Fronteras

# FLC 101CHINESE – I

Course Code:FLC 101

Credit Units: 02

Teaching hours : 2

## Course Objective:

There are many dialects spoken in China, but the language which will help you through wherever you go is Mandarin, or Putonghua, as it is called in Chinese. The most widely spoken forms of Chinese are Mandarin, Cantonese, Gan, Hakka, Min, Wu and Xiang. The course aims at familiarizing the student with the basic aspects of speaking ability of Mandarin, the language of Mainland China. The course aims at training students in practical skills and nurturing them to interact with a Chinese person.

## Course Contents:

<b>Module I</b>	Show pictures, dialogue and retell. Getting to know each other. Practicing chart with Initials and Finals. (CHART – The Chinese Phonetic Alphabet Called “Hanyu Pinyin” in Mandarin Chinese.) Practicing of Tones as it is a tonal language. Changes in 3 <sup>rd</sup> tone and Neutral Tone.
<b>Module II</b>	Greetings Let me Introduce The modal particle “ne”. Use of Please ‘qing’ – sit, have tea .....etc. A brief self-introduction – Ni hao ma? Zaijian! Use of “bu” negative.
<b>Module III</b>	Attributives showing possession How is your Health? Thank you Where are you from? A few Professions like – Engineer, Businessman, Doctor, Teacher, Worker. Are you busy with your work? May I know your name?
<b>Module IV</b>	Use of “How many” – People in your family? Use of “zhe” and “na”. Use of interrogative particle “shenme”, “shui”, “ma” and “nar”. How to make interrogative sentences ending with “ma”. Structural particle “de”. Use of “Nin” when and where to use and with whom. Use of guixing. Use of verb “zuo” and how to make sentences with it.
<b>Module V</b>	Family structure and Relations. Use of “you” – “mei you”. Measure words Days and Weekdays. Numbers. Maps, different languages and Countries.

## Examination Scheme:

Components	CT1	CT2	C	I	V	A
Weightage (%)	20	20	20	20	15	5

C – Project + Presentation

I – Interaction/Conversation Practice

**Text & References:**

“Elementary Chinese Reader Part I” Lesson 1-10

# BAR 201 DESIGN – II

Course Code: BAR 201

Credit Units: 09

L/0-ST/6-P/0

Teaching hours: 06

## Course Objectives:

- To understand interdependence of Form, Function, structure and basic services in building design
- To comprehend Site as determinant of Architectural Design
- To progress from the ability to design for uni-functional space to multi-functional spaces in a single building not exceeding G+1

## Course Contents:

### **Module I: Introduction**

Introduction to interdependence of Form, Function, Structure and essential services in with examples of residential buildings not exceeding G+1; Establishing Relationships between multifunctional spaces and their disposition in a single building; Understanding Site and Conducting Site Studies; Project introduction for studio exercise

### **Module II Measured Drawing as Tool for Case Studies and Site Studies**

Detailed Measured Drawings (Plans, Sections & Elevations) of Residential building along with Site measurements and studies; Literature Review – Design Standards and Codes, Brief Formulation

### **Module III: Concept Formulation**

Development of concept to be presented with conceptual block model and sketches for approval.

### **Module IV: Design Development**

Design to be developed through a series of appraisals and open discussions. Planning at site as well as building level to be frozen and workability, efficiency of design to be worked out and finalized.

### **Module V: Presentation**

Enhancement of presentation skills using multiple media. Creation of 3-D models based on the design. Preparation of perspective views (internal & external). Presentation of studies and design proposal through submission of sheet work – drawings and views as well as scaled models. *An A4 Design Report - documenting the process & progress of work through clippings of sketches/ photographs of models highlighting design concept as well as the final proposal drawings etc- shall be an essential part of submission.*

Design exercise can include minor problems like bus shelter, milk booth, entrance gate, watchman's cabin, traffic police kiosk, flower stall, ATM Centre and major problems like Residence – villa, farmhouse, weekend cottage, artist studio etc. having 3-4 spaces.

## Examination Scheme:

Components	A	S1	S2	CT	EE	
Weightage (%)	05	15	20	10	20 Viva	30 EE

## Text Books/Reference Books/Journals/Other Study Material:

- 'Ching Francis, (1979), Architecture Form, Space and Order, Van Nostrand Reinhold Company, New York.
- Neufert Ernst, (1970), Architect's Data, Crosby Lockwood and Sons, London.
- Chiara JD and Calender, (1983), Time Savers Standards for Building Types, McGraw Hill Book Company, New York.
- Broomer, F. Gerald (1974) Elements of Design: Space, Davis Publications Inc., Worcester, Massachusetts.
- Wagenknecht, Kay and Herte (1989) Site + Sculpture – A collaborated design Process, Van Nostrand Reinhold, NY.
- Allen, Edward and Iano, Joseph (2006), The Architect's Studio Companion: Rules of Thumb for Preliminary Design, Wiley; 4<sup>th</sup> edition.
- Frederick, Matthew (2007), 101 Things I Learned in Architecture School, The MIT Press.
- Pearson, David (2001), New organic architecture: the breaking wave, University of California Press.
- Fawcett, Peter (2003), Architecture: design notebook, Architectural Press, 2nd edition

## Online Resources

- <https://www.archdaily.com>
- <http://www.architectmagazine.com>
- <https://www.architecture.com/knowledge-and-resources/resources-landing-page>

# BAR 202 MATERIALS AND CONSTRUCTION TECHNOLOGY - II

Course Code: BAR 102

Credit Units: 03

L/1-ST/1-P/1 Teaching hours: 03

## Course Objective:

- To acquaint the students with Timber as a construction material and to familiarize them with construction techniques for use in building works.

## Course Contents:

### **Module I: Timber -2 weeks**

Difference between wood and timber, Classification, Characteristics, Defects and Preservation.

### **Module II: Timber Doors --3 weeks**

Drawings of Timber Joinery, Types, Classification and Usage.

**Doors:** Lugged, Braced, Battered door, flush, paneled, single and double shutter doors of various types and sizes.

### **Module III: Timber Windows and ventilators - 3 weeks**

Types, classification and construction details

Fully glazed, fixed glass, timber louvered, bay & casement window detail, ventilators details.

### **Module IV: Different type of Timber products: -3 weeks**

Soft board, hard board, ply, straw board, MDF board, saw dust, block and particle board etc.

Their manufacturing, advantages and disadvantages, market terminology, Sizes available and prices, availability and use with all the details. Report, samples, catalogs to be compiled from market survey.

### **Module V: Wooden Staircases & trusses- Basic concepts and construction -2 weeks**

Different type of Staircases & trusses and their terminology and construction detail.

**Exercises:** Preparation of drawings on above topics.

## Examination Scheme:

Components	A	CE	CT	EE
Weightage (%)	05	25	20	50

## Text Books /Reference Books/Journals/Other Study Material:

- Building construction W.B.McKay
- Building construction R Berry
- Building construction Chudley
- Building construction Francis D.K. Ching

# BAR 203 STRUCTURAL DESIGN & SYSTEM - II

Course Code: BAR 203 Credit Units: 02

L/2-ST/0-P/0

Teaching hours: 02

## Course Objective:

- To understand the application of basic structural system into modified system of structure.
- To help the students for understand the basic principles of structural behavior and requirements of buildings with emphasis laid on the principles of various load & stresses distribution in beams and columns.

## Course Contents:

### **Module I:Stresses in Beams-3 weeks**

Theory of simple bending- neutral layer, bending stresses in beams, bending equation, Definitions, Distribution of shear stress in section of a beam – rectangular, semi- circular, T and I sections.

### **Module II:Analysis of Trusses-2 weeks**

Introduction, forces in members, analytical methods, Method of joint & sections, graphical method, link polygon in trusses

### **Module III:Direct and Bending stresses-2 weeks**

Introduction, eccentric loading, columns with eccentric loading, symmetrical columns with eccentric loading about one & two axis.

### **Module IV:Deflection of Beams-3 weeks**

Introduction, Curvature of the bending beam, relation between slope, deflection & radius of curvature, methods for slope & deflection at a section, simply supported beam with a central, eccentric, UDL, UVL, Macaulay's method for slope & deflection.

### **Module V:Columns & Struts-3 weeks**

Definition, Euler's Theory of long columns, Assumptions in the Euler's column theory Columns with end conditions, slenderness ratio, Limitations of Euler's formulae, IS Codes for columns.

## Examination Scheme:

Components	A	CE	CT	EE
Weightage (%)	05	25	20	50

## Text Books /Reference Books/Journals/Other Study Material:

- Elements of Structure, Morgan
- Salvadori, Structures in Architecture,
- Everet, Structure and Fabric,
- Khurmi R. S., Strength of Materials,
- R.K. Bansal, Engineering Mechanics By.
- Khurmi R. S, Applied Mechanics and Strength of Materials,
- Salvadori and Heller, Structure in Architecture,

**BAR 204 GRAPHIC SKILLS – II**  
**Course Code: BAR 204 Credit Units: 02**

L/0 ST/0 P/4 Teaching hours: 04

**Course Objective:**

To enable students to produce manual drawings of interpenetration of solids, perspective views and Sciography. To impart the techniques of architectural rendering required for effective presentation.

**Course Contents:**

**Module I: Interpenetration of Solids**

Orthographic Projection Drawings and Axonometric views of interpenetration of different solids in different position.

**Module II: Introduction to perspective – Plan Method**

Importance and use of perspective drawing in architecture; Anatomy of a perspective-cone of vision, station Points, picture plane, eye level, horizon line, ground line, vanishing point, etc; One point & Two point Perspectives Plan Method-simple form to building forms.

**Module III: Perspective – Grid Method**

One Point and Two point perspectives using Grid Method for faster production of Perspective Drawings.

**Module IV: Sciography**

Values in shades and shadows. Constructing plan shadows (point, line and plane), Constructing shadows in elevations (Point, line and Plane). Constructing shadows in perspective views. Short-cut methods for constructing shadows.

**Module V: Introduction to Rendering(dry and wet)**

Presentation techniques in different types, medium and materials. Rendering perspectives in different media (Dry/water based color and ink etc.). Variation in color/ ink, as per light position. Use of basic plantation, vehicles, human beings etc to introduce scale to building perspectives.

**Examination Scheme:**

Components	A	CE	CT	EE
Weightage (%)	05	25	20	50

**Text Books /Reference Books/Journals/Other Study Material:**

**Text:**

- Architectural Graphics, C. Leslie Martin
- Perspective and Sciography, Shankar Mulik
- Interior Design, Ahmed Kasu
- Architectural Graphics, Ching Frank
- Engineering Drawing, N.D. Bhatt
- Engineering Drawing – P.S. Gill

**References:**

- A.J. Metric Handbook, editors, Jan Bilwa and Leslie Fair weather
- Architectural Graphic standards editor, Boaz Joseph
- Neufert's Architect's data
- Time Saver standards for building types, Editor Joseph D.C. and John Callender.
- Rendering with pen and ink.

# BAR 205 HISTORY OF ARCHITECTURE-I

Course Code: BAR 205

Credit Units: 02L/2-ST/0-P/0

Teaching hours: 02

## Course Objectives:

- Understanding of the Art and architecture of an era with respect to its influence in terms of its location, climate as well as the socio-cultural historical, economical and political systems in planning, building form and architectural details.
- Study of the building types and development of major buildings form of that period in detail with examples that identify the works of the period.

## Course Contents:

### **Module I: Module titleBuddhist and Architecture- 2 weeks**

Buddhist Architecture- study of Bodhi Gaya and Sanchi Stupa, Examples of Chaityas, Monastries and Stupas

### **Module II: Temple Architecture- 2 Weeks**

- South India or Dravidian Architecture – Pallava Style (AD 600-900), Chola Style (AD 900-1150), Pandya Style (AD 1200 -1350), Vijaynagara Style. Some of the major buildings to be covered include Ratha and Shore temples in Mahabalipuram, Brihadeshwara Temple in Tanjore, Meenakshi Temple in Madurai and Virupaksha Temple
- North India  
Nagara Style of Gwalior explained using examples of Teli Ka Mandir, Chaturbhuj Temple, etc.  
Nagara Style of Orissa with examples of Mukteshwara Temple, Lingaraja Temple, Konark Sun Temple, etc.  
Khajuraho Group of temples
- Central India - Chalukyan/ Vesara Style of Architecture – Description using examples like Badami Temple, temples at Aihole, etc.
- Jain temples of Rajasthan and Gujarat

### **Module III: Introduction to Islamic Period-1 Week**

Introduction and understanding of “Islam’s” philosophy and its interpretation in building types – Mosque, Tomb, Fort and their elements like dome, arches, minarets etc. With reference to the Slave, Khilji, Tughlaq, Lodi and Shershah Suri (who ruled from Delhi), architecture at Punjab, Gujrat, Bijapur and Deccan.

### **Module IV: Mughal Architecture-2 Weeks**

Examples of monuments at Fatehpur Sikri, Qutab Complex, Tughlakabad, Taj Mahal, Gol Gumbaz, Golconda Fort, Jami Masjid etc. The Architecture related to Babur, Humayun, Akbar, Shahajan Period and later Mughal period its implication on Architectural field. Introduction to Mughal Gardens

### **Module V : Indian Colonial architecture-1 Week**

Monumental buildings of Early colonial period – Examples – St. Pauls Cathedral Calcutta & Bombay Town hall – Architectural character of Indo-Saracenic and Classical revival – University of Madras Senate House & Victoria Memorial hall Calcutta – Later Colonial period – Contribution of Edwin Lutyens & Herbert Baker to the lay-out and Architecture of New Delhi – Rashtrapathi Bhavan & Parliament House.

**Measured drawing exercise may be combined with local educational tour, recommended by the subject teacher to be organized at the end of the semester after the examinations**

## Examination Scheme:

Components	A	CE	CT	EE
Weightage (%)	05	25	20	50

## Text Books /Reference Books/Journals/Other Study Material:

### **Text:**

- “Glimpses of World History” by Pt. Jawahar Lal Nehru
- “The History of Architecture” by Sir Bannister Fletcher
- *Indian Architecture (Islamic Period) – Percy Brown*
- *Indian Architecture – Islamic Period – 1192 – 1857 b – Dr. Surinder Bahai*
- *Islamic Architecture of the Indian Subcontinent – Bianca Maria Alferia*
- “Buddhist and Hindu Architecture” in Indiaby

### **References:**

- History of Architecture – J ES wain
- History of Architecture by Dora Couch
- A study of History – Almond Toynebee
- Traditions in Architecture – Dora Couch
- Indian Architecture (Islamic Period) – Percy Brown

## BAR 206 BUILDING SERVICES -I

Course Code: BAR 206

Credit Units: 02

L/2-T/0-P/0

Teaching hours: 02

### Course Objectives:

- To acquaint students to basic principles of water supply, sanitation and plumbing bye laws and systems.
- To assist them in design of plumbing systems at building to town level for different typologies.

### Course Contents:

#### **Module I: Water Supply- 2 weeks**

Introduction to water supply- sources of water; impurities, purification and treatment of water, Need to protect water; and requirements of water supply for different building types- storage, distribution.

Water supply systems at City/ Settlement level; Distribution networks; schematic making of an overhead water reservoir for a town/city.

#### **Module II: Drainage Systems- 3 weeks**

Concept, design and detailing of drainage systems at micro and macro level- Introduction to municipal drainage systems at town level, Building/ Site planning for drainage systems, Rainfall, Storm water drains, gullies, open drains (construction, gradients, ventilation and maintenance etc.). Concept, design and detailing of rainwater harvesting systems. Self-cleansing velocity, invert levels, drains on sloping sites, sewage disposal system in unsewered localities- septic tank, soak pits, cesspools, aqua-privy, leeching pits for individual building of urban and rural areas.

#### **Module III: Sanitation- Sewerage- 2 weeks**

Purpose and principles, collection and conveyance of waste matter. Sewage treatment plants and bye products. Sewage system design at building and town level. Sanitary appliances, fixture, traps, pipes and joints, drainage in non-municipal areas. Plumbing bye laws. Plumbing design of a toilet and kitchen

#### **Module IV: Sanitation- Solid waste management - 2 weeks**

Garbage types, collection and disposal- Purpose and methods (Incinerator, Dry disposal etc.). Garbage disposal in multi-story buildings, Treatment of industrial refuse, Refuse and pollution problems. R4 of waste management.

*Any important note or instruction for course coordinator*

### Examination Scheme:

Components	A	CE	CT	EE
Weightage (%)	05	25	20	50

### Text Books/Reference Books/Journals/Other Study Material:

#### Text:

- Water supply, waste disposal and environmental engineering, Chatterjee Water supply and sanitary engineering, Singh
- Water supply and sanitation, Shah
- S.C.Rangwala, "Water supply and sanitary engineering", Chartar publishing house, Anand, 1989.

#### References:

- Design and practical handbook of plumbing, Mohan & Anand Plumbing Design and practice, Deolalikar
- Civil handbook, Khanna
- Building construction details, Banz
- Maintenance of buildings, Panchdhari
- G.M. Fair, J.C. Geyer and D.Okun, "Water and Waste water engineering", Volume II, John Wiley & Sons, Inc. New York, 1968
- Manual on sewerage and sewerage treatment, CPHEEO – Ministry of works and housing, New Delhi, 1980
- Renewable energy, basics and technology, supplement volume on integrated energysystems, Auroville, 1998

## AND 002 AANANDAM-II

Course Code: AND 002 Course Type: VA Credit Units: 02 L/0-ST/0-P/4 Teaching hours: 04

### Course Objectives:

The objective of this course is to make students aware and empathetic about community issues and to increase interaction among students as well as with the community to enlarge social network.

### Course Contents:

#### Directions for Students

- Students should do at least one individual act of goodness each day and Record this act in a dedicated diary/register
- Students should share this dedicated diary/register in Aanandam period with the mentor and share experience with the class.
- Students must take up one Community Service Project in a group of 8-12 students.
- The students must take photographs to document their work
- The students can obtain certificate from the NGO/ Government Agency they are working with for Group Community Service Project
- The students may submit newspaper cuttings
- The students must participate in the Aanandam Day by displaying charts of their Group Community Service Project
- Students must submit Group Community Service Project Report at the end of semester.
- The students may prepare power point presentations/video of their project which will help them get better grades.

#### Guidelines for the Report

The project report shall contain:

- Synopsis: clearly stating objectives and activities to be undertaken. Problem identifying and problem-solving projects to be taken up.
- Details of the Mentor and the Participants are to be given (name of mentor, name of participants, phone number/mobile no, email etc.)
- Location / community where the work was carried out
- Details of Activities performed are to be given with date
- Number of beneficiaries and impact on the society (the object should be to empower the community and make them self-reliant)
- Photographs taken for documentation of work should be submitted
- Media coverage of the projects should be attached if any
- Students should also submit their certificates from the government bodies and or nongovernment bodies they collaborate with, if any
- Photographs of **Display charts** or **ppt/video** prepared while presentation on the group community service in the **Aanandam Day** must be submitted along with the report
- The Group Community Service Project Report will be submitted by the Student group leader under the guidance of the mentor to the Director/HoI of the Department.

#### Activity Suggestion

The students as per their interest would support activities of community service such as:

- Literacy programs, in today's digital age many organizations/individuals might also need help with email and websites
- Livelihood projects,
- Time giving activities to adopted communities (awareness regarding Govt. programmes) sports like yoga, meditation, drills, and physical exercises in adopted areas
- Activities on arts and culture such as restoration of traditional art and culture and monuments.
- Understand their responsibility in taking care of environment and appreciating cultural diversity
- While some students would be interested in awareness about environment such as protecting and preserving natural resources and animal species (the flora and the fauna). Plantation and animal care centers
- A few would be concerned with healthcare like medical and dental missions, first-aid training, etc.
- Another group may be formed for attending to old people (who have money but need assistance for market and groceries) [Time Bank]
- Another group may be formed for civic activities, awareness programmes.
- Local social problems to be taken up and solutions devised
- Innovations and Startups to be encouraged
- Help plant a community garden, help out at a children's camp
- Integration of these projects with ongoing design and construction may be explored.

#### Assessment Scheme:

**Final Evaluation: 50 (Marks)**

(Based on Innovative solution of community issue, Participation and Documentation inform of report)

Components	CE			EE
	Innovation	Participation	Report	
Weightage (%)	30	10	10	--

*Note: Submission of register of everyday activity is mandatory (if register is not submitted by the student, he/she will not be evaluated and considered for the award)*

# EVS 001ENVIRONMENTSCIENCE

**Course Code: EVS 001**

**Credit Unit: 04**

**Teaching hours: 04**

## Course Objective:

The term environment is used to describe, in the aggregate, all the external forces, influences and conditions, which affect the life, nature, behavior and the growth, development and maturity of living organisms. At present a great number of environment issues, have grown in size and complexity day by day, threatening the survival of mankind on earth. A study of environmental studies is quite essential in all types of environmental sciences, environmental engineering and industrial management. The objective of environmental studies is to enlighten the masses about the importance of the protection and conservation of our environment and control of human activities which has an adverse effect on the environment.

## Course Contents:

<b>Module I: The multidisciplinary nature of environmental studies</b>	Definition, scope and importance Need for public awareness
<b>Module II: Natural Resources</b>	<b>Renewable and non-renewable resources:</b> Natural resources and associated problems; Forest resources: Use and over-exploitation, deforestation, case studies. Timber extraction, mining, dams and their effects on forests and tribal people. Water resources: Use and over-utilization of surface and ground water, floods, drought, conflicts over water, dams-benefits and problems. Mineral resources: Use and exploitation, environmental effects of extracting and using mineral resources, case studies. Food resources: World food problems, changes caused by agriculture and overgrazing, effects of modern agriculture, fertilizer-pesticide problems, water logging, salinity, case studies. Energy resources: Growing energy needs, renewable and non-renewable energy sources, use of alternate energy sources, case studies. Land resources: Land as a resource, land degradation, man induced landslides, soil erosion and desertification. Role of an individual in conservation of natural resources. Equitable use of resources for sustainable lifestyles.
<b>Module III: Ecosystems</b>	Concept of an ecosystem, Structure and function of an ecosystem Producers, consumers and decomposers, Energy flow in the ecosystem Ecological succession, Food chains, food webs and ecological pyramids Introduction, types, characteristic features, structure and function of the following ecosystem: a. Forest ecosystem b. Grassland ecosystem c. Desert ecosystem d. Aquatic ecosystems (ponds, streams, lakes, rivers, ocean estuaries)
	Introduction – Definition: genetic, species and ecosystem diversity Biogeographical classification of India Value of biodiversity: consumptive use, productive use, social, ethical aesthetic and option values

<b>Module IV: Biodiversity and its conservation</b>	<p>Biodiversity at global, national and local levels</p> <p>India as a mega-diversity nation</p> <p>Hot-spots of biodiversity</p> <p>Threats to biodiversity: habitat loss, poaching of wildlife, man wildlife conflicts</p> <p>Endangered and endemic species of India</p> <p>Conservation of biodiversity: In-situ and Ex-situ conservation of biodiversity</p>
<b>Module V: Environmental Pollution</b>	<p>Definition, causes, effects and control measures of:</p> <ol style="list-style-type: none"> <li>a. Air pollution</li> <li>b. Water pollution</li> <li>c. Soil pollution</li> <li>d. Marine pollution</li> <li>e. Noise pollution</li> <li>f. Thermal pollution</li> <li>g. Nuclear pollution</li> </ol> <p>Solid waste management: Causes, effects and control measures of urban and industrial wastes. Role of an individual in prevention of pollution.</p> <p>Pollution case studies.</p> <p>Disaster management: floods, earthquake, cyclone and landslides.</p>
<b>Module VI: Social Issues and the Environment</b>	<p>From unsustainable to sustainable development</p> <p>Urban problems and related to energy</p> <p>Water conservation, rain water harvesting, watershed management</p> <p>Resettlement and rehabilitation of people; its problems and concerns.</p> <p>Case studies, Environmental ethics: Issues and possible solutions</p> <p>Climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust. Case studies.</p> <p>Wasteland reclamation, Consumerism and waste products</p> <p>Environmental Protection Act, Air (Prevention and Control of Pollution) Act, Water (Prevention and control of Pollution) Act, Wildlife Protection Act, Forest Conservation Act, Issues involved in enforcement of environmental legislation, Public awareness</p>
<b>Module VII: Human Population and the Environment</b>	<p>Population growth, variation among nations</p> <p>Population explosion – Family Welfare Programmes</p> <p>Environment and human health</p> <p>Human Rights, Value Education, HIV / AIDS, Women and Child Welfare</p> <p>Role of Information Technology in Environment and Human Health</p> <p>Case Studies</p>
<b>Module VIII: Field Work</b>	<p>Visit to a local area to document environmental assets-river / forest/ grassland/ hill/ mountain.</p> <p>Visit to a local polluted site – Urban / Rural / Industrial / Agricultural</p> <p>Study of common plants, insects, birds</p> <p>Study of simple ecosystems-pond, river, hill slopes, etc (Field work equal to 5 lecture hours)</p>

**Examination Scheme:**

Components	CT	HA	S/V/Q	A	EE
Weightage (%)	15	5	5	5	70

**Text & References:**

Agarwal, K.C. 2001 Environmental Biology, Nidi Publ. Ltd. Bikaner.

Bharucha Erach, The Biodiversity of India, Mapin Publishing Pvt. Ltd., Ahmedabad 380 013, India,  
Email:mapin@icenet.net (R)

Brunner R.C., 1989, Hazardous Waste Incineration, McGraw Hill Inc.

480p Clark R.S., Marine Pollution, Clanderson Press Oxford (TB)

Cunningham, W.P. Cooper, T.H. Gorhani, E & Hepworth, M.T. 2001, Environmental Encyclopedia, Jaico Publ. House, Mumabai, 1196p

De A.K., Environmental Chemistry, Wiley Eastern Ltd.

Down to Earth, Centre for Science and Environment (R)

Gleick, H.P. 1993. Water in Crisis, Pacific Institute for Studies in Dev., Environment & Security. Stockholm Env. Institute Oxford Univ. Press. 473p

Hawkins R.E., Encyclopedia of Indian Natural History, Bombay Natural History Society, Bombay (R)

Heywood, V.H & Waston, R.T. 1995. Global Biodiversity Assessment. Cambridge Univ. Press 1140p.

Jadhav, H & Bhosale, V.M. 1995. Environmental Protection and Laws. Himalaya Pub. House, Delhi 284 p. Mckinney, M.L. & School, R.M. 1996. Environmental Science Systems & Solutions, Web enhanced edition. 639p.

Mhaskar A.K., Matter Hazardous, Techno-Science Publication (TB)

Miller T.G. Jr. Environmental Science, Wadsworth Publishing Co. (TB)

Odum, E.P. 1971. Fundamentals of Ecology. W.B. Saunders Co. USA, 574p

Rao M N. & Datta, A.K. 1987. Waste Water treatment. Oxford & IBH Publ. Co. Pvt. Ltd.

345p. Sharma B.K., 2001. Environmental Chemistry. Geol Publ. House, Meerut

Survey of the Environment, The Hindu (M)

Townsend C., Harper J, and Michael Begon, Essentials of Ecology, Blackwell Science

Trivedi R.K., Handbook of Environmental Laws, Rules Guidelines, Compliances and Standards, Vol I and II, Enviro Media (R)

Trivedi R. K. and P.K. Goel, Introduction to air pollution, Techno-Science Publication (TB)

Wanger K.D., 1998 Environnemental Management. W.B. Saunders Co. Philadelphia, USA 499p

## BCS 201ENGLISH

Course Code:BCS 201

Credit Units: 01

Teaching hours: 01

### Course Objective:

The course is intended to give a foundation of English Language. The literary texts are indented to help students to inculcate creative & aesthetic sensitivity and critical faculty through comprehension, appreciation and analysis of the prescribed literary texts. It will also help them to respond form different perspectives.

### Course Contents:

<b>Module I: Vocabulary</b>	Use of Dictionary Use of Words: Diminutives, Homonyms & Homophones
<b>Module II: Essentials of Grammar - I</b>	Articles Parts of Speech Tenses
<b>Module III: Essentials of Grammar - II</b>	Sentence Structure Subject -Verb agreement Punctuation
<b>Module IV: Communication</b>	The process and importanc Principles & benefits of Effective Communication
<b>Module V: Spoken English Communication</b>	Speech Drills Pronunciation and accent Stress and Intonation
<b>Module VI: Communication Skills-I</b>	Developing listening skills Developing speaking skills
<b>Module VII: Communication Skills-II</b>	Developing Reading Skills Developing writing Skills
<b>Module VIII: Written English communication</b>	Progression of Thought/ideas Structure of Paragraph Structure of Essays
<b>Module IX: Short Stories</b>	Of Studies, by Francis Bacon Dream Children, by Charles Lamb The Necklace, by Guy de Maupassant A Shadow, by R.K. Narayan Glory at Twilight, Bhabani Bhattacharya
<b>Module X: Poems</b>	All the Worlds a Stage                      Shakespeare To Autumn                                        Keats O! Captain, My Captain.                      Walt Whitman Where the Mind is Without Fear              Rabindranath Tagore Psalm of Life                                      H.W. Longfellow

**Examination Scheme:**

<b>Components</b>	<b>A</b>	<b>CT</b>	<b>HA</b>	<b>EE</b>
<b>Weightage (%)</b>	05	15	10	70

**Text & References:**

Madhulika Jha, Echoes, Orient Long Man

Ramon & Prakash, Business Communication, Oxford.

Sydney Greenbaum Oxford English Grammar, Oxford.

Successful Communications, Malra Treece (Allyn and Bacon)

Effective Technical Communication, M. Ashraf Rizvi.

## **BSS 205 BEHAVIOURAL SCIENCE – II**

(PROBLEM SOLVING AND CREATIVE THINKING)

**Course Code: BSS 205**

**Credit Units: 01**

**Teaching hours: 01**

### **Course Objective:**

To enable the students:

Understand the process of problem solving and creative thinking.

Facilitation and enhancement of skills required for decision-making.

### **Course Contents:**

#### **Module I: Thinking as a tool for Problem Solving**

What is thinking: The Mind/Brain/Behaviour

Thinking skills

Critical Thinking and Learning:

Making Predictions and Reasoning

Memory and Critical Thinking

Emotions and Critical Thinking

#### **Module II: Hindrances to Problem Solving**

Perception

Expression

Emotion

Intellect

Work environment

#### **Module III: Problem Solving Process**

Recognizing and Defining a problem

Analyzing the problem (potential causes)

Developing possible alternatives

Evaluating Solutions

Resolution of problem

Implementation

#### **Module IV: Plan of Action**

Construction of POA

Monitoring

Reviewing and analyzing the outcome

#### **Module V: Creative Thinking**

Definition and meaning of creativity

The nature of creative thinking

Convergent and Divergent thinking

Idea generation and evaluation (Brain Storming)

Image generation and evaluation

Debating

The six-phase model of Creative Thinking: ICEDIP model

### **Examination Scheme:**

<b>Components</b>	<b>SAP</b>	<b>A</b>	<b>Mid Term Test (CT)</b>	<b>VIVA</b>	<b>Journal for Success (JOS)</b>
<b>Weightage (%)</b>	20	05	20	30	25

**Text & References:**

Michael Steven: How to be a better problem solver, Kogan Page, New Delhi, 1999

Geoff Petty: How to be better at creativity; Kogan Page, New Delhi, 1999

Phil Lowe Koge Page: Creativity and Problem Solving, New Delhi, 1996

Bensley, Alan D: Critical Thinking in Psychology – A Unified Skills Approach, (1998), Brooks/Cole Publishing Company.

# FOREIGN LANGUAGE 201

## FLF 201 FRENCH - II

Course Code: FLF 201

Credit Units: 02

Teaching hours: 02

### Course Objective:

To enable the students to overcome the fear of speaking a foreign language and take position as a foreigner speaking French.

To make them learn the basic rules of French Grammar.

### Course Contents:

Module A : pp.38 – 47 : Unité 3 : Objectif 3, 4, 5, 6

Module B: pp. 47 to 75 Unité 4, 5

### Contenu lexical: Unité 3: Organiser son temps

1. donner/demander des informations sur un emploi du temps, un horaire  
SNCF – Imaginer un dialogue
2. rédiger un message/ une lettre pour ...
  - i) prendre un rendez-vous/ accepter et confirmer/ annuler
  - ii) inviter/accepter/refuser
3. Faire un programme d'activités  
imaginer une conversation téléphonique/un dialogue  
Propositions- interroger, répondre

### Unité 4: Découvrir son environnement

1. situer un lieu
2. s'orienter, s'informer sur un itinéraire.
3. Chercher, décrire un logement
4. connaître les rythmes de la vie

### Unité 5: s'informer

1. demander/donner des informations sur un emploi du temps passé.
2. donner une explication, exprimer le doute ou la certitude.
3. découvrir les relations entre les mots
4. savoir s'informer

### Contenu grammatical:

1. Adjectifs démonstratifs
2. Adjectifs possessifs/exprimer la possession à l'aide de :
  - i. « de » ii. A+nom/pronom disjoint
3. Conjugaison pronominale – négative, interrogative -  
construction à l'infinitif
4. Impératif/exprimer l'obligation/l'interdiction à l'aide de « il  
faut... »/ «il ne faut pas... »
5. passé composé

6.

Questions directes/indirectes

**Examination Scheme:**

<b>Components</b>	<b>CT1</b>	<b>CT2</b>	<b>C</b>	<b>I</b>	<b>V</b>	<b>A</b>
<b>Weightage (%)</b>	20	20	20	20	15	5

C – Project + Presentation

I – Interaction/Conversation Practice

**Text & References:**

le livre à suivre : Campus: Tome 1

## FLG 201 GERMAN – II

**Course Code: FLG 201**

**Credit Units: 02**

**Teaching hours: 02**

### **Course Objective:**

To enable the students to converse, read and write in the language with the help of the basic rules of grammar, which will later help them to strengthen their language.

To give the students an insight into the culture, geography, political situation and economic opportunities available in Germany. Introduction to Grammar to consolidate the language base learnt in Semester I

### **Course Contents:**

#### **Module I: Everything about Time and Time periods**

Time and times of the day.

Weekdays, months, seasons.

Adverbs of time and time related prepositions

#### **Module II: Irregular verbs**

Introduction to irregular verbs like to be, and others, to learn the conjugations of the same, (fahren, essen, lessen, schlafen, sprechen und ähnliche).

#### **Module III: Separable verbs**

To comprehend the change in meaning that the verbs undergo when used as such

Treatment of such verbs with separable prefixes

#### **Module IV: Reading and comprehension**

Reading and deciphering railway schedules/school time table

Usage of separable verbs in the above context

#### **Module V: Accusative case**

Accusative case with the relevant articles

Introduction to 2 different kinds of sentences – Nominative and Accusative

#### **Module VI: Accusative personal pronouns**

Nominative and accusative in comparison

Emphasizing on the universal applicability of the pronouns to both persons and objects

#### **Module VII: Accusative prepositions**

Accusative prepositions with their use

Both theoretical and figurative use

#### **Module VIII: Dialogues**

Dialogue reading: 'In the market place'

'At the Hotel'

### **Examination Scheme:**

Components	CT1	CT2	C	I	V	A
Weightage (%)	20	20	20	20	15	5

C – Project + Presentation

I – Interaction/Conversation Practice

**Text & References:**

Wolfgang Hieber, Lernziel Deutsch

Hans-Heinrich Wangler, Sprachkurs Deutsch

Schulz Griesbach, Deutsche Sprachlehre für  
Ausländer P.L Aneja, Deutsch Interessant- 1, 2 & 3

Rosa-Maria Dallapiazza et al, Tangram Aktuell A1/1,2

Braun, Nieder, Schmöe, Deutsch als Fremdsprache 1A, Grundkurs

## FLS 201 SPANISH – II

Course Code: FLS 201

Credit Units: 02

Teaching hours: 02

### Course Objective:

To enable students acquire more vocabulary, grammar, Verbal Phrases to understand simple texts and start describing any person or object in Simple Present Tense.

### Course Contents:

#### Module I

Revision of earlier modules.

#### Module II

Some more AR/ER/IR verbs. Introduction to root changing and irregular AR/ER/IR ending verbs

#### Module III

More verbal phrases (eg, Dios Mio, Que lastima etc), adverbs (*bueno/malo, muy, mucho, bastante, poco*).

Simple texts based on grammar and vocabulary done in earlier modules.

#### Module IV Possessive pronouns

#### Module V

Writing/speaking essays like my friend, my house, my school/institution, myself...descriptions of people, objects etc, computer/internet related vocabulary

### Examination Scheme:

Components	CT1	CT2	C	I	V	A
Weightage (%)	20	20	20	20	15	5

C – Project + Presentation

I – Interaction/Conversation Practice

### Text & References:

Español, En Directo I A

Español Sin Fronteras

## FLC 201CHINESE – II

Course Code: FLC 201

Credit Units: 02

Teaching hours: 02

### Course Objective:

Chinese is a tonal language where each syllable in isolation has its definite tone (flat, falling, rising and rising/falling), and same syllables with different tones mean different things. When you say, “ma” with a third tone, it mean horse and “ma” with the first tone is Mother. The course aims at familiarizing the student with the basic aspects of speaking ability of Mandarin, the language of Mainland China. The course aims at training students in practical skills and nurturing them to interact with a Chinese person.

### Course Contents:

<b>Module I</b>	Drills Practice reading aloud Observe Picture and answer the question. Tone practice. Practice using the language both by speaking and by taking notes. Introduction of basic sentence patterns. Measure words.Glad to meet you
<b>Module II</b>	Where do you live? Learning different colors. Tones of “bu” Buying things and how muchit costs? Dialogue on change of Money. More sentence patterns on Days and Weekdays. How to tell time. Saying the units of time in Chinese. Learning to say useful phrases like – 8:00, 11:25, 10:30 P.M. everyday, afternoon, evening, night, morning 3:58, one hour, to begin, to end ..... etc.Morning, Afternoon, Evening, Night.
<b>Module III</b>	Use of words of location like-li, wais hang, xia Furniture – table, chair, bed, bookshelf,.. etc. Description of room, house or hostel room..eg what is placed where and how many things are there in it? Review Lessons – Preview Lessons. Expression ‘yao’, ‘xiang’ and ‘yaoshi’ (if). Days of week, months in a year etc. I am learning Chinese. Is Chinese difficult?
<b>Module IV</b>	Counting from 1-1000 Use of “chang-chang”. Making an Inquiry – What time is it now? Where is the Post Office? Days of the week. Months in a year. Use of Preposition – “zai”, “gen”. Use of interrogative pronoun – “duoshao” and “ji”. “Whose”??? Sweater etc is it? Different Games and going out for exercise in the morning.

**Module V**

The verb “qu”  
Going to the library issuing a book from the library Going to the cinema hall, buying tickets  
Going to the post office, buying stamps  
Going to the market to buy things.. etc  
Going to the buy clothes .... Etc.  
Hobby. I also like swimming.  
Comprehension and answer questions based on it.

**Examination Scheme:**

Components	CT1	CT2	C	I	V	A
Weightage (%)	20	20	20	20	15	5

C – Project + Presentation

I – Interaction/Conversation Practice

**Text & References:**

“Elementary Chinese Reader Part I” Lesson 11-20

## BAR 301 DESIGN – III

Course Code: BAR 301 Credit Units: 09

L/0-ST/6-P/0

Teaching hours: 06

### Course Objectives:

- To understand design for low rise Community buildings requiring integration of multifunctional spaces and services
- To understand symbolisms in built-forms

### Course Contents:

#### **Module I: Introduction**

Introduction to community buildings preferably not exceeding G+2 that need ease of access, vertical circulation, way finding and form that can be a landmark and symbolize the aspirations of the target group with examples; Project introduction for studio exercise

#### **Module II :Case studies, Site Studies and Literature Studies**

Case Studies – primary and secondary; Site studies; Literature Review – Design Standards and Codes, Comparative Analysis and Area statement

#### **Module III: Concept Formulation**

Development of concept to be presented with conceptual block model and sketches for approval.

#### **Module IV: Design Development**

Design to be developed through a series of appraisals and open discussions. Planning at site as well as building level to be frozen and workability, efficiency of design to be worked out and finalized.

#### **Module V: Presentation**

Enhancement of presentation skills using multiple media. Creation of 3-D models based on the design. Preparation of perspective views (internal & external). Presentation of studies and design proposal through submission of sheet work – drawings and views as well as scaled models. *An A4 Design Report - documenting the process & progress of work through clippings of sketches/ photographs of models highlighting design concept as well as the final proposal drawings etc- shall be an essential part of submission.*

Design exercise can include community buildings like Kindergarten School, Primary Health Centre, neighbourhood Cafeteria, Motel, Post Office, Bank extension counter, Police Station, Departmental Store, Gymkhana and Youth Club etc.

### Examination Scheme:

Components	A	S1	S2	CT	EE	
Weightage (%)	05	15	20	10	20 Viva	30 EE

### Text Books /Reference Books/Journals/Other Study Material:

- 'Ching Francis, (1979), Architecture Form, Space and Order, Van Nostrand Reinhold Company, New York.
- Neufert Ernst, (1970), Architect's Data, Crosby Lockwood and Sons, London.
- Chiara JD and Calender, (1983), Time Savers Standards for Building Types, McGraw Hill Book Company, New York.
- Broomer, F. Gerald (1974) Elements of Design: Space, Davis Publications Inc., Worcester, Massachusetts.
- Wagenknecht, Kay and Herte (1989) Site + Sculpture – A collaborated design Process, Van Nostrand Reinhold, NY.
- Allen, Edward and Iano, Joseph (2006), The Architect's Studio Companion: Rules of Thumb for Preliminary Design, Wiley; 4<sup>th</sup> edition.
- Frederick, Matthew (2007), 101 Things I Learned in Architecture School, The MIT Press.
- Pearson, David (2001), New organic architecture: the breaking wave, University of California Press.
- Fawcett, Peter (2003), Architecture: design notebook, Architectural Press, 2nd edition

### Online Resources

- <https://www.archdaily.com>
- <http://www.architectmagazine.com>
- <https://www.architecture.com/knowledge-and-resources/resources-landing-page>

# BAR 302 MATERIALS & CONSTRUCTION TECHNOLOGY – III

Course Code: BAR 302

Credit Units: 03

L/1-ST/1-P/1

Teaching hours: 03

## Course Objective:

- To acquaint the students with cement and cement concrete as a construction materials and to familiarize them with construction techniques in building works.

## Course Contents:

### **Module I: Introduction to cement and Concrete – 2 weeks**

Cement types, qualities, precautions etc. special purpose cement, cement concrete: Types, Mixing, Curing, Water Cement Ratio etc.

Reinforced Brick Concrete: Qualities and Workability.

Introduction to R.C.C, its usage, types, making and availability with its advantages and disadvantages.

Concreting under special conditions.

### **Module II: Foundation – 3 weeks**

shallow and deep foundation

R.C.C. footings, isolated, strip, combined footings, Raft, Pile foundation with their detail.

### **Module III: Staircases – 3 weeks**

Different types of R.C.C. Staircases with their construction detail, Components of staircase.

### **Module IV: Special Details – 3 weeks**

R.C.C. columns and beam structure, roof forms and its connection with structure.

R.C.C. work defects and its treatment.

Expansion joints and its detail.

R.C.C. roof with water proofing details.

### **Module V: Temporary constructions – 3 weeks**

Shoring, underpinning, strutting, formwork, scaffolding etc. in timber and steel.

**Exercises:** Identification of materials and study of relevant I.S. codes, field trips, preparation of drawings on above topics.

## Examination Scheme:

Components	A	CE	CT	EE
Weightage (%)	05	25	20	50

## Text Books /Reference Books/Journals/Other Study Material:

- Building construction W.B.McKay
- Building construction R Berry
- Building construction Chudley
- Building construction Francis D.K. Ching Civil Engineering Handbook, P.N. Khanna
- R.C.C. Design, Khurmi, Punmia, Sushil Kumar Design of Steel Structure, Negi
- Structure in Architecture, Salvadori and Heller.

# BAR 303 STRUCTURAL DESIGN & SYSTEM- III

Course Code: BAR 303

Credit Units: 02

L/0-ST/0-P/4

Teaching hours: 04

## Course Objective:

- To understand the transformation of basic components of structural system into the analysis of structural system like: - analytical approaches in the beams & columns by using different kind of methods.
- To help the students for understanding the analytical methods by using statically methods which is described below

## Course Contents:

### **Module I: Forms of structure-3 weeks**

Determinacy & indeterminacy of the rigid as well as pin jointed structures, definition of static & kinematic indeterminacy, its application in plane & space forms structures.

### **Module II: Shear Force & Bending Moments calculation & its diagrammatic presentation by Moment distribution method-3 weeks**

Introduction of S.F.D & B.M.D. calculation of shear force & bending moment by using moment distribution method for all types of support & loading system.

### **Module III: Shear Force & Bending Moments calculation & its diagrammatic presentation by Slope deflection methods-2 weeks**

Introduction of S.F.D & B.M.D. calculation of shear force & bending moment by slope deflection methods for all types of support & loading system.

### **Module IV: Shear Force & Bending Moments calculation & its diagrammatic presentation by strain energy methods-2 weeks**

Introduction of S.F.D & B.M.D. calculation of shear force & bending moment by Strain energy method for all types of support & loading system.

### **Module V: Arches-2 weeks**

Introduction, definition, three & two hinged arches, fixed arches. Parabolic & circular arches.& its application in architecture system.

## Examination Scheme:

Components	A	CE	CT	EE
Weightage (%)	05	25	20	50

## Text Books/Reference Books/Journals/Other Study Material:

- E. P. Popov, Mechanics of materials.
- S. Ramanathan, Theory of Structures.
- S. Bhavikatti, Structural analysis Vol.-I.
- S. Bhavikatti, Structural analysis Vol.-II.
- Morgan, Elements of Structure.
- Salvadori, Structures in Architecture.
- Everet, Structure and Fabric.
- Khurmi R. S., Strength of Materials
- R.K. Bansal, Engineering Mechanics.
- Khurmi R. S, Applied Mechanics and Strength of Materials.
- Salvadori and Heller, Structure in Architecture.

## BAR 304 GRAPHIC SKILLS– III (Computer aided)

Course Code: BAR 304

Credit Units: 02

L/0-ST/0-P/4

Teaching hours: 04

### Course Objective:

- To introduce students with computer and its application in architecture.
- To train students in drafting and presentation techniques using Auto-CAD.
- To train students how to make 2-D presentation and render using photoshop.

### Course Contents:

#### **Module I: Intro to Computer Graphics and basic application of 2D drafting Software - 1 week**

Introduction to Auto CAD and its interface. Auto CAD co-ordinate system, inputting points, basic Auto CAD terminology, basic drafting commands.

#### **Module II: Auto Cad (2-D): basic commands and introduction to use of printing equipment's and hardware - 2 weeks**

To setting up a drawing environment; setting up the paper size setting unit setting grid limit, drawing limit, snap controls. Two-dimensional drafting work to be handled in detail on Auto Cad. Basic Drafting commands (Related to drafting of line to All geometrical shapes).

#### **Module III: Auto Cad (2-D): modifying commands - 3 weeks**

Basic commands related to drawing properties “layer control change properties, line-weight control”. Use of Display Commands, editing commands, construction commands, enquiry commands etc., Hatching & texting in drawing, Working on layout & x-ref etc. Drafting of Plan(s), Elevation(s) and Section(s).

#### **Module IV: Auto Cad (2-D): advanced commands-3 weeks**

Draw, edit and create a complete set of architectural drawings for a dwelling unit using AutoCAD Plan(s), Elevation(s) and Section(s) in detail. Create final presentation and documentation of 2D drawings in AutoCAD.

Familiarizing the use of printers, plotters their hardware and other related systems. Various Settings & different mode to print Auto CAD drawing. Importing & exporting the drawings from one software into other.

#### **Module V: Use of photo editing Software - 4 weeks**

Introduction to Photo editing as well as preparation of 2-D presentations and rendering views on Photoshop.

### Examination Scheme:

Components	A	CE	CT	EE
Weightage (%)	05	25	20	50

### Text Books/Reference Books/Journals/Other Study Material:

- Manuals of AutoCAD – Autodesk Inc.
- Computer graphics and design, Radhakrishnan Inside AutoCAD -parker, denial& rice
- Adobe Photoshop user guide/manual.
- Manuals of AutoCAD – Autodesk Inc.

# BAR 305 HISTORY OF ARCHITECTURE- II

Course Code: BAR 305

Credit Units: 02

L/2-ST/0-P/0

Teaching hours: 02

## Course Objectives:

- Understanding the world architecture during the Greek, Roman Romanesque Period and Gothic Period, Study of specific Architectural examples, characteristics features and their origin in above mentioned period.

## Course Contents:

### **Module I: Greek Architecture- 2 weeks**

Evolution and Development, Classical orders and constituent elements of architecture- Column orders and the articulation of temples. Classification of temples, Geometry and symmetry of individual buildings and their relationship with others based on different organizing principles and conditions of site. Study of importance- Acropolis, Agora, Temples, Theatres, Tombs and House forms

### **Module II: Roman Architecture- 2 Weeks**

Evolution and Development, Multiple building types to correspond the complex social functions and structure. Complex axial organization of forms. Concrete and construction of vaults and domes. Uses of classical orders in surface articulation. Study of important forums, Temples, Basilicas, Theaters, Amphitheatres, Circuses, Tombs, Triumphal arches, palaces, houses and villas.

### **Module III: Early Christian Architecture- 1 Week**

Introduction and understanding of “Islam’s” philosophy and its interpretation in building types – Mosque, Tomb, Fort and their elements like dome, arches, minarets etc. With reference to the Slave, Khilji, Tughlaq, Lodi and Shershah Suri (who ruled from Delhi), architecture at Punjab, Gujrat, Bijapur and deccan.

### **Module IV: Byzantine Architecture-2 Weeks**

Study of Italian basilicas and churches. Centralization in churches, Centrality and interiors of both cross domed and cross in square plan churches. Interior and exterior of churches with heavenly interiors. Construction of domes over polygonal compartments through the use of pendentives. Study of important churches of the Time period.

### **Module V : Romanesque Architecture-1 Week**

Spatial and formal integration of Romanesque churches. Integration of wall and vaults. Ribbed vault and the dissolution of external wall to allow light. Sensitivity to light and use of stained glass for mysterious interiors. Need and development of different external buttressing. Study of important cathedrals and churches in France

**Presentations, paper writing and Essays exercise may be optionally be considered, recommended by the subject teacher at the end of the semester after the examinations**

## Examination Scheme:

Components	A	CE	CT	EE
Weightage (%)	05	25	20	50

## Text Books /Reference Books/Journals/Other Study Material:

### Text:

- “Glimpses of World History” by Pt. Jawahar Lal Nehru
- “Urban Pattern” by A.B. Gallion
- “The History of Architecture” by Sir Bannister Fletcher
- “The great age of world Architecture”-G.K. Hirasker

### References:

- History of Architecture – J E Swain
- History of Architecture by Dora Couch
- A study of History – Almond Toynebee
- Traditions in Architecture – Dora Couch

## BAR 306 BUILDING SERVICES- II

Course Code: BAR 306

Credit Units: 02

L/2-ST/0-P/0

Teaching hours: 02

### Course Objectives:

- To integrate electrical system with building design. Application of indoor and outdoor lighting in various planning and installation requirement right from generation to actual building level so that the students could use the same in their design.

### Course Contents:

#### **Module I: Introduction to electrical systems- 1 weeks**

Introduction to electrical engineering services for buildings; Sources of electrical energy supplied to buildings  
Electricity generation, transmission and distribution. Instruments for measurement, metering; Electricity Authority, Act, rules and regulation regarding electrification of buildings; Standard Graphical symbols for electrical systems; electric fittings and appliances; Requirements of electrical materials such as conductors, insulators; Types and requirements of electrical cables

#### **Module II: Electrical System design for a building - 1 weeks**

Basic Principles of electrical circuit, Methods of wiring -Open and concealed wiring system, distribution system and supply in a building, distribution board and meter, switches; Electrical load calculation,; Design considerations of electrical installations, Study of Electrical layout in a building.

#### **Module III: Electrical safety and protection system - 1 weeks**

Protection against overload, short circuit, Control equipment such as switch gear, safety devices to be used in electrical layouts - Fuse, M.C.B, MCCB, ACB, VCB, RCB, ELCB; Earthing and Lightning Protection

#### **Module IV: Photometric Concepts and Day Lighting- 1 weeks**

Introduction to basic photometric concept: Light its behaviour and properties, Instruments for measurement lux meters, field of vision, visual task, visual comfort and glare: objectives of lighting design in architecture.

#### **Module V: Artificial Lighting- 1 weeks**

Introduction to basic photometric concept: Light its behaviour and properties, Instruments for measurement lux meters, field of vision, visual task, visual comfort and glare: objectives of lighting design in architecture.

#### **Module VI: Design Exercise- 2 weeks**

Design and developed detailed layout of electrical and lighting services of previous semester design problem.

*Any important note or instruction for course coordinator*

### Examination Scheme:

Components	A	CE	CT	EE
Weightage (%)	05	25	20	50

### Text Books/Reference Books/Journals/Other Study Material:

- Raina K. B. & Bhattacharya S. K. (2007) Electrical Design, Estimating and Costing, New Age International Publishers, New Delhi.
- Dagostino, F. R. (1978) Mechanical and Electrical Systems in Construction in Architecture, Reston Publishing Company, Prentice Hill Co., Virginia.
- Egan, D. M. (1983) Concepts in Architectural Lighting, McGraw Hill Book Company.
- Flynn, J. E. et. al (1992) Architectural Interior Systems: Lighting, Acoustics and Air conditioning, Van Nostrand Reinhold
- NBO (1966) Hand book for Building Engineers, National Buildings Organisation, New Delhi.
- Grondzik, W. T., Kwok, A.G., Stein, B, Reynolds, J. S. (2009) Mechanical and Electrical Equipment for Buildings, Wiley
- “Electric Heating”,E.P. Ambrose,John Wiley & Sons Inc., New York, 1968.
- Electrical Technology, Seventh Edition,H. Cotton,CBS publications, 2003
- Design of Electrical Installations by Er. V.K. Jain and Er. Amitabh Bajaj

# BAR 307 SURVEYING AND LEVELLING

Course Code: BAR 307

Credit Units: 01

L/0-T/0-P/2

Teaching hours: 02

## Course Objective:

- To impart basic surveying & levelling principles and use the skills to commonly needed in the planning of projects.
- To Demonstrate the role and application of modern surveying techniques and technologies.

## Course Contents:

### **Module I: Introduction to surveying-2 weeks**

Role of surveying in Architecture, Principle of surveying, classification of surveying according to nature of field & object, units of measurements.

### **Module II: Linear measurement-3 weeks**

Role of linear measurement, Different methods, Equipment- Tape, chain, Odometer, Arrows, Ranging rods, Stadia Tachometry, EDM, Procedure, errors, applications of linear measurement

### **Module III: Angular measurement-3 weeks**

Various equipment's, theodolite, compass -surveyors & prismatic, simple numerical. Rectangular and polar coordinates, Definition of Traverse, Application of traversing, Equipment and field procedure.

### **Module IV: Leveling & Contouring-3 weeks**

Definition, Levelling instruments, differential levelling, Booking and reduction, Longitudinal and cross sectioning, Contouring, Characteristics of contours, locating contours.

### **Module V: Plane tabling & Setting out works-2 weeks**

Various equipment's, methods of plane table, & setting out works, triangulation method etc. Simple methods of preparing on site drawings and layout of small buildings

## Examination Scheme:

Components	A	H	C	V	CT	EE
Weightage (%)	05	10	10	05	20	50

## Text Books /Reference Books/Journals/Other Study Material:

- Alok De, plane Surveying
- W. Schofield and Butterworth, Engineering surveying
- B.C. Punmia, Heinemann Surveying vol- 1
- S.K. Duggal, Surveying vol -1

# BAR 308 PHOTOGRAPHY

Course Code: BAR 308

Credit Units: 01

L/0-ST/0-P/2

Teaching hours: 02

## Course Objectives:

- This course will teach students to create successful images of exterior architecture, interior architectural design, as well as architectural models.
- The course discusses equipment, processes, and procedures necessary for the photography of building exteriors and interiors, dusk/night and night architectural landscapes, and construction progress.
- Students will learn to use Digital SLR camera, lighting techniques, software and to create output.
- Students will be able to use High Dynamic Range (HDR) : multiple exposures to create dramatic architecture/interior images without additional professional lighting.

## Course Contents:

### **Module I: Introduction - 2 weeks**

Architectural Photography Origins of architectural photograph, Review of architectural photographs, Light and Shades, Understanding light – Properties and elements of light. Basics of camera – Operations and Control Parallax Error, use of camera, lens and understanding lighting conditions. Pixels, resolution, Sensor size etc.

### **Module II: Light & Planning – 4 weeks**

Understanding light and photography, External lighting- Direction of lighting - front, side, back, shadows, texture, and effects of clouds, light modification, psychological effects, and types of artificial lighting, combined daylight and flash. Overview of architectural photography, Color balance, Reading histogram, White balance and Color temperature.

### **Module III: Creativity in Photo shooting - 4 weeks**

Shooting Finding Forms and Shapes, Elements and Principals of framing, Rules of composition, Aesthetic of framing and composition, Perceptual Control, Depth of field and center of confusion, Exterior and interior photography, Flash control etc.

### **Module IV: Quality & Safety Management - 4 weeks**

Introduction to software, RAW file editing, HDR Imaging, Adobe Photoshop and Light room, Retouching and color correction, Printing Preparation Module IV: Framing Views Single point and two point perspective- examples, distortions, emphasizing architectural elements, effect of camera to subject distance, oblique angles, three point perspective- applications in interiors and exteriors - composition, symmetric composition, applying the law of thirds - examples, image capture to publication

Project: Students should submit two projects at the end of the semester. (a) Interior Photography (b) Exterior Photography .

*Any important note or instruction for course coordinator*

## Examination Scheme:

Components	A	CE	CT	EE
Weightage (%)	05	25	20	50

## Text Books/Reference Books/Journals/Other Study Material:

- Ackerman, J. S. (2001). On the origins of architectural photography. Mellon lecture, December
- Harris, M. G., & Harris, M. G. (1998). Professional architectural photography. Oxford: Focal Press
- Rosa, J., & McCoy, E. (1994). A constructed view: The architectural photography of Julius Shulman, Rizzoli Intl Pubns.
- Siskin, J. (2012). Photographing architecture: lighting, composition, postproduction, and marketing techniques. Buffalo, NY: Amherst Media
- Schulz A., Architectural Photography: Composition, Capture, and Digital Image Processing, O'Reilly Media Inc., 2010

## Online Resources

- <https://www.udemy.com/topic/architecturephotography>

# BAR 309 VERNACULAR ARCHITECTURE

Course Code: BAR 309

Credit Units: 01

L/0-ST/0-P/2

Teaching hours: 02

## Course Objectives:

To expose the students to traditional architecture of the various parts of the country. The students will have knowledge of the planning aspects, materials used in construction, constructional details and settlement planning of the settlements in various parts of the country.

## Course Contents:

### Module I: Introduction to Vernacular Architecture

Approaches and concepts to the study of Vernacular architecture – Introduction to Kutcha architecture and Pucca architecture and architecture without architects developed through experience based on local material.

### Module II: Southern region

Planning aspects, materials of construction, Constructional details & Settlement Planning of:

- Kerala – Nair houses (Tarawads), Kerala Muslim houses (Mappilah houses), Temples, Palaces and theaters – Thattchushastra.
- Tamil Nadu – Toda Huts, Chettinad Houses (Chettiars) & Palaces
- Karnataka – Gutthu houses (land owning community), Kodava ancestral home (Aynmane)
- Andhra Pradesh – Kaccha buildings Religious practices, beliefs, culture & climatic factors influencing the planning of the above.

### Module III: Western Region:

Planning aspects, Materials used, Constructional details, Climatic factors influencing the planning of

- Jat houses for farming caste, Bhungas (Circular Huts) and Havelis (Pukka houses) of Rajasthan
- Pol houses of Ahmedabad - Primitive forms, Symbolism, Colour, Folk art etc in the architecture of the deserts of Kutch & Gujarat state.
- Vernacular architecture of Goa.

### Module IV: Northern and Eastern India

Planning aspects, Materials used, Constructional details, Climatic factors influencing the planning of

- Kashmir – Typical Kutcha houses, mosque, Dhoongas (Boathouses), Ladakhi houses, bridges
- Himachal Pradesh – Kinnaur houses
- Uttar Pradesh – Domestic housing of Uttar Pradesh
- Bengal – Bangla (Rural house form), Aat Chala houses – change from Bangla to Bungalow, Kutcha & Pucca architecture of Bengal.
- Nagaland – Naga houses & Naga village, Khasi houses Factors influencing the planning aspects, materials of construction & constructional details of the above.

### Module V : Vernacular Architecture

Overview of vernacular Architecture of neighbouring countries and world such as Africa, UAE etc.

**Exercise :** Students may be advised to prepare case studies through literature/online/ site visits and submit report.

## Examination Scheme:

Components	A	CE	CT	EE
Weightage (%)	05	25	20	50

## Text Books /Reference Books/Journals/Other Study Material:

- Traditional buildings of India, Ilay Cooper, Thames and Hudson Ltd., London
- Architecture of the Indian desert, Kulbushan Jain & Meenakshi Jain, Aadi Centre, Ahmedabad
- The Royal Palaces of India, George Michell, Thames and Hudson Ltd., London
- Chettiar Heritage, S.Muthiah, Meenakshi Meyappan, Visalakshmi RAMASWAMY, Lokavani-Hallmark Press Pvt. Ltd., Chennai
- Encyclopaedia of Vernacular architecture of the World, Cambridge University Press
- Havali – Wooden houses & mansions of Gujarat, V.S.Pramar, Mapin Publishing Pvt. Ltd., Ahmedabad
- The Tradition of Indian architecture – Continuity & Controversy – Change since 1850, G.H.R.Tillotsum, Oxford University Press, Delhi
- VISTARA – The architecture of India, Carmen Kagal. Pub : The Festival of India, 1986.
- House, Form & Culture, Amos Rapoport, Prentice Hall Inc, 1969

# BAR310 MODEL MAKING WORKSHOP

Course Code: BAR 310      Credit Units: 01      L/0-ST/0-P/2      Teaching hours: 02

## Course Objectives:

To introduce various fabrication skill and techniques to produce scale –models and to encourage preparation of models as an essential phase in design development and evaluation.

## Course Contents:

### **Module I: Introduction to model-making - 4 weeks**

Need, role of scale models in design, general practices, Essentials of model-making, understanding of various tools And machines employed, best practices involved in operating the tools and the techniques.

### **Module II: Materials for model-making - 4 weeks**

Introduction of various materials available for model making such as papers, mount boards, mount sheets, wood, plastics, films, plaster of Paris, acrylic sheets, metal, glass, FRP etc. Potential of these materials, in model-making

### **Module III: Techniques of scale-modeling- 6 weeks**

Use of different scale, templates, measuring aids, conventions followed. Techniques for preparation of presentation models, mock-ups, simulation of various materials and textures such as wood, glass, aluminum, steel, bricks, roofing tiles, flooring, etc. Models with soft materials like; clay, plaster of Paris etc. Models of shells & membrane structures by use of canvas molding cloth

## Examination Scheme:

Components	A	CE	CT	EE
Weightage (%)	05	25	20	50

## Text Books/Reference Books/Journals/Other Study Material:

### Text:

- Architectural Models: Construction Techniques – Wolfgang Knoll, Martin Heching
- Model-Making: Materials and Methods – David Neat

### Reference Books

- The aesthetic experience –magnet Jacque Form, Space & Order – D.K Ching.
- Object by Architects – tapert,Annette,swid powell Art Forms – Preble,duame

## AND 003 AANANDAM-III

Course Code: AND 003 Course Type: VA Credit Units: 02 L/0-ST/0-P/4 Teaching hours: 04

### Course Objectives:

The objective of this course is to make students aware and empathetic about community issues and to increase interaction among students as well as with the community to enlarge social network.

### Course Contents:

#### Directions for Students

- Students should do at least one individual act of goodness each day and Record this act in a dedicated diary/register
- Students should share this dedicated diary/register in Aanandam period with the mentor and share experience with the class.
- Students must take up one Community Service Project in a group of 8-12 students.
- The students must take photographs to document their work
- The students can obtain certificate from the NGO/ Government Agency they are working with for Group Community Service Project
- The students may submit newspaper cuttings
- The students must participate in the Aanandam Day by displaying charts of their Group Community Service Project
- Students must submit Group Community Service Project Report at the end of semester.
- The students may prepare power point presentations/video of their project which will help them get better grades.

#### Guidelines for the Report

The project report shall contain:

- Synopsis: clearly stating objectives and activities to be undertaken. Problem identifying and problem-solving projects to be taken up.
- Details of the Mentor and the Participants are to be given (name of mentor, name of participants, phone number/mobile no, email, and address)
- Location / community where the work was carried out
- Details of Activities performed are to be given with date
- Number of beneficiaries and impact on the society (the object should be to empower the community and make them self-reliant)
- Photographs taken for documentation of work should be submitted
- Media coverage of the projects should be attached if any
- Students should also submit their certificates from the government bodies and or nongovernment bodies they collaborate with, if any
- Photographs of **Display charts** or **ppt/video** prepared while presentation on the group community service in the **Aanandam Day** must be submitted along with the report
- The Group Community Service Project Report will be submitted by the Student group leader under the guidance of the mentor to the Director/HoI of the Department.

#### Activity Suggestion

The students as per their interest would support activities of community service such as:

- Literacy programs, in today's digital age many organizations/individuals might also need help with email and websites
- Livelihood projects,
- Time giving activities to adopted communities (awareness regarding Govt. programmes) sports like yoga, meditation, drills, and physical exercises in adopted areas
- Activities on arts and culture such as restoration of traditional art and culture and monuments.
- Understand their responsibility in taking care of environment and appreciating cultural diversity
- While some students would be interested in awareness about environment such as protecting and preserving natural resources and animal species (the flora and the fauna). Plantation and animal care centers
- A few would be concerned with healthcare like medical and dental missions, first-aid training, etc.
- Another group may be formed for attending to old people (who have money but need assistance for market and groceries) [Time Bank]
- Another group may be formed for civic activities, awareness programmes.
- Local social problems to be taken up and solutions devised
- Innovations and Startups to be encouraged
- Help plant a community garden, help out at a children's camp

Integration of these projects with ongoing design and construction may be explored.

#### Assessment Scheme:

#### **Final Evaluation: 50 (Marks)**

(Based on Innovative solution of community issue, Participation and Documentation inform of report)

Components	CE			EE
	Innovation	Participation	Report	
<b>Weightage (%)</b>	30	10	10	--

*Note: Submission of register of everyday activity is mandatory (if register is not submitted by the student, he/she will not be evaluated and considered for the award)*

## **BCS 301 COMMUNICATION SKILLS - I**

**Course Code:BCS 301**

**Credit Units: 01**

**Teaching hours: 01**

### **Course Objective:**

To form written communication strategies necessary in the workplace

### **Course Contents:**

#### **Module I: Introduction to Writing Skills**

Effective Writing Skills

Avoiding Common Errors

Paragraph Writing

Note Taking

Writing Assignments

#### **Module II: Letter Writing**

Types

Formats

#### **Module III**

Memo

Agenda and Minutes

Notice and Circulars

#### **Module IV: Report Writing**

Purpose and Scope of a Report

Fundamental Principles of Report Writing

Project Report Writing

Summer Internship Reports

### **Examination Scheme:**

<b>Components</b>	<b>CT1</b>	<b>CT2</b>	<b>CAF</b>	<b>V</b>	<b>GD</b>	<b>GP</b>	<b>A</b>
<b>Weightage (%)</b>	20	15	30	10	10	10	5

CAF – Communication Assessment File

GD – Group Discussion

GP – Group Presentation

### **Text & References:**

Business Communication, Raman – Prakash, Oxford

Creative English for Communication, Krishnaswamy N,  
Macmillan Textbook of Business Communication, Ramaswami S,  
Macmillan Working in English, Jones, Cambridge

A Writer's Workbook Fourth edition, Smoke,

Cambridge Effective Writing, Withrow, Cambridge

Writing Skills, Coe/Rycroft/Ernest,

Cambridge Welcome!, Jones, Cambridge

## **BSS 305 BEHAVIOURAL SCIENCE – III(Interpersonal Communication)**

**Course Code: BSS 305    Credit Units: 01**

**Teaching hours: 01**

### **Course Objective:**

This course aims at imparting an understanding of:

- Interpersonal communication and relationship.
- Strategies for healthy interpersonal relationship
- Effective management of emotions.
- Building interpersonal competence.

### **Course Contents:**

#### **Module I: Interpersonal Communication**

Importance of Behavioural/ Interpersonal Communication  
Types – Self and Other Oriented  
Rapport Building – NLP, Communication Mode  
Steps to improve Interpersonal Communication

#### **Module II: Interpersonal Styles**

Transactional Analysis  
Life Position/Script Analysis  
Games Analysis  
Interactional and Transactional Styles  
Bridging differences in Interpersonal Relationship through TA  
Communication Styles

#### **Module III: Conflict Management and Negotiation**

Meaning and Nature of conflicts  
Styles and techniques of conflict management  
Meaning of Negotiation  
Process and Strategies of Negotiation  
Interpersonal Communication: Conflict Management and Negotiation

#### **Module IV: Interpersonal Relationship Development**

Importance of Interpersonal Relationships  
Interpersonal Relationship Skills  
Types of Interpersonal Relationships  
Relevance of Interpersonal Communication in Relationship Development

#### **Module V: Impression Management**

Meaning & Components of Impression Management  
Impression Management Techniques  
Impression Management Training-Self help and Formal approaches

### **Examination Scheme:**

<b>Components</b>	<b>SAP</b>	<b>A</b>	<b>Mid Term Test (CT)</b>	<b>VIVA</b>	<b>Journal for Success (JOS)</b>
<b>Weightage (%)</b>	20	05	20	30	25

**Text & References:**

Vangelist L. Anita, Mark N. Knapp, Inter Personal Communication and Human Relationships: Third Edition, Allyn and Bacon  
Julia T. Wood. Interpersonal Communication everyday encounter  
Beebe, Beebe and Redmond; Interpersonal Communication, 1996; Allyn and Bacon Publishers.  
Rosenfeld, P., Giacalone, R.A. and Catherine, A.R.

(2003). Impression Management: Building and  
Enhancing Reputations at Work. Thomson Learning,  
Singapore

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# FOREIGN LANGUAGE 301

## FLF 301 FRENCH - III

**Course Code: FLF 301**

**Credit Units: 02**

**Teaching hours: 02**

### Course Objective:

To provide the students with the know-how

To master the current social communication skills in oral and in written.

To enrich the formulations, the linguistic tools and vary the sentence construction without repetition.

### Course Contents:

**Module B: pp. 76 – 88 Unité 6**

**Module C: pp. 89 to103 Unité 7**

**Contenu lexical: Unité 6:se faire plaisir**

1. acheter : exprimer ses choix, décrire un objet (forme, dimension, poids et matières) payer
2. parler de la nourriture, deux façons d'exprimer la quantité, commander un repas au restaurant
3. parler des différentes occasions de faire la fête

### Unité 7: Cultiver ses relations

1. maîtriser les actes de la communication sociale courante (Salutations, présentations, invitations, remerciements)
2. annoncer un événement, exprimer un souhait, remercier, s'excuser par écrit.
3. caractériser une personne (aspect physique et caractère)

### Contenu grammatical :

1. accord des adjectifs qualificatifs
2. articles partitifs
3. Négations avec de, ne...rien/personne/plus
4. Questions avec combien, quel...
5. expressions de la quantité
6. ne...plus/toujours - encore
7. pronoms compléments directs et indirects
8. accord du participe passé (auxiliaire « avoir ») avec l'objet direct
9. Impératif avec un pronom complément direct ou indirect
10. construction avec « que » - Je crois que/ Je pense que/ Je sais que

### Examination Scheme:

<b>Components</b>	<b>CT1</b>	<b>CT2</b>	<b>C</b>	<b>I</b>	<b>V</b>	<b>A</b>
<b>Weightage (%)</b>	20	15	20	20	20	5

C – Project +Presentation

I – Interaction/Conversation Practice

**Text & References:**

le livre à suivre : Campus: Tome 1

## FLG 301 GERMAN - III

**Course Code: FLG 30**

**Credit Units: 02**

**Teaching hours: 02**

### **Course Objective:**

To enable the students to converse, read and write in the language with the help of the basic rules of grammar, which will later help them to strengthen their language. To give the students an insight into the culture, geography, political situation and economic opportunities available in Germany

### **Course Contents:**

#### **Module I: Modal verbs**

Modal verbs with conjugations and usage

Imparting the finer nuances of the language

#### **Module II: Information about Germany (ongoing)**

Information about Germany in the form of presentations or “Referat”– neighbors, states and capitals, important cities and towns and characteristic features of the same, and also a few other topics related to Germany.

#### **Module III: Dative case**

Dative case, comparison with accusative case

Dative case with the relevant articles

Introduction to 3 different kinds of sentences – nominative, accusative and dative

#### **Module IV: Dative personal pronouns**

Nominative, accusative and dative pronouns in comparison

#### **Module V: Dative prepositions**

Dative preposition with their usage both theoretical and figurative use

#### **Module VI: Dialogues**

In the Restaurant,

At the Tourist Information Office,

A telephone conversation

#### **Module VII: Directions**

Names of the directions

Asking and telling the directions with the help of a roadmap

#### **Module VIII: Conjunctions**

**To assimilate the knowledge of the conjunctions learnt indirectly so far**

### **Examination Scheme:**

Components	CT1	CT2	C	I	V	A
Weightage (%)	20	15	20	20	20	5

C – Project +Presentation

I – Interaction/Conversation Practice

**Text & References:**

Wolfgang Hieber, Lernziel Deutsch

Hans-Heinrich Wangler, Sprachkurs Deutsch

Schulz Griesbach, Deutsche Sprachlehre für  
Ausländer P.L Aneja, Deutsch Interessant- 1, 2 & 3

Rosa-Maria Dallapiazza et al, Tangram Aktuell A1/1,2

Braun, Nieder, Schmöe, Deutsch als Fremdsprache 1A, Grundkurs

## FLS 301 SPANISH – III

**Course Code: FLS 301**

**Credit Units: 02**

**Teaching hours: 02**

### Course Objective:

To enable students acquire knowledge of the Set/definite expressions (idiomatic expressions) in Spanish language and to handle some Spanish situations with ease.

### Course Contents:

#### Module I

Revision of earlier semester modules

Set expressions (idiomatic expressions) with the verb *Tener, Poner, Ir*.

Weather

#### Module II

Introduction to *Gustar*...and all its forms. Revision of *Gustar* and usage of it

#### Module III

Translation of Spanish-English; English-Spanish. Practice sentences.

How to ask for directions (using *estar*)

Introduction to IR + A + INFINITIVE FORM OF A VERB

#### Module IV

Simple conversation with help of texts and vocabulary

En el restaurante

En el instituto

En el aeropuerto

#### Module V

Reflexives

### Examination Scheme:

Components	CT1	CT2	C	I	V	A
Weightage (%)	20	15	20	20	20	5

C – Project +Presentation

I – Interaction/Conversation Practice

### Text & References:

Español, En Directo I A

Español Sin Fronteras -Nivel Elemental

## FLC 301 CHINESE – III

**Course Code: FLC 301**

**Credit Units: 02**

**Teaching hours: 02**

### Course Objective:

Foreign words are usually imported by translating the concept into Chinese; the emphasis is on the meaning rather than the sound. But the system runs into a problem because the underlying name of personal name is often obscure so they are almost always transcribed according to their pronunciation alone. The course aims at familiarizing the student with the basic aspects of speaking ability of Mandarin, the language of Mainland China. The course aims at training students in practical skills and nurturing them to interact with a Chinese person.

### Course Contents:

<b>Module I</b>	Drills Dialogue practice Observe picture and answer the question. Introduction of written characters. Practice reading aloud Practice using the language both by speaking and by taking notes. Character writing and stroke order
<b>Module II</b>	Measure words Position words e.g. inside, outside, middle, in front, behind, top, bottom, side, left, right, straight. Directional words – beibian, xibian, nanbian, dongbian, zhongjian. Our school and its different building locations. What game do you like? Difference between “hii” and “neng”, “keyi”.
<b>Module III</b>	Changing affirmative sentences to negative ones and vice versa Human body parts. Not feeling well words e.g. ; fever, cold, stomach ache, head ache. Use of the modal particle “le” Making a telephone call Use of “jiu” and “cal” (Grammar portion) Automobiles e.g. Bus, train, boat, car, bike etc. Traveling, by train, by airplane, by bus, on the bike, by boat.. etc.
<b>Module IV</b>	The ordinal number “di” “Mei” the demonstrative pronoun e.g. mei tian, mei nian etc. use of to enter to exit Structural particle “de” (Compliment of degree). Going to the Park. Description about class schedule during a week in school. Grammar use of “li” and “cong”. Comprehension reading followed by questions.
<b>Module V</b>	Persuasion-Please don't smoke.

Please speak slowly  
 Praise – This pictorial is very beautiful  
 Opposites e.g. Clean-Dirty, Little-More, Old-New, Young-Old, Easy-Difficult, Boy-Girl, Black-White, Big-Small, Slow-Fast ... etc.  
 Talking about studies and classmates Use  
 of “it doesn’t matter”  
 Enquiring about a student, description about study method.  
 Grammar: Negation of a sentence with a verbal predicate.

**Examination Scheme:**

<b>Components</b>	<b>CT1</b>	<b>CT2</b>	<b>C</b>	<b>I</b>	<b>V</b>	<b>A</b>
<b>Weightage (%)</b>	20	15	20	20	20	5

C – Project +Presentation

I – Interaction/Conversation Practice

**Text & References:**

“Elementary Chinese Reader Part I, Part-2” Lesson 21-30

# BAR 401 DESIGN – IV

Course Code: BAR 401 Credit Units: 09

L/0-ST/6-P/0

Teaching hours: 06

## Course Objectives:

- To understand design for multifunctional public/commercial buildings upto G+6 requiring parking, vertical circulation, Grid Planning

## Course Contents:

### **Module I: Introduction**

Introduction to public or commercial buildings up to G+6 that are governed by Site restrictions in terms of bylaws and need ease of access, vertical circulation, way finding, Grid Planning and parking with examples; Project introduction for studio exercise

### **Module II :Case studies, Site Studies and Literature Studies**

Case Studies – primary and secondary; Site studies- vehicular circulation pattern studies; Literature Review – Design Standards and Codes, Comparative Analysis and Area statement

### **Module III: Concept Formulation**

Development of concept to be presented with conceptual block model and 3-D sketches for approval.

### **Module IV: Design Development**

Design to be developed through a series of appraisals and open discussions. Planning at site as well as building level to be frozen and workability, efficiency of design to be worked out and finalized.

### **Module V: Presentation**

Enhancement of presentation skills using multiple media. Creation of 3-D models based on the design. Preparation of perspective views (internal & external). Presentation of studies and design proposal through submission of sheet work – drawings and views as well as scaled models. *An A4 Design Report - documenting the process & progress of work through clippings of sketches/ photographs of models highlighting design concept as well as the final proposal drawings etc- shall be an essential part of submission.*

Design exercise can include office buildings, shopping centers/mall, Library, Town Hall,/municipal offices/headquarters, District Court, Nursing Homes, etc.

## Examination Scheme:

Components	A	S1	S2	CT	EE	
Weightage (%)	05	15	20	10	20 Viva	30 EE

## Text Books /Reference Books/Journals/Other Study Material:

- 1'Ching Francis, (1979), Architecture Form, Space and Order, Van Nostrand Reinhold Company, New York.
- 2Neufert Ernst, (1970), Architect's Data, Crosby Lockwood and Sons, London.
- 3Chiara JD and Calender, (1983), Time Savers Standards for Building Types, McGraw Hill Book Company, New York.
- 4Broomer, F. Gerald (1974) Elements of Design: Space, Davis Publications Inc., Worcester, Massachusetts.
- 5Wagenknecht, Kay and Herte (1989) Site + Sculpture – A collaborated design Process, Van Nostrand Reinhold, NY.
- 6Allen, Edward and Iano, Joseph (2006), The Architect's Studio Companion: Rules of Thumb for Preliminary Design, Wiley; 4<sup>th</sup> edition.
- 7Frederick, Matthew (2007), 101 Things I Learned in Architecture School, The MIT Press.
- 8Pearson, David (2001), New organic architecture: the breaking wave, University of California Press.
- 8Fawcett, Peter (2003), Architecture: design notebook, Architectural Press, 2nd edition

## Online Resources

- <https://www.archdaily.com>
- <http://www.architectmagazine.com>
- <https://www.architecture.com/knowledge-and-resources/resources-landing-page>

**BAR 402 MATERIALS & CONSTRUCTION TECHNOLOGY – IV**  
**Course Code: BAR 402 Credit Units: 03 L/1-ST/1-P/1 Teaching hours: 03**

**Course Objective**

- To familiarize students with different metals such as aluminum and steel and copper in construction techniques for use of building materials in building works.

**Course Contents:**

**Module I: Steel -2 Weeks**

Study of steel as building material: types/ properties and treatment and various uses.

Structural, Visual and textural properties, Varieties and application of steel and other metals and alloys

**Module II: Foundation columns& trusses - 2 Weeks**

Foundation such as Grillage foundation.

Structural Steel columns and space frames, Different type and details of Structural steel trusses, details of geodesic domes etc.

Roofing: Roof covering in G.I. Asbestos and fiber Sheets etc.

**Module III: Staircases - 3 Weeks**

Metal staircase: Types and construction detail and joints, fire escape staircase.

**Module IV:Steel door and windows - 3 Weeks**

Steel door and window: types and construction detail, standard door/ windows sections, fire doors Types of Rolling Shutters and their construction detail.

**Module V: Aluminum - 3 Weeks**

Aluminum as building material: properties and treatment, Construction and fixing details used for aluminum doors and windows, their applications, types, pricing.

Market survey of available materials: technology and hardware.

**Exercises:** presentation of seminars, preparation of drawings on above topics.

**Examination Scheme:**

Components	A	CE	CT	EE
Weightage (%)	05	25	20	50

**Text Books /Reference Books/Journals/Other Study Material:**

- Building construction W.B.McKay  
Building construction R Berry
- Building construction Chudley
- Building construction Francis D.K. Ching

# BAR 403 STRUCTURAL DESIGN & SYSTEM- IV

Course Code: BAR 403 Credit Units: 02

L/2-ST/0-P/0

Teaching hours: 02

## Course Objective:

- To understand the material specification & its physical, engineering properties.
- To help the students for understanding the mix design process by IS codes & laboratory experiments & also learn about the soil classification & foundation system in framed as well as load bearing structures.

## Course Contents:

### **Module I: Cement-3 weeks**

Definition, Ingredients, Compounds, Properties, Hydration, Types and applications, manufacturing process of cement. Workability & durability Tests of cement

### **Module II: Aggregate-3 weeks**

Classification, Sp. Gravity, Bulk density, moisture contents, Bulking of fine aggregates, fineness modulus, Practical size distribution. Laboratory tests for aggregate particles.

### **Module III: Concrete & its mix design-3 weeks**

Definition, Advantages/ disadvantages, relevant IS codes, workability, Compressive strength, Flexural strength, factors affecting strength, nominal and designed mix concrete. Laboratory & field tests to check the quality of concrete in terms of workability & durability.

### **Module IV: Soil Mechanics & Foundation engineering-4 weeks**

Importance of the subject, Types of Soils, Phases, various Index properties of soil, relationships, simple numerical Classification of soil, engineering properties of soil, testing of soil. Various types of foundations, Bearing capacity of soil, field tests, plate load & penetration test, Effect of water level, Failure of foundation systems, Design procedures for simple load bearing foundations., Terzaghi's theory

## Examination Scheme:

Components	A	CE	CT	EE
Weightage (%)	05	25	20	50

## Text Books/Reference Books/Journals/Other Study Material:

- M.V. Naik, Building Construction – Materials.
- Khurmi R. S, Strength of Materials.
- Khurmi R. S., Applied Mechanics and Strength of Materials.
- P.N. Khanna, Civil Engineering Handbook.
- M.S. Shetty, Concrete technology.
- K.R. Arora, Soil mechanics & foundation engineering.
- Morgan, Elements of Structure.
- Salvadori, Structures in Architecture.
- Mackay WB, Building Construction, Vol. 1-4.
- Chudley, Construction Technology, Vol. 1-6.
- Mitchell, Elementary Building Construction.
- Everet, Structure and Fabric.

## BAR 404 GRAPHICS SKILLS – IV (Computer Aided)

Course Code: BAR 404 Credit Units: 02 L/0-ST/0-P/4

Teaching hours: 04

### Course Objective:

To learn drawing 3D-drawings through computers and taking advantage of it for rendering and presentations of the views.

### Course Contents:

#### **Module I: Introduction to (3-D) software: Exterior and Interior – 2 weeks**

Introduction to basic 3-D software of architectural significance AutoCAD-3D and their basic usage (creating conceptual exterior and views of an Architectural Project).

Creating detailed Interior and views of a 3D project using Auto CAD.

#### **Module II: Introduction to (3-D) software: Exterior and Interior -3 weeks**

Introduction to basic 3-D software of architectural significance Google SketchUp and their basic usage (creating conceptual exterior and views of an Architectural Project).

Creating detailed Interior and views of a 3D project using Google SketchUp.

#### **Module III: Introduction to Rendering software: Exterior-3 weeks**

Use of V-Ray for Rendering 3D models of SketchUp and their final editing in photoshop.

#### **Module IV: Introduction to Rendering software: Interior-3 weeks**

Use of V-Ray for Rendering 3D models of SketchUp and their final editing in photoshop.

#### **Module V: Introduction to Animation-3 weeks**

Creating animation (walkthrough) of 3D models on SketchUp.

### Examination Scheme:

Components	A	CE	CT	EE
Weightage (%)	05	25	20	50

### Text Books/Reference Books/Journals/Other Study Material:

- Manuals of AutoCAD – Autodesk Inc.
- Computer graphics and design, Radhakrishnan Inside AutoCAD- parker, denial& rice
- Google SketchUp user's guide.
- Adobe Photoshop user guide/manual.
- Google SketchUp for Interior Designers – Daniel John Stine
- Rendering in SketchUp – Daniel Tal V-ray user's Guide.
- Lumion user's guide/manual.
- Architectural Design with SketchUp – Alexander Schreyer

# BAR 405 HISTORY OF ARCHITECTURE

Course Code: BAR 405

Credit Units: 02

L/2-T/0-P/0 Teaching hours: 02

## Course Objectives:

Understanding the world architecture during the, Renaissance and Baroque Period; Study of specific Architectural characteristics and their origin in above-mentioned period.

Understanding the Modern and contemporary Architectural History From 19<sup>th</sup> Century to the present age, the development process, the change in Techniques and construction.

## Course Contents:

### Module I: Gothic Architecture- 2 weeks

Massiveness and verticality of medieval churches. Combination of towered structures and longitudinal basilica. Gradual integration of towers from early to later with examples. Integration of centralized and longitudinal plans. Articulation of external wall like arcaded interiors resulting in dematerialization of exterior. Study of important cathedrals and churches from Italy and France.

### Module II: Renaissance Architecture- 2 Weeks

- Italian Renaissance - The idea of rebirth and revival of art - Outline of the Architecture during the early Renaissance, High Renaissance and Baroque Periods - Features of a typical Renaissance palace, eg. Palazzo Ricardi, Study of the contribution of the following architects: Brunelleschi, Michaelangelo, Andrea Palladio, Example - St. Peter Rome, Villa Capra in Vicenza.

- High Renaissance Architecture-French and English Renaissance- architectural character in the classical & Rococo period - Example – Chateau de Chambord, Louvre, Paris – Domestic British architecture- Study of the works Sir Christopher Wren, & Inigo Jones, Example - St. Paul's Cathedral, London. Banqueting House, Whitehall..

### Module III: Baroque Architecture and Neo-Classical Period -1 Week

Dynamism and systemization of Baroque architecture vitality and spatial richness with underlying systematic organization. Definition of Neo-classic with taking few examples of the period. Study the buildings and structures relation to form, ratio, symmetry etc. Study of the different areas in France.

### Module IV: Industrial revolution and modern Architecture movements (19<sup>th</sup> and 20<sup>th</sup> Century)-2 Weeks

Reasons for the evolution of Modern Architecture, origins-Neo Classicism-Enlightenment, Social revolutions, Historiography, Revivalism- Works of Soane, Ledoux, Boule, Durrand & Schinkel. Industrial revolution and its impact – Emergence of new building typologies-New Materials and Technologies : history of steel, glass and concrete. Arts & Crafts movement in Europe and America; Art nouveau, and the works of Horta, Guimard, Gaudi and Macintosh; Organic Architecture -Early works of F.L.Wright. Chicago school; Art deco Architecture in Europe and America.

Presentations, paper writing and Essays exercise may be optionally be considered, recommended by the subject teacher at the end of the semester after the examinations

## Examination Scheme:

Components	A	CE	CT	EE
Weightage (%)	05	25	20	50

## Text Books /Reference Books/Journals/Other Study Material:

Text:

- “Glimpses of World History” by Pt. Jawahar Lal Nehru
- “Urban Pattern” by A.B. Gallion
- “The History of Architecture” by Sir Bannister Fletcher
- “The great age of world Architecture”-G.K. Hirasker

References:

- History of Architecture – J E Swain
- History of Architecture by Dora Couch
- A study of History – Almond Toynbee
- Traditions in Architecture – Dora Couch

# BAR 406 BUILDING SERVICES-III (Acoustical System)

Course Code: BAR 406

Credit Units: 02

L/2-T/0-P/0

Teaching hours: 02

## Course Objectives:

- To acquaint students about acoustical requirements and consideration for building design right from residential to the theatre type of building.

## Course Contents:

### **Module I: Terminology in Acoustics- 1 weeks**

Sound and its properties, audible sound, intensity and loudness, frequency and pitch, quality Reflection, absorption, transmission, diffusion, diffraction of sound ; Common acoustical defects: Echo, sound-foci, dead spots, sound shadows, resonance, insufficient loudness, external noise, reverberation and reverberation time.

### **Module II: Acoustic materials - 1 weeks**

Sound absorbing materials and their applications– description and characteristics, types of absorbents and reflectors and their application, Market survey and sample collection.

### **Module III: Acoustical design case studies - 1 weeks**

Study of existing designs to understand shapes/spaces and integration of acoustical equipment in the design.

### **Module IV: Noise control- 1 weeks**

Environmental noise control: noise sources, airborne and structure-borne noise, transmission of noise, methods of environmental noise control, control of mechanical noise and vibrations, General idea of sound insulation. Noise control in specific types of buildings like – auditoriums, residential buildings, hotels, school, hospitals, offices, libraries.

### **Module V: Artificial Lighting- 1 weeks**

Introduction to basic photometric concept: Light its behaviour and properties, Instruments for measurement lux meters, field of vision, visual task, visual comfort and glare: objectives of lighting design in architecture.

### **Module VI: Design Exercise- 2 weeks**

Acoustical design or case study of existing building such as auditorium, recording studio, theatre, cinema halls, hospitals or a multistory office building.

*Any important note or instruction for course coordinator*

## Examination Scheme:

Components	A	CE	CT	EE
Weightage (%)	05	25	20	50

## Text Books /Reference Books/Journals/Other Study Material:

- Templeton, Duncan & Saunders, David, "Acoustic Design", The Architectural Press, London, 1987.
- Templeton (ed.), "Acoustics in the Built Environment", Butterworth, London, 1993.
- NBC of India
- K.A.Siraskar-Acoustics in building design
- Building Construction - B.C. Punmia
- Building Construction - Rangawalla
- Building Construction and Materials – Gurcharan Singh
- Architectural Acoustics: E. David
- An Introduction to Building Physics: Narsmhan
- Fundamentals of acoustic by Kinsler, Lawrence E and others
- Environmental acoustic by Doelle, Leslie L.
- Knudson and Harris, 'Acoustical Designing to Architecture'.
- David Egan, 'Architectural Acoustics' Ross publishers, 2008.
- Duncan Templeton et al 'Acoustics in the Built Environment, Architectural press 1997

# BAR 408 ARCHITECTURAL CLIMATOLOGY

Course Code: BAR 411 Credit Units: 02L/1-T/0-P/2 Teaching hours: 03

## Course Objective:

To acquaint students to various concepts of climate analysis and its use in Architecture. To familiarize students with human thermal comfort as an essential function of building. Students shall learn using the natural climatic elements to achieve their maximum utilization for the minimum dependence on the artificial means.

## Course Contents:

### **Module I: Introduction to Climate**

Importance of climate in architecture, Factors affecting climate.

Elements of climate- Solar radiation, temperature, wind, humidity and precipitation and their measurement.

### **Module II: Tropical Climate**

Climatic zones, Characteristics of tropical climate, macroclimate and microclimate.

### **Module III: Human thermal comfort**

Study of body's heat production and heat loss, comfort zone, bio-climatic chart and effective temperature, Isopleths.

Solar passive techniques: cooling and heating.

### **Module IV: Day light and shading devices**

Natural light, glare, day light factor and day lighting in tropics.

Method of recording the position of sun in relation to earth, solar chart, shadow angle protractor and its application in design of shading devices.

### **Module V: Orientation, Ventilation and air movement**

Requirement, size and position of openings, air flow pattern inside and outside buildings.

Orientation of buildings in relation to sun and wind.

## Examination Scheme:

Components	A	CE	CT	EE
Weightage (%)	05	25	20	50

## Text Books/Reference Books/Journals/Other Study Material:

### Text:

- Manual of tropical housing and building, Koenisberger Solar power, Behling
- The climatic data handbook, Bhargava and Chand

### References:

- Climate responsive Architecture, Arvind Krishan Architecture as response, Gree.

# BAR 409 BAMBOO ARCHITECTURE

Course Code: BAR 409

Credit Units: 02L/2-T/0-P/0

Teaching hours: 02

## Course Objective:

To familiarize the students with sustainable building material bamboo and its application in present technological change. The student shall learn the use of Bamboo for various kind of construction and application.

## Course Contents:

### **Module I: Introduction to Bamboo as a Material**

Introduction to bamboo and its different types and properties. General uses of Bamboo. Discussing bamboo growth and forms. Studying about bamboo as a material since history and its application being a versatile and fibrous material. Botanical Classification, Types based on Geographical distribution, climatic and soil conditions. Difference between Bamboo, Cane and Reed. Comparison of bamboo with wood. Harvesting, Storage and Drying of Bamboo. Active and Passive methods of Bamboo Preservation and Treatment. Working with Bamboo. Cutting, Sawing and Scorch Drilling of Bamboo. Types of Joints in Bamboo Construction. Shaping and Bending of Bamboo. Treatment of Bamboo Surface using Bleaching and Dyeing methods.

### **Module II: Bamboo as a Construction material.**

Studying the grading of bamboo and its selection and size of bamboo for structure. The different traditional tools used for construction with their application. All the joinery in the structure based on types of lashing and types of shear keys.

Bamboo Reinforced Foundation. Bamboo Flooring. Bamboo Trusses & Roof Skeleton. Bamboo Shingles. Bamboo Walls. Bamboo Doors & Windows. Bamboo Furniture. Bamboo as a Scaffolding material. Bamboo Footbridges and Bridges. Reed Boards & Bamboo Ply.

Construction details in Bamboo. Types of Binding, Joints & Connections. Various steps involved-required sizes of members-methods of joining bamboo for various applications.

### **Module III: Building System & Component**

Studying bamboo treatment for longer life of shelter. Analyzing the consideration for site selection. Detailing the construction of bamboo substructure and superstructure plus covering envelop with reference to latest technology.

### **Module IV: Bamboo products**

Bamboo products such as Mats (Chatai), laminates, furniture, flooring, lampshades, furniture etc.

### **Module V: Live Exercise of Documentation, Workshop & Site Visit**

Designing a bamboo structure residential/institutional/recreational etc. based on new technologies and innovations in the field. Case study of Bamboo Houses and Buildings.

Site visit to Built environments that have used Bamboo as a Construction material especially in Assam, Meghalaya, Auroville and Kerala.

## Examination Scheme:

Components	A	CE	CT	EE
Weightage (%)	05	25	20	50

## Text Books/Reference Books/Journals/Other Study Material:

- The Book of Bamboo by David Farrelly
- Building with Bamboo: A Handbook by Jules J.A. Jansen *Bamboo Style* by Gale Beth Goldberg

## References:

- Bamboo by Susanne Lucas
- Bamboo Architecture & Design (59 Case Studies) by Eduard Broto New Bamboo: Architecture and Design by Marcelo Villegas

# BAR 410 ARCHITECTURE DOCUMENTATION

Course Code: BAR 410

Credit Units: 02

L/2-T/0-P/0

Teaching hours: 02

## Course Objectives:

- To familiarize the students with various aspects, issues and considerations related to the documentation of architecture and its characteristics so that its heritage and inherent values can be identified and recorded.

## Course Contents:

### **Module I: Introduction to Architectural Documentation - 2 weeks**

Introduction to documentation of historical buildings includes not only measured photographic survey, but also surveying of the qualities of building spaces and their elements. Identification and understanding the use and purpose of the documentation.

### **Module II: Methodology- 3 weeks**

Detailing the purpose, scaled drawings, photographic documentation, visual analysis, classification and mapping of the spaces and their elements. The originality of these spaces and elements are evaluated within the frame of research results that are previously published, site surveys made. Use of modern equipment such as 'CANVAS' and its interface with I-pad and AutoCAD etc to be understood.

### **Module III: Analysis - 3 weeks**

Visual analysis consisting of analysis of spatial element and architectural elements need be understood. The spaces grouped according to their functions and the elements grouped according to their types. Visual analysis of onsite elements, outside elements need to be recorded. The context of the building need to be understood and recorded.

### **Module IV: Evaluation & Characteristics - 3 weeks**

Distinguishing the modern with traditional architecture in terms of elements, details etc. Sketching and tabulating the spatial characteristics and their types

### **Module V: Compilation & Assessment - 3 weeks**

Classification and comparison is an effective way to decipher architectural characteristics of a historical Building with its originalities and alterations. The compilation should be as realistic as possible without the opinion of the compiler to retain the authenticity of the project.

NOTE-Students may be assigned a case study to assess the understanding of the subject.

*Any important note or instruction for course coordinator*

## Examination Scheme:

Components	A	CE	CT	EE
Weightage (%)	05	25	20	50

## Text Books /Reference Books/Journals/Other Study Material:

- Glenn E. Wiggins, Manual of Construction Documentation: An Illustrated Guide to Preparing Construction Drawings, 1989, Whitney Library of Design.
- John H. Stubbs, Robert G. Thomson, Architectural Conservation in Asia: National Experiences and Practice.
- Wiley, Landscape Architecture Documentation Standards: Principles, Guidelines, and Best practices, 2016, John wiley & sons inc.
- Architectural Heritage, New Technologies in Documentation: Council of Europe, 1990

# BAR411 BARRIER FREE ARCHITECTURE

Course Code: BAR 411 Credit Units: 02L/2-T/0-P/0 Teaching hours: 02

## Course Objectives:

The objective of course is to learn the principles of barrier free design and concepts of universal design. It Provides an idea about barrier free construction principles in buildings while understanding of the key aspects and systems of specially able persons built space in architecture.

## Course Contents:

### **Module I: Special Abilities**

Understanding the different human impairments such as visual, mobility and hearing and also understanding the abilities of such differently able persons. To understand the architectural requirements of such persons.

### **Module II: Introduction to Architecture for specially able**

Defining the basic concepts of barrier free design, need for barrier free concepts in architecture, concepts of universal design and types of disabilities. Design principles for barrier free architecture and accessibility for all.

### **Module III: Barrier free elements for outdoors and Urban Design**

Design elements outside the building like curb ramps, pedestrian crossing, public toilets, and parking, signage, flooring and street furniture. Case examples of Barrier free architecture in India and across the globe. To study the anthropometrics and dimensions of mobility devices, special fixtures for barrier free design. Barrier free construction materials and dimensions for flooring, walls, doors, windows, staircases, elevators, toilets, entrances and corridors.

### **Module IV: Laws**

Knowledge of different laws prevailing within India and in other countries. Understanding implication of different laws on design of spaces.

### **Module V: Case Study. Presentation & Design elements**

Barrier free architecture in Public Buildings – dimensions and standards. Case Study of Barrier free elements in Public buildings, Photographic documentation and Presentation. Incorporation of barrier free elements in project being pursued in architectural design.

## Examination Scheme:

Components	A	CE	CT	EE
Weightage (%)	05	25	20	50

## Text & References:

- Guidelines and Space Standards for Barrier Free Built Environment for Disabled and Elderly Persons – Central Public Works Department, Ministry of Urban Affairs & Employment, India, 1998
- IS – 4963 (1987), Recommendations for buildings and facilities for Physically Handicapped

## AND 004 AANANDAM-IV

Course Code: AND 004 Course Type: VA Credit Units: 02 L/0-ST/0-P/4 Teaching hours: 04

### Course Objectives:

The objective of this course is to make students aware and empathetic about community issues and to increase interaction among students as well as with the community to enlarge social network.

### Course Contents:

#### Directions for Students

- Students should do at least one individual act of goodness each day and Record this act in a dedicated diary/register
- Students should share this dedicated diary/register in Aanandam period with the mentor and share experience with the class.
- Students must take up one Community Service Project in a group of 8-12 students.
- The students must take photographs to document their work
- The students can obtain certificate from the NGO/ Government Agency they are working with for Group Community Service Project
- The students may submit newspaper cuttings
- The students must participate in the Aanandam Day by displaying charts of their Group Community Service Project
- Students must submit Group Community Service Project Report at the end of semester.
- The students may prepare power point presentations/video of their project which will help them get better grades.

#### Guidelines for the Report

The project report shall contain:

- Synopsis: clearly stating objectives and activities to be undertaken. Problem identifying and problem-solving projects to be taken up.
- Details of the Mentor and the Participants are to be given (name of mentor, name of participants, phone number/mobile no, email etc.)
- Location / community where the work was carried out
- Details of Activities performed are to be given with date
- Number of beneficiaries and impact on the society (the object should be to empower the community and make them self-reliant)
- Photographs taken for documentation of work should be submitted
- Media coverage of the projects should be attached if any
- Students should also submit their certificates from the government bodies and or nongovernment bodies they collaborate with, if any
- Photographs of **Display charts** or **ppt/video** prepared while presentation on the group community service in the **Aanandam Day** must be submitted along with the report
- The Group Community Service Project Report will be submitted by the Student group leader under the guidance of the mentor to the Director/HoI of the Department.

#### Activity Suggestion

The students as per their interest would support activities of community service such as:

- Literacy programs, in today's digital age many organizations/individuals might also need help with email and websites
- Livelihood projects,
- Time giving activities to adopted communities (awareness regarding Govt. programmes) sports like yoga, meditation, drills, and physical exercises in adopted areas
- Activities on arts and culture such as restoration of traditional art and culture and monuments.
- Understand their responsibility in taking care of environment and appreciating cultural diversity
- While some students would be interested in awareness about environment such as protecting and preserving natural resources and animal species (the flora and the fauna). Plantation and animal care centers
- A few would be concerned with healthcare like medical and dental missions, first-aid training, etc.
- Another group may be formed for attending to old people (who have money but need assistance for market and groceries) [Time Bank]
- Another group may be formed for civic activities, awareness programmes.
- Local social problems to be taken up and solutions devised
- Innovations and Startups to be encouraged
- Help plant a community garden, help out at a children's camp

Integration of these projects with ongoing design and construction may be explored.

#### Assessment Scheme:

#### **Final Evaluation: 50 (Marks)**

(Based on Innovative solution of community issue, Participation and Documentation inform of report)

Components	CE			EE
	Innovation	Participation	Report	
<b>Weightage (%)</b>	30	10	10	--

*Note: Submission of register of everyday activity is mandatory (if register is not submitted by the student, he/she will not be evaluated and considered for the award)*

## BCS 401 COMMUNICATION SKILLS – II

Course Code: BCS 401

Credit Units: 01

Teaching hours: 01

### Course Objective:

To teach the participants strategies for improving academic reading and writing.

Emphasis is placed on increasing fluency, deepening vocabulary, and refining academic language proficiency.

### Course Contents:

#### Module I: Social Communication Skills

Small Talk Conversational

English Appropriateness

Building rapport

#### Module II: Context Based Speaking

In general situations

In specific professional situations Discussion and associated vocabulary Simulations/Role Play

#### Module III: Professional Skills

Presentations

Negotiations Meetings

Telephony Skills

### Examination Scheme:

Components	CT1	CT2	CAF	V	GD	GP	A
Weightage (%)	20	20	25	10	10	10	5

CAF – Communication Assessment File

GD – Group Discussion

GP – Group Presentation

### Text & References:

Essential Telephoning in English, Garside/Garside,  
Cambridge Working in English, Jones, Cambridge

Business Communication, Raman – Prakash,  
Oxford Speaking Personally, Porter-Ladousse,  
Cambridge

Speaking Effectively, Jermy Comfort, et.al,  
Cambridge Business

Communication, Raman – Prakash, Oxford

## BSS 404 Behavioral Science – IV (Relationship Management)

**Course Code: BSS 401    Credit Units: 01    Teaching hours: 01**

### Course Objective:

To inculcate an elementary level of understanding of group/team functions.

To develop team-spirit and to know the importance of working in teams.

### Course Contents:

#### Module I: Group formation

Definition and Characteristics

Importance of groups

Classification of groups

Stages of group formation

Benefits of group formation

#### Module II: Group Functions

External Conditions affecting group functioning: Authority, Structure, Org. Resources, Organizational policies etc.  
Internal conditions affecting group functioning: Roles, Norms, Conformity, Status, Cohesiveness, Size, Inter group conflict.

Group Cohesiveness and Group Conflict

Adjustment in Groups

#### Module III: Teams

Meaning and nature of teams

External and internal factors effecting team

Building Effective Teams

Consensus Building

Collaboration

#### Module IV: Leadership

Meaning, Nature and Functions

Self leadership

Leadership styles in organization

Leadership in Teams

#### Module V: Power to empower: Individual and Teams

Meaning and Nature

Types of power

Relevance in organization and Society

### Examination Scheme:

Components	SAP	A	Mid Term Test (CT)	VIVA	Journal for Success(JOS)
Weightage (%)	20	05	20	30	25

### Text & References:

Organizational Behaviour, Davis, K.

Hoover, Judhith D. Effective Small Group and Team Communication, 2002, Harcourt College Publishers

Dick, Mc Cann & Margerison, Charles: Team Management, 1992 Edition, viva books

LaFasto and Larson: When Teams Work Best, 2001, Response Books (Sage), New Delhi

Smither Robert D.; The Psychology of Work and Human Performance, 1994, Harper Collins College Publishers

# FOREIGN LANGUAGE 401

## FLF 401 FRENCH - IV

**Course Code: FLF 401**

**Credit Units: 02**

**Teaching hours: 02**

### Course Objective:

To enable students:

To develop strategies of comprehension of texts of different origin  
To present facts, projects, plans with precision

### Course Contents:

**Module C: pp. 104 – 139 : Unités 8,9**

#### Contenu lexical :Unité 8 : Découvrir le passé

1. parler du passé, des habitudes et des changements.
2. parler de la famille, raconter une suite d'événements/préciser leur date et leur durée.
3. connaître quelques moments de l'histoire

#### Unité 9: Entreprendre

1. faire un projet de la réalisation: (exprimer un besoin, préciser les étapes d'une réalisation)
2. parler d'une entreprise
3. parler du futur

#### Contenu grammatical:

1. Imparfait
2. Pronom « en »
3. Futur
4. Discours rapporté au présent
5. Passé récent
6. Présent progressif

#### Examination Scheme:

Components	CT1	CT2	C	I	V	A
Weightage (%)	20	20	20	20	15	5

C – Project + Presentation

I – Interaction/Conversation Practice

#### Text & References:

le livre à suivre: Campus: Tome 1

## FLG 401 GERMAN - IV

**Course Code: FLG 401**

**Credit Units: 02**

**Teaching hours: 02**

### Course Objective:

To enable the students to converse, read and write in the language with the help of the basic rules of grammar, which will later help them to strengthen their language.

To give the students an insight into the culture, geography, political situation and economic opportunities available in Germany. Introduction to Advanced Grammar Language and Professional Jargon

### Course Contents:

<b>Module I: Present perfect tense</b>	Present perfect tense, usage and applicability Usage of this tense to indicate near past Universal applicability of this tense in German
<b>Module II: Letter writing</b>	To acquaint the students with the form of writing informal letters.
<b>Module III: Interchanging prepositions</b>	Usage of prepositions with both accusative and dative cases Usage of verbs fixed with prepositions Emphasizing on the action and position factor
<b>Module IV: Past tense</b>	Introduction to simple past tense Learning the verb forms in past tense Making a list of all verbs in the past tense and the participle forms
<b>Module V: Reading a Fairy Tale</b>	Comprehension and narration <ul style="list-style-type: none"><li>▪ Rotkäppchen</li><li>▪ Froschprinzessin</li><li>▪ Die Fremdsprache</li></ul>
<b>Module VI: Genitive case</b>	Genitive case – Explain the concept of possession in genitive Mentioning the structure of weak nouns
<b>Module VII: Genitive prepositions</b>	Discuss the genitive prepositions and their usage: (während, wegen, statt, trotz)
<b>Module VIII: Picture Description</b>	Firstly recognize the persons or things in the picture and identify the situation depicted in the picture; Secondly answer questions of general meaning in context to the picture and also talk about the personal experiences which come to your mind upon seeing the picture.

### Examination Scheme:

<b>Components</b>	<b>CT1</b>	<b>CT2</b>	<b>C</b>	<b>I</b>	<b>V</b>	<b>A</b>
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<b>Weightage (%)</b>	20	20	20	20	15	5
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C – Project + Presentation

I – Interaction/Conversation Practice

**Text & References:**

Wolfgang Hieber, Lernziel Deutsch

Hans-Heinrich Wangler, Sprachkurs Deutsch

Schulz Griesbach, Deutsche Sprachlehre für  
Ausländer P.L Aneja, Deutsch Interessant- 1, 2 & 3

Rosa-Maria Dallapiazza et al, Tangram Aktuell A1/1,2

Braun, Nieder, Schmöe, Deutsch als Fremdsprache 1A, Grundkurs

## FLS 401 SPANISH - IV

**Course Code: FLS 401**

**Credit Units: 02**

**Teaching hours: 02**

### Course Objective:

To enable students acquire working knowledge of the language; to give them vocabulary, grammar, voice modulations/intonations to handle everyday Spanish situations with ease.

### Course Contents:

#### Module I

Revision of earlier semester modules

Introduction to Present Continuous Tense (Gerunds)

#### Module II

Translation with Present Continuous Tense

Introduction to Gustar, Parecer, Apetecer, doler

#### Module III

Imperatives (positive and negative commands of regular verbs)

#### Module IV

Commercial/business vocabulary

#### Module V

Simple conversation with help of texts and vocabulary

En la recepcion del hotel

En el restaurante

En la agencia de viajes

En la tienda/supermercado

### Examination Scheme:

Components	CT1	CT2	C	I	V	A
Weightage (%)	20	20	20	20	15	5

C – Project + Presentation

I – Interaction/Conversation Practice

### Text & References:

Español Sin Fronteras (Nivel – Elemental)

## FLC 401 CHINESE – IV

**Course Code: FLF 401**

**Credit Units: 02**

**Teaching hours: 02**

### Course Objective:

How many characters are there? The early Qing dynasty dictionary included nearly 50,000 characters the vast majority of which were rare accumulated characters over the centuries. An educate person in China can probably recognize around 6000 characters. The course aims at familiarizing the student with the basic aspects of speaking ability of Mandarin, the language of Mainland China. The course aims at training students in practical skills and nurturing them to interact with a Chinese person.

### Course Contents:

<b>Module I</b>	Dialogue Practice Observe picture and answer the question Pronunciation and intonation Character writing and stroke order. Electronic items
<b>Module II</b>	Traveling – The Scenery is very beautiful Weather and climate Grammar question with – “bu shi .... Ma?” The construction “yao ... le” (Used to indicate that an action is going to take place) Time words “yiqian”, “yiwai” (Before and after). The adverb “geng”.
<b>Module III</b>	Going to a friend house for a visit meeting his family and talking about their customs. Fallen sick and going to the Doctor, the doctor examines, takes temperature and writes prescription. Aspect particle “guo” shows that an action has happened some time in the past. Progressive aspect of an actin “zhengzai” Also the use if “zhe” with it. To welcome someone and to see off someone .... I cant go the airport to see you off... etc.
<b>Module IV</b>	Shipment. Is this the place to checking luggage? Basic dialogue on – Where do u work? Basic dialogue on – This is my address Basic dialogue on – I understand Chinese Basic dialogue on – What job do u do? Basic dialogue on – What time is it now?
<b>Module V</b>	Basic dialogue on – What day (date) is it today? Basic dialogue on – What is the weather like here. Basic dialogue on – Do u like Chinese food? Basic dialogue on - I am planning to go to China

**Examination Scheme:**

<b>Components</b>	<b>CT1</b>	<b>CT2</b>	<b>C</b>	<b>I</b>	<b>V</b>	<b>A</b>
<b>Weightage (%)</b>	20	20	20	20	15	5

C – Project + Presentation

I – Interaction/Conversation Practice

**Text & References:**

“Elementary Chinese Reader, Part-2” Lesson 31-38

## BAR 501 DESIGN – V

Course Code: BAR 501 Credit Units: 12

L/0-ST/8-P/0

Teaching hours: 08

### Course Objectives:

- To impart significance of context in Architectural Design through response to climate, environment, bylaws and culture
- To introduce basics of planning of small campuses/complex involving more than one building blocks.
- To introduce considerations for achieving Sustainability through Architectural Design.

### Course Contents:

#### **Module I: Introduction**

Introduction to context as strong determinant of architecture of any location with examples, Climate and Culture as comprising factors of context; Project introduction for studio exercise

#### **Module II: Case studies, Site Studies and Literature Studies**

Study of a vernacular settlement with emphasis on socio-economic characteristics, climate and other geomorphic factors, local materials, building techniques, building typology, urban form, spatial analysis etc; Literature Review – Design Standards and Codes, Comparative Analysis and Area statement

#### **Module III: Concept Formulation**

Development of concept to be presented with conceptual block model and sketches for approval.

#### **Module IV: Design Development**

Design to be developed through a series of appraisals and open discussions. Planning at site as well as building level to be frozen and workability, efficiency of design to be worked out and finalized.

#### **Module V: Presentation**

Enhancement of presentation skills using multiple media. Creation of 3-D models based on the design. Preparation of perspective views (internal & external). Presentation of studies and design proposal through submission of sheet work – drawings and views as well as scaled models. . *An A4 Design Report - documenting the process & progress of work through clippings of sketches/ photographs of models highlighting design concept as well as the final proposal drawings etc- shall be an essential part of submission.*

Design exercise can include problems having multi - building blocks complex such as a tourist resorts/ three-star hotel, youth hostels, Craft workshops and Centers, Haats, Social upliftment /empowerment centers etc with emphasis on climatic design. Sites may be chosen in different climatic regions in India except in hilly regions etc.

### Examination Scheme:

Components	A	S1	S2	CT	EE	
Weightage (%)	05	15	20	10	20 Viva	30 EE

### Text Books /Reference Books/Journals/Other Study Material:

- 'Ching Francis, (1979), Architecture Form, Space and Order, Van Nostrand Reinhold Company, New York.
- Neufert Ernst, (1970), Architect's Data, Crosby Lockwood and Sons, London.
- Chiara JD and Calender, (1983), Time Savers Standards for Building Types, McGraw Hill Book Company, New York.
- Broomer, F. Gerald (1974) Elements of Design: Space, Davis Publications Inc., Worcester, Massachusetts.
- Wagenknecht, Kay and Herte (1989) Site + Sculpture – A collaborated design Process, Van Nostrand Reinhold, NY.
- Allen, Edward and Iano, Joseph (2006), The Architect's Studio Companion: Rules of Thumb for Preliminary Design, Wiley; 4<sup>th</sup> edition.
- Frederick, Matthew (2007), 101 Things I Learned in Architecture School, The MIT Press.
- Pearson, David (2001), New organic architecture: the breaking wave, University of California Press.
- Fawcett, Peter (2003), Architecture: design notebook, Architectural Press, 2nd edition

### Online Resources

- <https://www.archdaily.com>
- <http://www.architectmagazine.com>
- <https://www.architecture.com/knowledge-and-resources/resources-landing-page>

**BAR 502 MATERIALS & CONSTRUCTION TECHNOLOGY – V**  
**Course Code: BAR 502      Credit Units: 03      L/1-T/1-P/1      Teaching hours: 03**

**Course Objective:**

- To familiarize student with different materials in flooring, roofing and interior and exterior finishing and their use in building works.

**Course Contents:**

**Module I: Flooring and paving: type and construction detail – 3 weeks**

Soft and hard flooring Stone, Tile, Indian Pattern Stone (IPS) Flooring, Concrete pavers & Stamping, Wood, Epoxy, Vinyl, Carpets etc.

Classification, Manufacturing, Market availability and prices, Advantages/ Disadvantages, design and detailing etc.

**Module II: False ceiling type and construction detail– 3 weeks**

POP, Gypsum board, Acoustic panels, Wood, Metal etc.- Classification, Manufacturing, Market availability and prices, Advantages/ Disadvantages, Design and detailing etc.

**Module III: Exterior and interior finishes– 3 weeks**

Latest finishing materials and their applications in construction- ACP, PVC, Gypsum, Glass, Fiberglass, Glass bricks, Metals, Stone, Ceramics, Exposed brick work, Paints, POP, Polish, Varnishes

**Module IV: Partition and paneling– 3 weeks**

Partitions and Paneling, Cupboards/Cabinets in different materials

**Module IV: Special Details– 2 weeks**

Sliding door, Folding door, Revolving Door, sliding and folding door with hardware and their combinations'

Details such as nosing/railing /grills/balusters in different materials etc.

**Exercises:** Field trips, market survey of available materials, technology and hardware, preparation of study reports and presentation of seminars, preparation of drawings on above topics.

**Examination Scheme:**

Components	A	CE	CT	EE
Weightage (%)	05	25	20	50

**Text & References:**

- Building construction W.B.McKay Building construction R Berry
- Building construction Chudleys
- Building construction Francis D.K. Chings

# BAR 503 STRUCTURAL DESIGN & SYSTEM- V

Course Code: BAR 503

Credit Units: 02

L/2-T/0-P/0

Teaching hours: 02

## Course Objective:

- To understand the Design of R.C.C. structures by using IS: - 456: 2000.
- To help the students for design the structural members like: - beam, column & slabs by using IS:456:2000 (based on working stress method) & implement in analytical software likes: - STAAD Pro V8i.

## Course Contents:

### **Module I: Working stress method-4 weeks**

Introduction, plain & reinforced concrete, objectives of structural design, Code recommendation for working stress method, stress- strain curve for ductility & brittle material, understanding the concept of elasticity. Behavior of concrete under compression & tension, creep & shrinkage of concrete, behavior in flexure.

### **Module II: Design of beams & one-way slabs-3 weeks**

Introduction, requirements of flexural reinforcement, requirements for deflection control, Design of singly & doubly reinforced rectangular sections by using IS :- 456: 2000.

### **Module III: Design of two-way slabs-3 weeks**

Design of wall- suspended two-way slabs, design of beam- supported two-way slabs, design of column- supported slabs, reinforcement details in column- supported two-way slabs.

### **Module IV: Design of Compression members-2 weeks**

Introduction, estimation of effective length of a column, Code requirements on slenderness limits, minimum eccentricities & reinforcement, design of short column under- axial & uni-axial compression Design of column under axial compression with biaxial loading, design of slender column.

## Examination Scheme:

Components	A	CE	CT	EE
Weightage (%)	05	25	20	50

## Text Books /Reference Books/Journals/Other Study Material:

- M.V. Naik, Building Construction – Materials.
- Khurmi R.S., Strength of Materials.
- Khurmi R. S., Applied Mechanics and Strength of Materials.
- P.N. Khanna, Civil Engineering Handbook.s
- Sushil Kumar, Khurmi, Punmia, R.C.C. Design.
- Negi, Design of Steel Structure.
- Salvadori and Heller, Structure in Architecture.
- E. P. Popov, Mechanics of materials.
- R. Park and T. Paulay, Reinforced concrete structures.
- M.L. Gambhir, Concrete technology.
- N. Krishna Raju, Design of reinforced concrete structures.
- S. Unikrishna pillai & devdas menon,,Reinforced concrete design.
- IS: 456- 2000
- SP: 16- 1980
- Morgan, Elements of Structure.
- Salvadori, Structures in Architecture.
- Mackey, WB, Building Construction Vol. 1-4.
- Chudley, Construction Technology Vol. 1-6.
- Mitchell, Elementary Building Construction.

# BAR 504 GRAPHICS SKILLS – V (Computer aided)

Course Code: BAR 504      Credit Units: 02      L/0-ST/0-P/4 Teaching hours: 04

## Course Objective:

- To train student to create 3D in Revit.
- Understand different aspects of collaborative modeling, BIM based scheduling and estimating
- will have hands-on experience with advanced BIM solutions, which support collaborative and concurrent teamwork; view of the building industry

## Course Contents:

### **Module I: Learning detailed 3D creation using Revit (Building Information Modelling (BIM) software)- 3 Weeks**

Introduction about BIM, Introduction to Autodesk Revit Architecture, Revit File Types, Exploring User Interface, Building Elements, starting a New Project and importing other files in Revit, Drawing Plan as per Dimension. Creating detailed 3D (Exterior & Interior) of an Architectural project and generating its Plan(s), Elevation(s) Section(s), view(s) a complete set of architectural drawings using Revit.

### **Module II: Learning 3D Rendering using Revit-3 Weeks**

Advanced 3D creation and rendering in Revit. Material application, Lighting, Camera setting, Background, Scenic development for still 3d images and their final editing in Photoshop etc.

### **Module III: Learning 3D Animation using Revit-1 Week**

Using Revit for developing 3D animation (walk through) for Architectural significance. Complete scenic development, material and lighting as well as camera positioning for moving images. Saving and viewing animations.

### **Module IV: Creating Complex forms/ shapes and printing-3 Weeks**

Massing Introduction; Creating In-Place Masses using Forms, Extrusion, Revolve, Sweeps. Composing sheet and final presentation on Revit.

Importing and exporting Revit file into other software.

### **Module V: Learning BIM software Revit for Complex forms/ shapes-4 Weeks**

Introducing a BIM Strategy document, Model management, Project team collaboration techniques, Transmittal and model issue protocols, Basics of large model sub-division, Exercise on work sets and task allocation

## Examination Scheme:

Components	A	CE	CT	EE
Weightage (%)	05	25	20	50

## Text & References:

- Autodesk Revit user guide/manual.
- Autodesk Revit Architecture: Eric.

# BAR 505 BUILDING BY LAWS, CODES & PRACTICES

Course Code: BAR 505

Credit Units: 02

L/2-T/0-P/0

Teaching hours: 02

## Course Objectives:

- To study the development controls as applicable to building design. To acquaint the students to compulsory building bye-laws and permits.

## Course Contents:

### **Module I: Introduction of By-Laws - 3 weeks**

Introduction to Building Bye Laws and regulation, their need and relevance, general definitions such as building height, building line, FAR, Ground Coverage, set back line et all. Role of various statutory bodies governing building works like development authorities, municipal corporations etc. Introduction to Master Plan and understanding various land uses like institutional, residential etc. and related terminology

### **Module II: Application of By-Laws - 4 weeks**

Interpretation of information given in bye laws including ongoing changes as shown in various annexure and appendices. Application of Bye Laws like structural safety, fire safety, earthquake safety, basement, electricity, water, and communication lines in various building types.

### **Module III: Introduction of Codes & Practices - 3 weeks**

Introduction to various building codes in professional practice emphasizing the importance of codes and regulations to protect public health, safety and welfare and to ensure compliance with the local authority.

### **Module IV: Application of Codes & Practices - 4 weeks**

Understanding the applications of various codes as per various building types. Conducting a comprehensive code search process and representing the above analysis by preparing detailed code data sheets as applicable in the domain which has been chosen for the research.

*Any important note or instruction for course coordinator*

## Examination Scheme:

Components	A	CE	CT	EE
Weightage (%)	05	25	20	50

## Text Books /Reference Books/Journals/Other Study Material:

- 'Delhi Building Bye-Laws – Nabhi Publications D.D.A.– Delhi Master Plan
- Unified Building by laws of 2017 Rajasthan
- Various IS Codes

# BAR 506 BUILDING SERVICES- IV

Course Code: BAR 506

Credit Units: 02

L/2-ST/0-P/0

Teaching hours: 02

## Course Objectives:

- To acquaint the student with the fire safety regulation and security systems to be adopted in the buildings. Study the development codes and bye-laws of fire safety regulations, and study about the different methods and materials for treatment in buildings for fire safety.

## Course Contents:

### **Module I: Fire Safety- 1 weeks**

Introduction: basic understanding about fire, growth decay curve. Causes of fire in buildings, types of fire, spread of fire, production of smoke and poisonous gases. Fire safety and preventive measures.

### **Module II: Fire properties of materials- 2 weeks**

Basic fire properties of materials i.e. ignitability, combustibility, surface spread of flame, fire propagation, toxicity etc.: General behavior of materials, combination of fire retardant and non-combustible materials.

### **Module III: By-laws for firefighting - 2 weeks**

Firefighting regulations with reference to National Building code. Fire escape, stairways and escape routes, dry and wet risers, Water demand for firefighting, storage tanks, fire hydrants etc.

### **Module IV: Fire extinguishing- 1 weeks**

Study of Fire detection systems, smoke detectors, heat detectors, fire alarms etc. Fire extinguishing systems, Unit fire extinguishers, Chemical and foam extinguishers, Chemical and foam extinguishers.

### **Module V: Advance Security Systems - 1 weeks**

Communication systems in buildings, CCTV, conduits to accommodate the systems. Security and Surveillance. Remote control for security systems and automation

*Any important note or instruction for course coordinator*

## Examination Scheme:

Components	A	CE	CT	EE
Weightage (%)	05	25	20	50

## **Text Books /Reference Books/Journals/Other Study Material:**

- Fire Safety: National Building Code of India 1983, An Introduction to Building Physics: Narsmhan
- Fire Safety in Buildings by V.K. Jain
- Brannigan, F. L. & Corbett, G. P. (2008). Brannigan's Building Construction for the Fire Service. Sudbury, MA: Jones & Bartlett Publishers.

# BAR 507 BUILDING APPRECIATION

Course Code: BAR 507

Credit Units: 02

L/2-T/0-P/0

Teaching hours: 02

## Course objective:

The objective of the course is to introduce the students to the practice of appreciating architectural built forms.

## Course contents:

### Module I: Introduction

Introduction to building appreciation and analysis of the evolution of buildings and its necessity. Introduction also includes guidelines and parameters to appreciate any building.

### Module II: Aesthetic Interpretation

The interpretive understanding of aesthetic experience provides with the opportunity to develop their interpretive skills and heighten their aesthetic responses to various building forms, building textures and building expressions. Analyze, interpret and respond to architectural examples done by architects from past and present. This also includes appreciation of historical works and background of previous era.

### Module III: Historical Perspective

Examining historical perspectives help realize the need to understand the past and thoughtfully consider the future to contextualize current knowledge about buildings and their elements. Identify and describe appropriate systematic and scientific strategies to examine historical built forms and methods.

### Module IV: Guidelines for Building Appreciation

Develop critical thinking skills, ability to reflect and explain the meanings of architectural works

Understand how architectural building works shape and reproduce social ideas, values and concerns and how they interact with and influence society, history and culture.

**Note: Students shall be given an example of Building appreciation to record their experiences**

## Examination Scheme:

Components	A	CE	CT	EE
Weightage (%)	05	25	20	50

## Text & References:

- Kenneth Lindley, Appreciation of Architecture: Landscape and Building (C.I.L.) Paperback – February, 1972
- Carol Davidson Cragoe, How to Read Buildings: A Crash Course in Architectural Styles, Rizzoli, 2008 Francis D.K. Ching, A Visual Dictionary of Architecture, Wiley, 1996
- Kevin McCloud, Grand Designs Handbook: The blueprint for building your dream home, Collins, 2009

# BAR 508 ENERGY CONSERVATION ARCHITECTURE

Course Code: BAR 508

Credit Units: 02

L/2-T/0-P/0

Teaching hours: 02

## Course Objectives:

- To familiarize students with principles, techniques and guidelines for planning and design of energy conserving architecture.
- Study of solar energy systems and other alternative sources of energy being used in architectural applications.

## Course Contents:

### **Module I: Introduction - 2 weeks**

Classification and characteristics of energy resources, Use and exploitation of resources, Resource use in architecture / exploitation of resources for development, Resource shortage and constraint, Concepts and need for conservation, Renewable, non-renewable resources and alternate sources of energy. Need and necessity of energy conservation.

### **Module II: Energy conservation Architecture - 3 weeks**

Principles of energy conservation, Pattern of energy use in buildings, Technologies and methods of conservation, Economic, technological and environmental implications. Ambient energy and lifecycle requirement of energy in different types of buildings. Use and possibility of alternate sources of energy.

### **Module III: Conservation of other resources - 3 weeks**

Conserving building materials, water, land etc. in architecture, methods of conservation and their implication. Understanding the concept of zero energy buildings.

### **Module IV: Design of ECA - 3 weeks**

Fundamentals of planning and design, Elements and principles of design, Study of design problems, Application of relevant principles for design solutions, Innovative and appropriate construction technologies. Use of landscaping elements in energy conservation.

### **Module V: Exercise - 3 weeks**

Students shall workout a practical exercise of converting one of their designs into energy conserving building.

*Any important note or instruction for course coordinator*

## Examination Scheme:

Components	A	CE	CT	EE
Weightage (%)	05	25	20	50

## Text Books /Reference Books/Journals/Other Study Material:

- Alternative Natural Energy Sources in Building Design: Davies and Schubert.
- Design with nature: I. McHarg
- The Ecological Context: H. McHale.
- Energy Conservation Standards: for building design, construction and operation, S. Fred Dubin

## Online Resources

- <https://www.IGBC.com>
- <https://www.ECBC.com>
- <https://www.GRIHA.Org>

# BAR 509 DIGITAL ARCHITECTURE

Course Code: BAR 509 Credit Units: 02

L/2-T/0-P/0

Teaching hours: 02

## Course Objective:

- To familiarize student with digital architecture

## Course contents

### **Module I: Digital Architecture**

Introduction to Digital Architecture, Digital Architecture terminologies, digital theories and History of Digital Architecture, Difference between conventional design approach and Digital design process,

### **Module II: Digital Architecture software:**

Introduce to digital Design Process, Software as design tools, Associative modeling, Concept of artificial intelligence, Application of expert system in architecture.

### **Module III: Digital Techniques in Architecture**

Building Automation System, Current trend and innovation, Effect of building automation on functional efficiency, Components of Building Automation, Application of 3D printing machines and techniques.

### **Module IV: Parametric design:**

Relation of **Architecture and Algorithm**, Basic Application of algorithmic techniques in design methodologies, coding principles, artificial life, material intelligence

## Examination Scheme:

Components	A	CE	CT	EE
Weightage (%)	05	25	20	50

## Text Books/Reference Books/Journals/Other Study Material:

- Contemporary Processes in Architecture – by Ali Rahim
- Digital Cities AD: Architectural Design – Prof. Neil Leach
- Performative Architecture : Beyond Instrumentality – by Branko Kolarevic
- Versatility and Vicissitude: Performance in Morpho-Ecological Design- by Michael Hensel
- Biosensors for environmental monitoring – by Ursula Bilitewski, Anthony Turner
- Biosensor principles and Application – by Loic J.Blum, Pierre R.Coulet
- Digital Tectonics – Prof. Neil Leach
- Contemporary techniques in Architecture – by Ali Rahim
- Digital Fabrications: Architectural and Material Techniques- by Lisa Ewamoto

# AND 005 AANANDAM-V

Course Code: AND 005 Course Type: VA Credit Units: 02 L/0-ST/0-P/4 Teaching hours: 04

## Course Objectives:

The objective of this course is to make students aware and empathetic about community issues and to increase interaction among students as well as with the community to enlarge social network.

## Course Contents:

### Directions for Students

- Students should do at least one individual act of goodness each day and Record this act in a dedicated diary/register
- Students should share this dedicated diary/register in Aanandam period with the mentor and share experience with the class.
- Students must take up one Community Service Project in a group of 8-12 students.
- The students must take photographs to document their work
- The students can obtain certificate from the NGO/ Government Agency they are working with for Group Community Service Project
- The students may submit newspaper cuttings
- The students must participate in the Aanandam Day by displaying charts of their Group Community Service Project
- Students must submit Group Community Service Project Report at the end of semester.
- The students may prepare power point presentations/video of their project which will help them get better grades.

### Guidelines for the Report

The project report shall contain:

- Synopsis: clearly stating objectives and activities to be undertaken. Problem identifying and problem-solving projects to be taken up.
- Details of the Mentor and the Participants are to be given (name of mentor, name of participants, phone number/mobile no, email etc.)
- Location / community where the work was carried out
- Details of Activities performed are to be given with date
- Number of beneficiaries and impact on the society (the object should be to empower the community and make them self-reliant)
- Photographs taken for documentation of work should be submitted
- Media coverage of the projects should be attached if any
- Students should also submit their certificates from the government bodies and or nongovernment bodies they collaborate with, if any
- Photographs of **Display charts** or **ppt/video** prepared while presentation on the group community service in the **Aanandam Day** must be submitted along with the report
- The Group Community Service Project Report will be submitted by the Student group leader under the guidance of the mentor to the Director/HoI of the Department.

### Activity Suggestion

The students as per their interest would support activities of community service such as:

- Literacy programs, in today's digital age many organizations/individuals might also need help with email and websites
- Livelihood projects,
- Time giving activities to adopted communities (awareness regarding Govt. programmes) sports like yoga, meditation, drills, and physical exercises in adopted areas
- Activities on arts and culture such as restoration of traditional art and culture and monuments.
- Understand their responsibility in taking care of environment and appreciating cultural diversity
- While some students would be interested in awareness about environment such as protecting and preserving natural resources and animal species (the flora and the fauna). Plantation and animal care centers
- A few would be concerned with healthcare like medical and dental missions, first-aid training, etc.
- Another group may be formed for attending to old people (who have money but need assistance for market and groceries) [Time Bank]
- Another group may be formed for civic activities, awareness programmes.
- Local social problems to be taken up and solutions devised
- Innovations and Startups to be encouraged
- Help plant a community garden, help out at a children's camp

Integration of these projects with ongoing design and construction may be explored.

### Assessment Scheme:

#### **Final Evaluation: 50 (Marks)**

(Based on Innovative solution of community issue, Participation and Documentation inform of report)

Components	CE			EE
	Innovation	Participation	Report	
<b>Weightage (%)</b>	30	10	10	--

*Note: Submission of register of everyday activity is mandatory (if register is not submitted by the student, he/she will not be evaluated and considered for the award)*

## **BCS 501 COMMUNICATION SKILLS - III**

**Course Code: BCS 501**

**Credit Units: 01**

**Teaching hours: 01**

### Course Objective:

- To equip the participant with linguistic skills required in the field of science and technology while guiding them to excel in their academic field.

### Course Contents:

#### **Module I**

Reading Comprehension

Summarizing Paraphrasing

#### **Module II**

Essay Writing

Dialogue Report

#### **Module III**

Writing Emails

Brochure

Leaflets

#### **Module IV: Introduction to Phonetics**

Vowels

Consonants

Accent and Rhythm Accent

Neutralization

Spoken English and Listening Practice

### **Examination Scheme:**

<b>Components</b>	<b>CT1</b>	<b>CT2</b>	<b>CAF</b>	<b>V</b>	<b>GD</b>	<b>GP</b>	<b>A</b>
<b>Weightage (%)</b>	20	20	25	10	10	10	5

CAF – Communication Assessment File

GD – Group Discussion

GP – Group Presentation

**Text & References:**

Effective English for Engineering Students, B Cauveri, Macmillan India

Creative English for Communication, Krishnaswamy N, Macmillan

A Textbook of English Phonetics, Balasubramanian T, Macmillan

# **BSS 504 BEHAVIOURAL SCIENCE – V (Group Dynamics and Team Building)**

**Course Code: BSS 501**

**Credit Units: 01**

**Teaching hours: 01**

## **Course Objective:**

This course aims at enabling students towards:

- Understand the importance of individual differences
- Better understanding of self in relation to society and nation
- Facilitation for a meaningful existence and adjustment in society
- To inculcate patriotism and National pride.
- To enhance personal and professional excellence

## **Course Contents:**

### **Module I: Individual differences & Personality**

Personality: Definition & Relevance

Importance of nature & nurture in Personality Development

Importance and Recognition of Individual differences in Personality

Accepting and Managing Individual differences (Adjustment Mechanisms)

Intuition, Judgment, Perception & Sensation (MBTI)

BIG5 Factors

### **Module II: Socialization**

Nature of Socialization

Social Interaction

Interaction of Socialization Process

Contributions to Society & Nation

### **Module III: Patriotism and National Pride**

Sense of Pride and Patriotism

Importance of Discipline and hard work

Integrity and accountability

### **Module IV: Human Rights, Values and Ethics**

Meaning of Human Rights

Human Rights Awareness

Importance of human rights

Values and Ethics- Learning based on project work on Scriptures like Ramayana, Mahabharata, Gita etc

### **Module V: Personal and Professional Excellence**

Personal excellence:

- Identifying Long-term choices and goals
- Uncovering talent, strength and style

Alan P. Rossiter's eight aspects of Professional Excellence

Resilience during challenge and loss

Continued Reflection (Placements, Events, Seminars, Conferences, Projects, Extracurricular Activities, etc.)

## **Examination Scheme:**

<b>Components</b>	<b>SAP</b>	<b>A</b>	<b>Mid Term Test (CT)</b>	<b>VIVA</b>	<b>Journal for Success (JOS)</b>
<b>Weightage (%)</b>	20	05	20	30	25

**Text & References:**

Bates, A. P. and Julian, J.: Sociology - Understanding Social Behaviour

Dressler, David and Cans, Donald: The Study of Human Interaction

Lapierre, Richard. T – Social Change

Rose, G.: Oxford Textbook of Public Health, Vol.4, 1985.

Robbins O.B.Stephen;. Organizational Behaviour

# FOREIGN LANGUAGE 501

## FLF 501 FRENCH - V

**Course Code: FLF 501**

**Credit Units: 02**

**Teaching hours: 02**

### Course Objective:

To furnish some basic knowledge of French culture and civilization for understanding an authentic document and information relating to political and administrative life

### Course Contents:

**Module D: pp. 131 – 156 Unités 10,11**

**Contenu lexical :**            **Unité 10 :** Prendre des décisions

1. Faire des comparaisons
2. décrire un lieu, le temps, les gens, l'ambiance
3. rédiger une carte postale

#### **Unité 11 : faire face aux problèmes**

1. Exposer un problème.
2. parler de la santé, de la maladie
3. interdire/demander/donner une autorisation
4. connaître la vie politique française

### Contenu grammatical:

1. comparatif - comparer des qualités/ quantités/actions
2. supposition : Si + présent, futur
3. adverbe - caractériser une action
4. pronom "Y"

### Examination Scheme:

Components	CT1	CT2	C	I	V	A
Weightage (%)	20	20	20	20	15	5

C – Project + Presentation

I – Interaction/Conversation Practice

### Text & References:

le livre à suivre : Campus: Tome 1

## **FLG 501 GERMAN - V**

**Course Code: FLG 501**

**Credit Units: 02**

**Teaching hours: 02**

### Course Objective:

- To enable the students to converse, read and write in the language with the help of the basic rules of grammar, which will later help them to strengthen their language.
  - To give the students an insight into the culture, geography, political situation and economic opportunities available in Germany
- 
- Introduction to Advanced Grammar and Business Language and Professional Jargon

### Course Contents:

#### **Module I: Genitive case**

Genitive case – Explain the concept of possession in genitive Mentioning the structure of weak nouns

#### **Module II: Genitive prepositions**

Discuss the genitive prepositions and their usage: (während, wegen, statt, trotz)

#### **Module III: Reflexive verbs**

Verbs with accusative case

Verbs with dative case

Difference in usage in the two cases

#### **Module IV: Verbs with fixed prepositions**

Verbs with accusative case

Verbs with dative case

Difference in the usage of the two cases

#### **Module V: Texts**

A poem 'Maxi'

A text Rocko

#### **Module VI: Picture Description**

Firstly recognize the persons or things in the picture and identify the situation depicted in the picture;

Secondly answer questions of general meaning in context to the picture and also talk about the personal experiences which come to your mind upon seeing the picture.

### Examination Scheme:

Components	CT1	CT2	C	I	V	A
Weightage (%)	20	20	20	20	15	5

C – Project +  
Presentation

I – Interaction/Conversation Practice

### Text & References:

Wolfgang Hieber, Lernziel Deutsch

Hans-Heinrich Wangler, Sprachkurs Deutsch

Schulz Griesbach, Deutsche Sprachlehre für Ausländer

P.L Aneja, Deutsch Interessant- 1, 2 & 3

Rosa-Maria Dallapiazza et al, Tangram Aktuell A1/1,2

Braun, Nieder, Schmöe, Deutsch als Fremdsprache 1A, Grundkurs

## FLS 501 SPANISH - V

**Course Code: FLS 501**

**Credit Units: 02**

**Teaching hours: 02**

### **Course Objective:**

To enable students acquire working knowledge of the language; to give them vocabulary, grammar, voice modulations/intonations to handle everyday Spanish situations with ease.

### **Course Contents:**

#### **Module I**

Revision of earlier semester modules

#### **Module II**

Future Tense

#### **Module III**

Presentations in English on

Spanish speaking countries'

Culture

Sports

Food

People

Politics

Society

Geography

#### **Module IV**

Situations:

En el hospital

En la comisaria

En la estacion de autobus/tren

En el banco/cambio

#### **Module V**

General revision of Spanish language learnt so far.

### **Examination Scheme:**

Components	CT1	CT2	C	I	V	A
Weightage (%)	20	20	20	20	15	5

C – Project + Presentation

I – Interaction/Conversation Practice

**Text & References:**

Español Sin Fronteras, Greenfield

## FLC 501 CHINESE – V

**Course Code: FLC 501**

**Credit Units: 02**

**Teaching hours: 02**

### Course Objective:

What English words come from Chinese? Some of the more common English words with Chinese roots are ginseng, silk, dim sum, fengshui, typhoon, yin and yang, Tai chi, kung-fu. The course aims at familiarizing the student with the basic aspects of speaking ability of Mandarin, the language of Mainland China. The course aims at training students in practical skills and nurturing them to interact with a Chinese person.

### Course Contents:

<b>Module I</b>	Drills Dialogue practice Observe picture and answer the question. Pronunciation and intonation. Character writing and stroke order
<b>Module II</b>	Intonation Chinese foods and tastes – tofu, chowmian, noodle, Beijing duck, rice, sweet, sour....etc. Learning to say phrases like – Chinese food, Western food, delicious, hot and spicy, sour, salty, tasteless, tender, nutritious, good for health, fish, shrimps, vegetables, cholesterol is not high, pizza, milk, vitamins, to be able to cook, to be used to, cook well, once a week, once a month, once a year, twice a week..... Repetition of the grammar and verbs taught in the previous module and making dialogues using it. Compliment of degree “de”.
<b>Module III</b>	Grammar the complex sentence “suiran ... danshi....” Comparison – It is colder today than it was yesterday.....etc. The Expression “chule....yiwai”. (Besides) Names of different animals. Talking about Great Wall of China Short stories
<b>Module IV</b>	Use of “huozhe” and “haishi” Is he/she married? Going for a film with a friend. Having a meal at the restaurant and ordering a meal.
<b>Module V</b>	Shopping – Talking about a thing you have bought, how much money you spent on it? How many kinds were there? What did you think of others? Talking about a day in your life using compliment of degree “de”. When you get up? When do you go for class? Do you sleep early or late? How is Chinese? Do you enjoy your life in the hostel?

Making up a dialogue by asking question on the year, month, day and the days of the week and answer them.

**Examination Scheme:**

<b>Components</b>	<b>CT1</b>	<b>CT2</b>	<b>C</b>	<b>I</b>	<b>V</b>	<b>A</b>
<b>Weightage (%)</b>	20	20	20	20	15	5

C – Project + Presentation

I – Interaction/Conversation Practice

**Text & References:**

“Elementary Chinese Reader ” Part-II Lesson 39-46

# BAR 601 DESIGN – VI

Course Code: BAR 601    Credit Units: 12    L/0-ST/8-P/0    Teaching hours: 08

## Course Objectives:

- To understand Design constraints pertaining to buildings requiring integration of basic services and structures; building on hilly terrain(contours); buildings forming a complex
- To investigate design issues pertaining to above typologies
- To create architectural design for above typologies

## Course Contents:

### **Module I: Introduction**

Introduction to parameters that control design criteria for buildings that require integration of basic services and structures; constraints and design strategies for building on hilly terrain and designing for variety of buildings that are part of same complex with examples. Project introduction for studio exercises.

### **Module II: Case studies, Site Studies and Literature Studies**

Case Studies – primary and secondary; Site and surroundings survey- location, local climatic conditions, topography, existing landscape, socio- cultural impact on design; Literature Review – Design Standards and Codes, Comparative Analysis and Area statement

### **Module III: Concept Formulation**

Development of concept to be presented with conceptual block model and sketches for approval.

### **Module IV: Design Development**

Design to be developed through a series of appraisals and open discussions. Planning at site as well as building level to be frozen and workability, integration with structures and services, efficiency of design to be worked out and finalized.

### **Module V: Presentation**

Presentation of studies and design proposal through submission of sheet work – drawings and views as well as scaled models. *An A4 Design Report - documenting the process & progress of work through clippings of sketches/ photographs of models highlighting design concept as well as the final proposal drawings etc- shall be an essential part of submission.*

Design exercise can include projects like Housing, Auditorium, Museum, Institute campus on Hills/plains, shopping malls etc.

## Examination Scheme:

Components	A	S1	S2	CT	EE	
Weightage (%)	05	15	20	10	20 Viva	30 EE

## Text Books /Reference Books/Journals/Other Study Material:

- 'Ching Francis, (1979), Architecture Form, Space and Order, Van Nostrand Reinhold Company, New York.
- Neufert Ernst, (1970), Architect's Data, Crosby Lockwood and Sons, London.
- Chiara JD and Calender, (1983), Time Savers Standards for Building Types, McGraw Hill Book Company, New York.
- Broomer, F. Gerald (1974) Elements of Design: Space, Davis Publications Inc., Worcester, Massachusetts.
- Wagenknecht, Kay and Herte (1989) Site + Sculpture – A collaborated design Process, Van Nostrand Reinhold, NY.
- Allen, Edward and Iano, Joseph (2006), The Architect's Studio Companion: Rules of Thumb for Preliminary Design, Wiley; 4<sup>th</sup> edition.
- Frederick, Matthew (2007), 101 Things I Learned in Architecture School, The MIT Press.
- Pearson, David (2001), New organic architecture: the breaking wave, University of California Press.
- Fawcett, Peter (2003), Architecture: design notebook, Architectural Press, 2nd edition

## Online Resources

- <https://www.archdaily.com>
- <http://www.architectmagazine.com>
- <https://www.architecture.com/knowledge-and-resources/resources-landing-page>

# BAR 602 MATERIALS & CONSTRUCTION TECHNOLOGY – VI

Course Code: BAR 602 Credit Units: 03 L/1-ST/1-P/1 Teaching hours: 03

## Course Objective:

- To acquaint the students with working drawing in construction work.
- To expose the students to preparation and usage of working drawings on site.
- To familiarize with requirement of the working drawing, its essentials and levels of details required so that work could be executed at site without any further assistance.

## Course Contents:

### **Module I: Introduction to Working and submission Drawing – 1 week**

Introduction to the topic and its relevance in the construction field.Aspects such as – construction terminology, building bye-laws, requirements of submission and completion / compounding of projects to be discussed.

### **Module II: Dimensions system – 2 weeks**

Dimension system at building and site level

### **Module III: Working Drawing I– 3 weeks**

Plans, section and elevation

### **Module IV: Working Drawing II– 3 weeks**

Typical structural detail. Excavation and shuttering working drawing and detail

### **Module V: Working Drawing III - 2 weeks**

Toilet / kitchen & staircase details

### **Module VI: Working Drawing IV - 2 weeks**

Flooring handling pattern, Landscaping's

### **Module VII: Roof drainage, flashing - 2 weeks**

Detail of terracing for flat roofs.

Water proofing and rainwater disposal.

## **Exercises**

Making complete set of working drawings and details for a small two storied building designed in the previous semester, with necessary changes made as per the local bye-laws.

## **List of drawings-**

**Architectural drawing**-Site Plan, All Floor Plans, Elevations, Sections, Doors and Windows schedule and details,

**Structural drawing**- Foundation Layout and details

**Services drawing**-Electrical and Plumbing layouts, HVACs layout.

**Details drawing**-Kitchen, Toilet, staircase details, Flooring Pattern, Details of grills, Parapet or railings, typical wall section with complete details.

## Examination Scheme:

Components	A	CE	CT	EE
Weightage (%)	05	25	20	50

## Text Books/Reference Books/Journals/Other Study Material:

- Elements of Structure by Morgan
- Structures in Architecture by Salvadori
- Building Construction by Mackay WB Vol. 1-4 Construction Technology by Chudley Vol. 1-5

# BAR 603 STRUCTURAL DESIGN & SYSTEM- VI

Course Code: BAR 603

Credit Units: 02

L/2-T/0-P/0

Teaching hours: 02

## Course Objective:

- To understand the design of Steel structures by using: - IS 800: 2007/1984.
- To help the students for understanding the design of steel structures members like: - beam, columns & girders by using IS: - 800; 2007 (based on limit state method) & implement in analytical software's like: - Tekla Bentley version.

## Course Contents:

### **Module I: Limit state method-2 weeks**

Introduction, steelwork connections: -rivet, weld, bolt & pinned connections, failure & strength of a welded joint, working stresses in rivet joint, modes of failure of a riveted joint

### **Module II: Design of tension members-2 weeks**

Introduction, types of tension member, net sectional area, net effective areas for angles & tees in tension. Permissible stresses, design of members subjected to axial tension & bending, lug angles.

### **Module III: Design of compression members-2 weeks**

Introduction, modes of failure of a column, buckling failure: - Euler's theory, Ideal end conditions and effective length factors, radius of gyration & slenderness ratio, various column formulae, IS codes formulae, common shapes of compression members, strength of compression members, general specification for compression member, design of compression member

### **Module IV: Girders-2 weeks**

Introduction, loads acting on girder, permissible stresses, types of girders & crane rails.

### **Module V: Advanced design for shear in beams-3 weeks**

Design of advance R.C.C. Structures: - Strip & yield line method, Shear friction, horizontal shear transfer, composite concrete beams, design of shear walls, strut- & tie model, truss model, deep beams, bearing & shearing walls & corbels.

### **Module VI: Design for earthquake resistance-3 weeks**

Effect of confining the concrete & introducing the famous models, flexural hinges & their lengths ultimate deformation & ductility of members with flexure, moment curvature relationship, cyclic behavior of beam- column member, redistribution of moments in reinforced beams, design of beam column joint.

## Examination Scheme:

Components	A	H	C	V	CT	EE
Weightage (%)	05	10	10	05	20	50

## Text Books/Reference Books/Journals/Other Study Material:

- P.N. Khanna, Civil Engineering Handbook.
- B.C. Punmia, Design of steel structures.
- Negi, Design of Steel Structure.
- Salvadori and Heller, Structure in Architecture.
- E. P. Popov, Mechanics of materials.
- J. Sterling Kinney, Indeterminate structural analysis.
- C.S. Reddy, Basic structural analysis.
- R. Park and T. Paulay, Reinforced concrete structures.
- M.L. Gambhir, Concrete technology.
- N. Krishna Raju, Design of reinforced concrete structures.
- IS: 800- 2007
- SP: 16- 1980
- N. Krishna Raju, Advance R.C.C. design.
- A.k. Chopra, Dynamics of structures.
- Chudley, Construction Technology Vol. 1-6
- K. R. Arora, Advance concrete design.
- IS: - 3370, IS: - 1893.
- Special publication -6 (SP-6)
- Birla publication, Steel tables
- Morgan, Elements of Structure.
- Salvadori, Structures in Architecture
- Mackay WB, Building Construction Vol. 1-4
- Chudley, Construction Technology Vol. 1-6
- Elementary Building Construction by Mitchell
- Everet, Structure and Fabric.
- Tekla software. With Bentley version V8i.
- Morgan, Elements of Structure.
- Salvadori, Structures in Architecture.
- Mackay WB, Building Construction Vol. 1-4
- Mitchell, Elementary Building Construction.

# BAR 604 QUANTITY SURVEYING & SPECIFICATIONS

Course Code: BAR 604

Credit Units: 02

L/2-T/0-P/0

Teaching hours: 02

## Course Objectives:

- To familiarize the students with the theory and practice of estimation and quantity surveying. To develop the understanding of specification writing.

## Course Contents:

### **Module I: Introduction - 1 week**

Definition, importance and uses of specification – principles and practice; method of writing specification; form and sequence of clauses, calculation of length according to long & short wall method, center line method.

### **Module II: Material Specifications - 2 weeks**

Writing detailed specification for various common building materials e.g., bricks, sand, lime, timber, glass, paints etc.; specification of new building materials.

### **Module III: Specifications of Simple construction - 2 weeks**

Writing detailed specification for various building construction works.

### **Module IV: Schedule of Rates - 2 weeks**

Specification of BIS and other institutions; general Abbreviations used in specifications.

### **Module V: Introduction to Estimate - 2 weeks**

Introduction to cost estimation and definitions of terms related to estimates.

### **Module VI: Types to Estimate - 2 weeks**

Types of estimates, abstract and detailed estimates; detail estimates – methods of estimating; taking out of various items; preparation of bill of quantities – use of schedule of rates; analysis of rate and break up of material requirements.

### **Module VII: Cost accountancy & Book keeping - 2 weeks**

Introduction to cost accountancy and book keeping.

### **Module VIII: Rate Analysis - 1 week**

Principles of analysis of rates, rates of labour and materials, rate analysis in different building works.

*Any important note or instruction for course coordinator*

## Examination Scheme:

Components	A	CE	CT	EE
Weightage (%)	05	25	20	50

## Text Books /Reference Books/Journals/Other Study Material:

- Estimating and Costing in Civil Engineering: B. N. Dutta
- Estimation, Costing & valuation by M. Chakraborty.
- Handbook on Building Economics and Productivity, Central Building Research Institute, Roorkee: S.C. Singh and G.C. Sofat.
- Civil Engineering Handbook – P.N. Khanna
- R.C.C. Design – Khurmi, Punmia, Sushil Kumar

# BAR 605 LANDSCAPE DESIGN & SITE PLANNING

Course Code: BAR 605

Credit Units: 02

L/2-ST/0-P/0

Teaching hours: 02

## Course Objective:

To acquaint the student with the various natural elements used to design transitional and outside spaces and establish a linkage between nature and the built environment

## Course Contents:

### **Module I: Introduction**

Definition, scope, landscape architecture in relation to architecture. Landscape design elements and principles, historical review of gardens in India, Persia, Japan, Italy, France and England, contemporary landscape design

### **Module II: Characteristics and use of plants**

Characteristics of various types of plants/trees/shrubs/creepers/edges/hedges etc., and their suitability for landscaping; plant selection criteria, planting design.

### **Module III: Site Analysis and planning**

Analysis of site with respect to topography/ slope, hydrology/ drainage, geology/ soil, vegetation, views – on site/ off site and their consideration in design and planning

### **Module IV: Landscape Design and maintenance**

Landscape design for various building types; landscaping parks and roads, rock gardens, terrace gardens, landscaped courts. Preparation of landscape schemes; Landscape construction. Maintenance & phasing of landscape schemes.

### **Module V: Landscape design elements**

Landscape design element such as sculptures/ benches/ umbrellas/ fences/ posts etc. their design, selection and incorporation in landscape/ site planning schemes.

## Examination Scheme:

Components	A	CE	CT	EE
Weightage (%)	05	25	20	50

## Text Books/Reference Books/Journals/Other Study Material:

### *Text:*

- An Introduction to Landscape architecture by M. Laurie. An Introduction to Landscape Design by H. V. Hubbard
- Fundamentals of Landscaping and Site Planning by James B. Root. History of Garden Design by D. Clifford
- Tropical Garden Plants in Colour by Bose and Chowdhury

### *References:*

- Colour and Design for Every Garden by Ortloff and Raymore Design with Nature by I. Mcharg
- The Way We Live by Alfresco
- New Landscape Design by Robert Holden Fundamentals of Ecology by M. C. Dash. Landscape Detailing by Michael Ittlewood.

# BAR 606 BUILDING SERVICES-V

Course Code: BAR 606

Credit Units: 02

L/2-T/0-P/0

Teaching hours: 02

## Course Objectives:

- To Integrate of HVAC system with building design & its application. To expose the students to the areas of air-conditioning, heating and ventilation in buildings of various types so that their integration could be done in most appropriate manner right at the design stage.

## Course Contents:

### **Module I: Ventilation- 1 weeks**

Natural and artificial ventilation systems; estimation of ventilation requirements; mechanical ventilation in buildings; scheme and equipment required for ventilation spaces like industrial kitchens, underground garages, and multistoried buildings and parking spaces.

### **Module II: Air conditioning- 2 weeks**

Principles of Air conditioning; concept of thermal comfort; physiological principles; reaction of human body to the thermal environment; principles of psychometric; psychometric chart; selection of indoor and outdoor design conditions; refrigeration and air cycle; cooling and heating load calculations; various systems of air conditioning; duct work and air conditioning layout, fittings and fixtures; evaporative cooling, fair conditioning and its suitability. Types of systems- cooling tower, geothermal heating and cooling

### **Module III: Equipment's- 1 weeks**

Scheme and equipment required for HVAC; their placement and physical space requirements.

### **Module IV: Load Calculation- 1 weeks**

Cooling and heating load calculations; Introduction to British thermal unit and other factors; various systems of air conditioning; duct work and air conditioning layout, fittings and fixtures; evaporative cooling.

### **Module V: HVAC Design- 2 weeks**

Design and drawing of HVAC system for a building designed in previous semester.

*Any important note or instruction for course coordinator*

## Examination Scheme:

Components	A	CE	CT	EE
Weightage (%)	05	25	20	50

## Text Books/Reference Books/Journals/Other Study Material:

- Manohar Prasad, 'Refrigeration & Air conditioning'
- C.P. Arora, 'Refrigeration & Air conditioning'
- Modern Air-Conditioning, Heating and Ventilation: Carrer and G. Pitman.
- Air Conditioning and Ventilation, Servems and Fellows, John Wiley
- Ernest Tricomi-ABC of Air conditioning
- Basics of Air conditioning by ISHRAE
- All about Insulation by ISHRAE
- ISHRAE HVAC Handbook 1997 Part - 1 -Air Conditioning
- ISHRAE HVAC Handbook 2004 Industrial Ventilation Applications
- ISHRAE The Hand Book on Green Practices

# BAR608 INTELLIGENT BUILDINGS

Course Code: BAR 608

Credit Units: 02

L/2-T/0-P/0

Teaching hours: 02

## Course Objectives:

To introduce the concept of intelligent buildings and to acquaint the student with the factors to be taken into consideration to build an intelligent building and basic concept of Artificial Intelligent and how it is helpful for building construction technologies.

## Course Contents:

### **Module I: Introduction to intelligent buildings - 2 weeks**

Definition of IB(Intelligent Building) according global and Indian context, Concepts, purpose and scope of intelligent building.

### **Module II: Intelligent Systems in Building - 3 weeks**

Intelligent HVAC, Intelligent lighting, intelligent security, Intelligent firefighting, Intelligent openings, Intelligence with respect to telecommunications and network connectivity like WIFI etc....

### **Module III: Building Automation System - 3 weeks**

Application, Current trend and innovation, Effect of building automation on functional efficiency, Components of Building Automation, Automation system in Building Services and their Integrated approach in design, maintenance and management system, Concept of artificial intelligence, Application of expert system in architecture.

### **Module IV: Expert System - 3 weeks**

Introduction to expert system, objectives, features and components of expert system, Applications of Expert Systems, benefits and limitations of Expert Systems

### **Module V: Artificial Intelligence - 3 weeks**

Introduction to artificial intelligent, intelligent behavior, Development of Artificial Intelligence, Concepts of Artificial Intelligence, Applications of Artificial Intelligence.

*Any important note or instruction for course coordinator*

## Examination Scheme:

Components	A	CE	CT	EE
Weightage (%)	05	25	20	50

## Text Books /Reference Books/Journals/Other Study Material:

### Text:

- Intelligent Building Systems, Authors: Ting-pat So, Albert, Wai Lok Chan
- Intelligent Buildings: An Introduction, Edited by Derek Clements-Croome
- Smart Buildings, Author Jim Sinopoli
- Intelligent buildings: applications of IT and building automation to high technology construction projects, Author: Brian Atkin
- Artificial intelligence: Building intelligent systems, Authors Parag Kulkarni, Prachi Joshi

### References:

- Intelligent Building System for Airport, ASHRAE Journal V-39 N 11, Nov. '97 pp. 31-35 Maintenance System of Electrical Facilities Proceedings of the Annual Conference, 1997.

### Online Resources:

- An Intelligent Expert Systems' Approach to Layout Decision Analysis and Design under Uncertainty DOI: 10.1007/978-3-540-76829-6\_12
- The use of expert system building tools in process planning. [https://doi.org/10.1016/0952-1976\(92\)90095-2](https://doi.org/10.1016/0952-1976(92)90095-2)
- Intelligent building, definitions, factors and evaluation criteria of selection. <https://doi.org/10.1016/j.aej.2018.07.004>
- <https://www.intelligentbuildings.com/>

# BAR 609 VASTU IN ARCHITECTURE

Course Code: BAR 609

Credit Units: 02

L/2-T/0-P/0

Teaching hours: 02

## Course Objectives:

- To educate the students on Vastu Shastra so that our own built environment should be in harmony with the energy of the inmates living in it.
- To expose the students to the various theoretical and practical aspects of Vastu Shastra. To familiarize with the ancient mode of designing a building in amalgamation with the latest technologies available.

## Course Contents:

### **Module I: Introduction - 3 weeks**

Introduction to Vastu, History of Vastu, Vedas and other ancient books, Growth of Vastu, Vastu and today, Scientific definition of Vastu, Solar Passage & Buildings with research referencing, Solar Energy, Humans & Buildings, Cosmic Energy & Flow.

### **Module II: Vedic Vastu - 3 weeks**

Concept of Vedic Vastu, VastuPurush, Mandalas, Five Elements Theory, Planets & Directions.

### **Module III: Planning as per Vastu - 4 weeks**

Direction and Corners, Eight directions, Importance of directions, Slope & Loading Pattern, Open space & balconies, Shapes, Vedic opinion on entries, Alternative opinion on entries, Main Door & Main Gate. Planning for Bedroom, Kitchen, Puja room, Bathroom, Children's room, Drawing Room, Living Room, Office Room.

### **Module IV: Land and Location as per Vastu - 4 weeks**

Angles in a Plot & Building, Veedhi Shoola, Angles & Extensions, Shermukhi & Gaumkhi plot, Good & Bad Location. Selection of land & soil test, Examination of the land as per Mayamata & Brahit Samhita, Types of Land as per Vedic books, auspicious land & Inauspicious land, Obstructions.

## Examination Scheme:

Components	A	CE	CT	EE
Weightage (%)	05	25	20	50

## Text Books/Reference Books/Journals/Other Study Material:

- 'B.B. Puri, Applied Vastu Shastra in Modern Architecture
- Michael Borden, Vastu Architecture: Design Theory and Application for Everyday Life
- Kathleen Cox, Vastu Living: Creating a Home for the Soul
- Talavane Krishna, The Vaastu Workbook: Using the Subtle Energies of the Indian Art of Placement
- Sherri Silverman, Vastu: Transcendental Home Design in Harmony with Nature
- Rohit Arya, Vaastu: The Indian Art of Placement
- Maharishi Vastu, Vastu City Planning: Sustainable Cities in Harmony with Natural Law
- Kathleen Cox, the Power of Vastu Living: Welcoming Your Soul into Your Home and Workplace
- Juliet Pegrum, The Vastu Vidya Handbook: The Indian Feng Shui
- Kathleen Cox, Space Matters: Use the Wisdom of Vastu to Create a Healthy Home. 11 Top Designers Show You How
- Satish Grover, Traditional Indian Architecture
- Bubbar, D K, The spirit of Indian architecture: Vedantic Wisdoms of Architecture for Building Harmnious Space and Life

# BAR 610 ARCHITECTURE PEDAGOGY

Course Code: BAR 610

Credit Units: 02

L/2-T/0-P/0 Teaching hours: 02

## Course Objectives:

- To acquaint students with the history of development of education methods in architecture.
- To introduce the students with the prevailing models of teaching-learning methods and their application in architectural design education.
- To familiarize students with the skills to evaluate architectural design and other art forms.
- To introduce research methodology, paper writing and presentation as tools to transmit knowledge

## Course Contents:

### **Module I: History & development of architecture education - 2 weeks**

Traditional teaching methods of India – Gurukul, Universities of Nalanda & Takshashila; Transmission of knowledge in architecture through temple architecture in ancient India; History of formal architecture education in West and in India. Peculiar requirements of Architecture Education, Requirements of generation of creative thinking.

### **Module II: Introduction to learning methods - 3 weeks**

Aims and objectives of architecture education in India, Blooms Taxonomy, Levin's field theory, Carl Roger's theory of experiential learning, Peculiar requirements of Architecture Education; Models of Teaching: Advanced Organizer, Concept Attainment Model, Simulations – Use of advanced softwares to shape and visualize ideas, Synectics, Concept Mapping for organizing & communicating ideas, Basic aspects of classroom management

### **Module III: Design Process Pedagogy - 3 weeks**

Various thinking skills, tools and techniques adopted by architects for deriving design ideas, Development of Design Thoughts, Experiential learning (case study methods) as guide in Design process, Use of synectics in the design studio, the essence of creativity in synectics, various forms of metaphoric thinking to activate “generative thinking.”

### **Module IV: Assessment of architecture - 3 weeks**

Arts, skill and technique of visual perception and form analysis, communication of the aesthetics of architecture and other associated art forms in a journalistic manner.

### **Module V: Research Methodology, Paper Writing & Presentation - 3 weeks**

Research methodology, proposing projects for research design, standardized methods of paper writing and presenting.

*Any important note or instruction for course coordinator*

## Examination Scheme:

Components	A	CE	CT	EE
Weightage (%)	05	25	20	50

## Text Books/Reference Books/Journals/Other Study Material:

- S. K. Mangal (2009) “Essential of educational technology”, PHI Learning Pvt. Ltd., 2009.
- Bruce Joyce and Marsha Weils, “Models of Teaching”, Pearson; 9 edition (April 14, 2014)
- Klausmier and Ripple (1971) “Learning and Human Abilities” Harper & Row, New York.
- Eames Charles & Ray, „An Eames Anthology“, Yale University Press, Edited by Ostroff Denial.
- George Kneller (1971), “Philosophy of Education”
- John Wiley & Sons Inc; 2nd Revised edition
- J. S. Chauhan, “Advanced Education Psychology” Sumit Prakashan
- J. C. Agrawala (2009), “Essential of educational technology” Vikas Publishing House Pvt Ltd, 01-Nov-2009
- Rizzoli (March 18, 2008); “How to Read A Building” Rizzoli (March 18, 2008); Bruce Joyce, “Models Of Teaching”, Pearson; 9 edition (April 14, 2014)
- New Trends in Architecture Education, By- Ashraf Salama

## AND 006 AANANDAM-VI

Course Code: **AND 006** Course Type: **VA** Credit Units: **02** L/0-ST/0-P/4 Teaching hours: **04**

### Course Objectives:

The objective of this course is to make students aware and empathetic about community issues and to increase interaction among students as well as with the community to enlarge social network.

### **Course Contents:**

#### Directions for Students

- Students should do at least one individual act of goodness each day and Record this act in a dedicated diary/register
- Students should share this dedicated diary/register in Aanandam period with the mentor and share experience with the class.
- Students must take up one Community Service Project in a group of 8-12 students.
- The students must take photographs to document their work
- The students can obtain certificate from the NGO/ Government Agency they are working with for Group Community Service Project
- The students may submit newspaper cuttings
- The students must participate in the Aanandam Day by displaying charts of their Group Community Service Project
- Students must submit Group Community Service Project Report at the end of semester.
- The students may prepare power point presentations/video of their project which will help them get better grades.

#### Guidelines for the Report

The project report shall contain:

- Synopsis: clearly stating objectives and activities to be undertaken. Problem identifying and problem-solving projects to be taken up.
- Details of the Mentor and the Participants are to be given (name of mentor, name of participants, phone number/mobile no, email, and address)
- Location / community where the work was carried out
- Details of Activities performed are to be given with date
- Number of beneficiaries and impact on the society (the object should be to empower the community and make them self-reliant)
- Photographs taken for documentation of work should be submitted
- Media coverage of the projects should be attached if any
- Students should also submit their certificates from the government bodies and or nongovernment bodies they collaborate with, if any
- Photographs of **Display charts** or **ppt/video** prepared while presentation on the group community service in the **Aanandam Day** must be submitted along with the report
- The Group Community Service Project Report will be submitted by the Student group leader under the guidance of the mentor to the Director/HoI of the Department.

#### Activity Suggestion

The students as per their interest would support activities of community service such as:

- Literacy programs, in today's digital age many organizations/individuals might also need help with email and websites
- Livelihood projects,
- Time giving activities to adopted communities (awareness regarding Govt. programmes) sports like yoga, meditation, drills, and physical exercises in adopted areas

- Activities on arts and culture such as restoration of traditional art and culture and monuments.
- Understand their responsibility in taking care of environment and appreciating cultural diversity
- While some students would be interested in awareness about environment such as protecting and preserving natural resources and animal species (the flora and the fauna). Plantation and animal care centers
- A few would be concerned with healthcare like medical and dental missions, first-aid training, etc.
- Another group may be formed for attending to old people (who have money but need assistance for market and groceries) [Time Bank]
- Another group may be formed for civic activities, awareness programmes.
- Local social problems to be taken up and solutions devised
- Innovations and Start-ups to be encouraged
- Help plant a community garden, help out at a children's camp
- Integration of these projects with on-going design and construction may be explored.

**Assessment Scheme:**

**Final Evaluation: 50 (Marks)**

(Based on Innovative solution of community issue, Participation and Documentation inform of report)

Components	CE			EE
	Innovation	Participation	Report	
<b>Weightage (%)</b>	30	10	10	--

*Note: Submission of register of everyday activity is mandatory (if register is not submitted by the student, he/she will not be evaluated and considered for the award)*

# BCS 601 COMMUNICATION SKILLS - VI

Course Code: BCS 601 Credit Units: 01

Teaching hours: 01

## Course Objective:

To enhance the skills needed to work in an English-speaking global business environment.

## Course Contents:

### **Module I: Business/Technical Language Development**

Advanced Grammar: Syntax, Tenses, Voices

Advanced Vocabulary skills: Jargons, Terminology, Colloquialism

Individualised pronunciation practice

### **Module II: Social Communication**

Building relationships through Communication

Communication, Culture and Context Entertainment and Communication

Informal business/ Technical Communication

### **Module III: Business Communication**

Reading Business/ Technical press

Listening to Business/ Technical reports (TV, radio) Researching for Business /Technology

### **Module IV: Presentations**

Planning and getting started

Design and layout of presentation

Information Packaging

Making the Presentation

## **Examination Scheme:**

Components	A	CE	CT	EE
Weightage (%)	05	25	20	50

CAF – Communication Assessment File GD – Group

Discussion

GP – Group Presentation

## **Text & References:**

Business Vocabulary in Use: Advanced Mascull, Cambridge

Business Communication, Raman – Prakash, Oxford

Business Communications, Rodgers, Cambridge

Working in English, Jones, Cambridge

New International Business English, Jones/Alexander, Cambridge

# **BSS 604 BEHAVIOURAL SCIENCE – VI**

(STRESS AND COPING STRATEGIES)

**Course Code: BSS 601      Credit Units: 01**

**Teaching hours: 01**

## **Course Contents:**

### **Module I: Stress**

Meaning & Nature  
Characteristics  
Types of stress

### **Module II: Stages and Models of Stress**

Stages of stress  
The physiology of stress  
Stimulus-oriented approach.  
Response-oriented approach.  
The transactional and interactional model.  
Pressure – environment fit model of stress.

### **Module III: Causes and symptoms of stress**

Personal  
Organizational  
Environmental

### **Module IV: Consequences of stress**

Effect on behavior and personality  
Effect of stress on performance  
Individual and Organizational consequences with special focus on health

### **Module V: Strategies for stress management**

Importance of stress management  
Healthy and Unhealthy strategies  
Peer group and social support  
Happiness and well-being

## **Examination Scheme:**

<b>Components</b>	<b>SAP</b>	<b>A</b>	<b>Mid Term Test (CT)</b>	<b>VIVA</b>	<b>Journal for Success (JOS)</b>
<b>Weightage (%)</b>	20	05	20	30	25

## **Text & References:**

- Blonna, Richard; Coping with Stress in a Changing World: Second edition
- Pestonjee, D.M, Pareek, Udai, Agarwal Rita; Studies in Stress And its Management
- Pestonjee, D.M.; Stress and Coping: The Indian Experience
- Clegg, Brian; Instant Stress Management – Bring calm to your life now

# FOREIGN LANGUAGE 601

## FLF 601 FRENCH - VI

Course Code: FLF 601

Credit Units: 02

Teaching hours: 02

### Course Objective:

To strengthen the language of the students both in oral and written so that they can:

- i) express their sentiments, emotions and opinions, reacting to information, situations;
- ii) narrate incidents, events ;
- iii) perform certain simple communicative tasks.

### Course Contents:

Module D: pp. 157 – 168 – Unité 12

#### Unité 12 : s'évader

1. présenter, caractériser, définir
2. parler de livres, de lectures
3. préparer et organiser un voyage
4. exprimer des sentiments et des opinions
5. téléphoner
6. faire une réservation

### Contenu grammatical:

1. proposition relative avec pronom relatif "qui", "que", "où" - pour caractériser
2. faire + verbe

### Examination Scheme:

Components	CT1	CT2	C	I	V	A
Weightage (%)	20	20	20	20	15	5

C – Project + Presentation

I – Interaction/Conversation Practice

### Text & References:

le livre à suivre: Campus: Tome 1

# FLG601 GERMAN – VI

**Course Code: FLG 601**

**Credit Units: 02**

**Teaching hours: 02**

## **Course Objective:**

To enable the students to converse, read and write in the language with the help of the basic rules of grammar, which will later help them to strengthen their language.

To give the students an insight into the culture, geography, political situation and economic opportunities available in Germany

Introduction to Advanced Grammar and Business Language and Professional Jargon

## **Course Contents:**

### **Module I: Adjective endings**

Adjective endings in all the four cases discussed so far

Definite and indefinite articles

Cases without article

### **Module II: Comparative adverbs**

Comparative adverbs as and like

### **Module III: Compound words**

To learn the structure of compound words and the correct article which they take

Exploring the possibility of compound words in German

### **Module IV: Infinitive sentence**

Special usage of 'to' sentences called zu+ infinitive sentences

### **Module V: Texts**

A Dialogue: 'Ein schwieriger Gast'

A text: 'Abgeschlossene Vergangenheit'

### **Module VI: Comprehension texts**

Reading and comprehending various texts to consolidate the usage of the constructions learnt so far in this semester.

### **Module VII: Picture Description**

Firstly recognize the persons or things in the picture and identify the situation depicted in the picture;

Secondly answer questions of general meaning in context to the picture and also talk about the personal experiences which come to your mind upon seeing the picture.

## **Examination Scheme:**

<b>Components</b>	<b>CT1</b>	<b>CT2</b>	<b>C</b>	<b>I</b>	<b>V</b>	<b>A</b>
<b>Weightage (%)</b>	20	20	20	20	15	5

C – Project + Presentation

I – Interaction/Conversation Practice

**Text & References:**

Wolfgang Hieber, Lernziel Deutsch

Hans-Heinrich Wangler, Sprachkurs Deutsch

Schulz Griesbach, Deutsche Sprachlehre für  
Ausländer P.L Aneja, Deutsch Interessant- 1, 2 & 3

Rosa-Maria Dallapiazza et al, Tangram Aktuell A1/1,2

Braun, Nieder, Schmöe, Deutsch als Fremdsprache 1A, Grundkurs

# FLS 601 SPANISH – VI

**Course Code: FLS 601**

**Credit Units: 02**

**Teaching hours: 02**

## **Course Objective:**

To enable students acquire working knowledge of the language; to give them vocabulary, grammar, voice modulations/intonations to handle everyday Spanish situations in Present as well as in Present Perfect Tense with ease.

## **Course Contents:**

### **Module I**

Revision of the earlier modules

### **Module II**

Present Perfect Tense

### **Module III**

Commands of irregular verbs

### **Module IV**

Expressions with **Tener que** and **Hay que**

### **Module V**

En la embajada

Emergency situations like fire, illness, accident, theft

## **Examination Scheme:**

<b>Components</b>	<b>CT1</b>	<b>CT2</b>	<b>C</b>	<b>I</b>	<b>V</b>	<b>A</b>
<b>Weightage (%)</b>	20	20	20	20	15	5

C – Project + Presentation

I – Interaction/Conversation Practice

## **Text & References:**

Español, En Directo I A

Español Sin Fronteras

## FLC 601 CHINESE – VI

**Course Code: FLC 601**

**Credit Units: 02**

**Teaching hours: 02**

### **Course Objective:**

Chinese emperor Qin Shi Huang – Ti who built the great wall of China also built a network of 270 palaces, linked by tunnels, and was so afraid of assassination that he slept in a different palace each night. The course aims at familiarizing the student with the basic aspects of speaking ability of Mandarin, the language of Mainland China. The course aims at training students in practical skills and nurturing them to interact with a Chinese person.

### **Course Contents:**

#### **Module I**

Drills

Dialogue practice

Observe picture and answer the question.

Pronunciation and intonation.

Character writing and stroke order.

#### **Module II**

Going out to see a science exhibition

Going to the theatre.

Train or Plane is behind schedule.

Indian Economy-Chinese Economy

Talking about different Seasons of the Year and Weather conditions. Learning to say phrases like-spring, summer, fall, winter, fairly hot, very cold, very humid, very stuffy, neither hot nor cold, most comfortable, pleasant .... etc.

#### **Module III**

Temperature – how to say – What is the temperature in May here?

How is the weather in summer in your area? Around  
30 degrees

Heating, air-conditioning

Is winter in Shanghai very cold?

Talking about birthdays and where you were born?

The verb “shuo” (speak) saying useful phrases like speak very well, do not speak very well, if speak slowly then understand if speak fast then don’t understand, difficult to speak, difficult to write, speak too fast, speak too slow, listen and can understand, listen and cannot understand ... etc.

Tell the following in Chinese – My name is .... I was born in ... (year). My birthday is ..... Today is ...

(date and day of the week). I go to work (school) everyday. I usually leave home at .(O’clock). In the evening, I usually ..... (do what)? At week end, I ..... On Sundays I usually ..... It is today..... It will soon be my younger sisters birthday. She was born in ..... (year). She lives in .....(where). She is working (or studying)..... where... She lives in.....(where.)

**Examination Scheme:**

<b>Components</b>	<b>CT1</b>	<b>CT2</b>	<b>C</b>	<b>I</b>	<b>V</b>	<b>A</b>
<b>Weightage (%)</b>	20	20	20	20	15	5

C – Project + Presentation

I – Interaction/Conversation Practice

**Text & References:**

Elementary Chinese Reader Part-2 ,3 ; Lesson 47-54

# BAR 701 DESIGN – VII

Course Code: BAR 701

Credit Units: 15 L/0-ST/10-P/0

Teachinghours: 10

## Course Objectives:

- To understand Design constraints pertaining to **specialized high-rise/large span buildings requiring advanced services & structural systems.**
- To investigate design issues pertaining to Specialized buildings
- To create architectural design for specialized buildings

## Course Contents:

### **Module I: Introduction to Specialized Buildings**

Introduction to parameters that control design for specialized buildings requiring large span structures or advanced services with examples. Project introduction for studio exercises.

### **Module II: Case studies, Site Studies and Literature Studies**

Case Studies – primary and secondary; Site and surroundings survey- location, local climatic conditions, topography, existing landscape, socio- cultural impact on design; Literature Review – Design Standards and Codes, Comparative Analysis and Area statement

### **Module III: Concept Formulation**

Development of concept to be presented with conceptual block model and sketches for approval.

### **Module IV: Design Development**

Design to be developed through a series of appraisals and open discussions. Planning at site as well as building level to be frozen and workability, integration with advanced structures or services or both, efficiency of design to be worked out and finalized.

### **Module V: Presentation**

Presentation of studies and design proposal through submission of sheet work – drawings and views as well as scaled models. An *A4 Design Report - documenting the process & progress of work through clippings of sketches/ photographs of models highlighting design concept as well as the final proposal drawings etc- shall be an essential part of submission.*

Design exercise can include projects like high-rise apartments, large span exhibition pavilions, industrial buildings/warehouses, hotels, hospitals, Transportation hubs (Bus Terminal, Railway Stations, Airports, Metro Station etc.)

## Examination Scheme:

Components	A	S1	S2	CT	EE	
Weightage (%)	05	15	20	10	20 Viva	30 EE

## Text Books/Reference Books/Journals/Other Study Material:

- 'Ching Francis, (1979), Architecture Form, Space and Order, Van Nostrand Reinhold Company, New York.
- Neufert Ernst, (1970), Architect's Data, Crosby Lockwood and Sons, London.
- Chiara JD and Calender, (1983), Time Savers Standards for Building Types, McGraw Hill Book Company, New York.
- Broomer, F. Gerald (1974) Elements of Design: Space, Davis Publications Inc., Worcester, Massachusetts.
- Wagenknecht, Kay and Herte (1989) Site + Sculpture – A collaborated design Process, Van Nostrand Reinhold, NY.
- Allen, Edward and Iano, Joseph (2006), The Architect's Studio Companion: Rules of Thumb for Preliminary Design, Wiley; 4<sup>th</sup> edition.
- Frederick, Matthew (2007), 101 Things I Learned in Architecture School, The MIT Press.
- Pearson, David (2001), New organic architecture: the breaking wave, University of California Press.
- Fawcett, Peter (2003), Architecture: design notebook, Architectural Press, 2nd edition

## Online Resources

- <https://www.archdaily.com>
- <http://www.architectmagazine.com>
- <https://www.architecture.com/knowledge-and-resources/resources-landing-page>

# BAR 702 MATERIALS & CONSTRUCTION TECHNOLOGY – VII (Working Drawing)

Course Code: BAR 702

Credit Units: 03

L/1-T/1-P/1

Teaching hours: 03

## Course Objective:

- To familiarize student with advance building materials and their construction details. Learning construction details of various building parts at advanced level.

## Course Contents:

### **Module I: Advance material I – 2 weeks**

Properties and application of different Glass and glass products: Plain, sheet, plate, textured, laminated, wired and shock resistant glass. Glass blocks, glass tiles, mirrors, heat reflecting glasses and Glass wool.

Plastics, Nylon, PVC, Bakelite, Polythene, glass fiber reinforced plastic

### **Module II: Basement construction – 4 weeks**

Type-full/semi /2 or more basement floors.

Water proofing material and admixture.

Design and construction detailing of basement

Design and detailing of Basement Ramp, slope, drainage, lighting, ventilators and finishing etc.

### **Module III: Fast Pace Construction – 4 weeks**

Methods, types of construction – beams & slab, waffle grid slab, drop beam and slab, flat slab, lift slab, cast - in-situ service and stair core – cross wall and box frame construction.

### **Module IV: Elevators and Escalators – 4 weeks**

Elevators types and construction detail, Details of lift section, machine room equipment lift well and lift pit. Escalators: types and construction detail, Travellators and other modern modes of vertical movement.

**Exercises:** field trip and report, preparation of drawings on above topics

## Examination Scheme:

Components	A	CE	CT	EE
Weightage (%)	05	25	20	50

## Text Books /Reference Books/Journals/Other Study Material:

- Elements of Structure by Morgan
- Structures in Architecture by Salvadori
- Building Construction by Mackay WB Vol. 1-4
- Construction Technology by Chudley Vol. 1-6

# BAR703 CONSTRUCTION & PROJECT MANAGEMENT

Course Code: BAR 703

Credit Units: 02

L/2-ST/0-P/0

Teaching hours: 02

## Course Objectives:

- To introduce the students about need of CPM to handle complexity of design & construction; also the role of an architect in effective project management to handle cost overruns, timelines & quality etc.
- To familiarize students with various simple construction planning techniques such as bar charts & networking diagrams.
- To make students familiar with best construction practices, project scheduling & sequencing, equipment's & technologies etc.

## Course Contents:

### **Module I: Introduction - 2 weeks**

Defining a Project; Phases involved in Project life cycle i.e. from inception phase to the Post-construction phase, Project Appraisal, Project Delivery Methods, Various stakeholders in construction industry and their roles and responsibilities, Introduction to Project Management Knowledge Areas.

### **Module II: Construction Planning & Scheduling - 3 weeks**

Preparation of Work Break Down Structures and Sequencing of Activities, Resource and Duration Estimating, Preparation of Schedules (using CPM, PERT, Gantt charts, precedence diagrams, etc.), Monitoring and controlling the schedules, Computer Applications for preparing and managing Schedules, Preparation of schedule for completion / submission of deliverables related to their current design exercise.

### **Module III: Cost & Resource Management - 3 weeks**

Functions of Financial or Cost Management, The Concept of Time Value of Money, Techniques of Capital Budgeting, Cash Flow Statement, Preparation of cost baselines and their analysis & Earned Value Management.

Organizing work, staffing, delegation and decentralization, Human resource management, Customer Relationship Management (CRM), & Entrepreneurship Issues in Indian Construction Industry.

### **Module IV: Quality & Safety Management - 3 weeks**

Evolution of Quality Management, quality assurance & control and ISO requirements, Introduction to concept of quality in building design, construction and project management, Tools for Quality Management, Introduction to construction site conditions in India, Impact of safe working environment on HR performance and their productivity, Legal, contractual and other guidelines for construction safety.

### **Module V: Tendering & Contract Administration - 3 weeks**

Types of Tenders & Contracts, Inviting a Tender, Conditions implied on a Tender, Pre-qualification of contractors, Preparation of contract documents, Contract Conditions, Evaluation of contract bids and Award, Arbitration & Alternative Dispute resolution mechanisms.

*Any important note or instruction for course coordinator*

## Examination Scheme:

Components	A	CE	CT	EE
Weightage (%)	05	25	20	50

## Text Books /Reference Books/Journals/Other Study Material:

- IS 15883: Construction Project Management – Guidelines.
- A Guide to the Project Management Body of Knowledge by Project Management Institute, USA.
- Construction project management: a practical guide to field Construction Management by S. Keoki Sears, Richard Hudson Clough, Glenn A. Sears.
- CPWD, MES, FIDIC, JCT, ADB, World bank, etc.: General & Special conditions of contract and standard operating procedures.
- Contracts and their Management by B. S. Ramaswamy.

## Online Resources

- <https://www.projectmanager.com/blog>
- <http://www.smartsheet.com>

# BAR 704 HOUSING & TOWN PLANNING

Course Code: BAR 704

Credit Units: 02

L/2-ST/0-P/0

Teaching hours: 02

## Course Objectives:

- To Introduce the elementary science of town planning principles
- To familiarize students with evolution and development of town planning through history
- To familiarize the students with various aspects, issues and considerations related to housing design and community planning.

## Course Contents:

### **Module I: Introduction to Town Planning - 3 weeks**

Introduction to Human settlements, principles of human settlements in ancient, medieval, modern times. History of Town Planning and Urban design, Concept of Town planning,

Evolution of settlements, form & pattern through historical process of development. Study of various City plan patterns viz; Linear, Radial and Grid Iron layout patterns, New modern ways of Planning, Socio-economic dynamics of urbanization. Industrial revolution and modern city, Garden City, Satellite town, Democratic city. Case studies of some recent planned cities like New Delhi, Canberra, Brazilia, and Chandigarh.

### **Module II: Planning Process - 2 weeks**

Methodology of conducting town planning, surveys and analysis of data collected, use of G.I.S. site planning & urban development, Study of traffic characteristic ; Composition, speed, volume and direction of movement. Urban road systems and geometry, Capacity of roads and intersections, Road network & sections, climate, service & zoning, city scape & street scape.

### **Module III: Town Planning Theories- 3 weeks**

Planning theories of the twentieth century, Current theories on physical planning. Planning theories of Sir Patrick Geddes, Kevin Lynch, Clarence Perry, Frank Lloyd Wright, Ebenezer Howard, Le Corbusier, Soria Y Mata, Lewis Mumford. Study of garden city, radiant city and Utopian concept. Neighborhood planning, elements of neighborhood, definition, formation, need & relationship with the town plan.

### **Module IV: Planning Standards - 2 weeks**

Formulation of planning standards for land use, density, road and various community facilities at the local and town level. Study of Urban development plan formulation & Implementation (UDPFI) guidelines; Detailed understanding of the latest planning and housing acts and other planning regulation

### **Module V: Introduction to Housing - 2 weeks**

Definition of house and housing. Housing and its importance in Architecture; Housing and its relationship with Neighborhood and city plan. Various aspects and issues related to housing.

Type of dwelling structures, Built form, socio-psychological and aesthetic implications and suitability of different types of dwellings, detached, semidetached houses, Flats and multistoried classification according to the type of access-corridor, gallery, direct grouped, combination of these access types. Definition of each of the above types, their suitability, advantages, disadvantages and social, economic and aesthetic implications. Sub- division techniques; proportions of plots and need of roads. Garages and parking areas.

Housing situation in India, Various Govt. programmes

### **Module VI: Housing Design and Site Planning- 2 weeks**

Criteria for site selection and housing layout considerations, Considerations of physical characteristics of site, climate and orientation, Importance of orientation and climatic factors in housing design. Location factors, legal and financial factors, norms and standards for dwelling community and neighborhood factors, shopping, education, health and recreational facilities.

Importance of topography in housing design. Problems inherent in steeply sloping sites, economic and aesthetic implications of the building along and against the contours, silhouette problems on a sloping site. Effects of plantation in the background and front of buildings on a sloping site. conservation of beauty spots, Roads in residential areas.

## Examination Scheme:

Components	A	CE	CT	EE
Weightage (%)	05	25	20	50

## Text Books /Reference Books/Journals/Other Study Material:

- Principles and practice of Town and Country Planning, Kebble
- Urban and Regional Planning – A System Approach, J. B. Mcloughin Town Planning in its social context, G. Cherry
- Cities of Tomorrow: An Intellectual History of Urban Planning and Design in the Twentieth Century by Peter Geoffrey Hall
- The Development of the Planning Process, J. F. Amos
- Ekistics: An Introduction to the Science of Human Settlements, C. A. Doxiadis Town Planning in Ancient India, Binode Dutt
- Urban Pattern, Arthur B. Gallion
- An Introduction to Housing layouts: Greater London Council
- Housing: J. Macsai.
- Low cost housing in developing countries by G. C. Mathur Laurie Baker by Gautam Bhatia

\*Manuscript based on Presentation, Discussions and Minutes of Meetings of 12<sup>th</sup> B.O.S held on 5<sup>th</sup> Dec 2020

# BAR705 ARCHITECTURAL CONSERVATION

Course Code: BAR 705      Credit Units: 02      L/2-T/0-P/0      Teaching hours: 02

## Course Objective:

To familiarize the students with various aspects of Architectural Conservation. To understand the role of a conservationist architect.

## Course Contents:

### **Module I: Introduction**

Necessity, Values and Ethics, Principles and Scope of architectural conservation.

### **Module II: Methodology of Conservation**

Understanding basic principles of conservation such as (a) Prevention (b) Preservation (c) Conservation (d) Restoration (e) Rehabilitation (f) Reproduction (g) Reconstruction (h) Adaptation

### **Module III: Structural Aspects of Buildings**

Understanding Structural elements: beams, arches, vaults and domes; trusses and frames; piers, columns and foundations etc. assessing their losses and ways to conserve the same for longer life of building.

### **Module IV: Causes of Decay in Buildings**

Natural and human factors; Environmental influences – thermal effect, corrosion and oxidation; Disasters; Botanical and biological causes. Assessing the extent of decay and devising the means to recover.

### **Module V: Building Repairs**

Structural repairs, carpentry; Repairs of plaster work, paint work; Glass and mosaic surface repairs; Repair of excessive moisture etc. Understanding fundamentals of repairs of conservation for different purposes.

### **Module VI: Professional Practice**

Investigation, documentation and analysis and preparation of inspection reports, Preventive maintenance; Legal provisions; Management and phasing, presentation of heritage buildings. Cost estimation and cost control Rehabilitation and adaptive use of buildings.

## Examination Scheme:

Components	A	CE	CT	Viva	EE
Weightage (%)	05	25	20	20	30

## Text Books /Reference Books/Journals/Other Study Material:

### Text:

- Conservation of Buildings by J. H. Harvey
- An Introduction to Conservation by B. M. Feildon

### References:

- A Critical Bibliography of Building Conservation by J. F. Smith.
- The Conservation of Historical Buildings by B. M. Feildon

# BAR 706 MODULAR CONSTRUCTION TECHNOLOGY

Course Code: BAR 706

Credit Units: 02

L/2-T/0-P/0

Teaching hours: 02

## Course Objectives:

The course of Modular Construction is aimed at focusing on the study of use of pre-fabrication systems, systems developed by CBRI and other agencies, basic modular planning and the proportioning systems and using the skills in designing of buildings. In today's context when various components of building construction happens off site, it is important to design as per the units/modules, repetition of which gives a modularly coordinated design and helps in easy and fast construction. Thus, the student will be able to demonstrate knowledge of building construction and management with application of Modular coordination and pre-fabrication concepts in their design.

## Course Contents:

### **Module I: Module Orientation to Modular Construction - 1 weeks**

Defining the concept of Modular Construction

Introduction to system building, mechanization of production of different parts and components of building types of building sizes.

Review of market to know availability of modular materials

### **Module II: Advantages & disadvantages of Modular coordination - 2 weeks**

Classification of prefabrication systems developed CBRI, skeletal system, Brick panel system, non-structural elements, deviations in prefabrication.

Manufacturing of modules and their transport to the site.

Prefabrication; advantages, disadvantages and relevance in Indian context.

Shuttering and construction system for Use of RMC modular spaces and planning coordination requirements of fixtures and components.

### **Module III: Modular planning of an interior space- 2 weeks**

Introduction to modular practice, basic modular planning and component Module, modular number pattern introduction. System of proportion-introduction of various systems and comprehensive industrialized building-introduction and application.

Development of planning Module and structural Modules for various types of buildings in India.

### **Module IV: Review of works of masters on modular construction such as Le Corbusier etc. and presentation of a report.- 1 weeks**

### **Module V: Mivan Shuttering-1 weeks**

Construction requirements for modular construction design of building as per the availability of interior modular component such as tiles/ kitchen cabinets etc. to avoid wastage. Shuttering and scaffolding requirements. Introduction of 'MIVAN' shuttering system for making multiple housing units and its economics.

*Any important note or instruction for course coordinator*

## Examination Scheme:

Components	A	CE	CT	Viva	EE
Weightage (%)	05	25	20	20	30

## Text Books /Reference Books/Journals/Other Study Material:

- Duffy, F, Cave, C, Worthington, J. – Planning office space. Architectural Press, London, 1976.
- Duffy, F. – New Office. Conran Octopus, London, 1997.
- Meel, J. V.- The European office: Office design and national context. 010 Publishers, Rotterdam, 2000.
- Harris, D. A. – Planning and designing the office environment. Van Nostrand Reinhold, New York, 1981.
- Neufert P, -Neufert Architects' Data- Third Edition by Blackwell Science Ltd. Oxford 2000

# BAR 707 COLORS

Course Code : BAR 707

Credit Unit : 02

L/2-T/0-P/0 Teaching Unit : 02

## Course Objective:

Learning the use of colours in Architecture. Understanding the impact of colours on humanbeing and making its efficient use in architecture, its component and various products being used in buildings.

## Course Contents:

### **Module I:**

Study of classification of colours with different hues, values, and shades. Colour composition and properties. Colour wheel showing primary, secondary & tertiary colours. Chart showing Tints & tones of various colours, Colour combinations

### **Module II:**

Exploring Colour Schemes and its application on Architectural Forms & spaces : Assignment on Colour shall be aimed at developing the skills to create Visually pleasing Colour Schemes based on principles of Harmony and Contrast and degree of Chromatism.

### **Module III :**

Colour as an expressive element in architecture emphasize the character of a building and create harmony and unity, or it can be deliberately contrasting to enliven or emphasise. It may affect the way in which people respond to their surroundings and can enhance a mood of calm or elation.

### **Module IV:**

Approaches to colour in architecture and design. The use of colour in architecture More Than Just Decoration. Examples of colour uses by masters and making a report.

### **Module V :**

Color Psychology , Neuropsychological Aspects, Architectural Environments, Visual Ergonomics and Color. Sociological aspects related to different colours

**Exercise:** Parallel and angular exterior perspective views of objects of buildings in different colours medium rendered with appropriate colours showing shades and shadows. Effect of colour in relief compositions.

Students may be advised to use colours in interior and exterior rendering of different type shapes in different type shapes in different mediums to have firsthand experience.

## Examination Scheme:

Components	A	CE	CT	EE
Weightage (%)	05	25	20	50

## Text Books /Reference Books/Journals/Other Study Material:

- Architectural Rendering Albert & Habe How to paint & draw Jaxtheimer
- COLOR, Environment, & Human Response by Frank H. Mahnke
- Color-Communication in Architectural Space by Meerwein, Rodeck, Mahnke
- The role of colour in architecture by James A M Bell.

# BAR 708 BIOCLIMATIC ARCHITECTURE

Course Code: BAR 708

Credit Units: 02

L/2-T/0-P/0

Teaching hours: 02

## Course Objectives:

The aim of the course is to introduce the students to bio-climatic strategies as an important aspect of sustainable design, to understand in depth the factors affecting thermal comfort and creation of comfort conditions and the building physics associated with it. Aims to introduce concepts of smart and sustainable building design which relates to the respective climatic zone and to provide designers information on how to best to respond to the local climatic context.

## Course Contents:

### Module I: A global challenge to sustainable development – Climate change

Global, macro and micro level climate, Earth's energy balance, Climate changes – current scenario, International and national context, policy and legislative drivers for adaptation action, Plan Approaches for Sustainable Development and Lower Carbon Strategies, Managing Climate Change Challenges on Development

### Module II: Elements of climate and analysis of climatic data

Elements of climate and its quantification, Factors affecting climate, Climatic zones and their characteristics, Implications of climate on building design, Urban climate, Microclimate, Climatic data and its interpretation, Tools for analyzing weather data, climatic aspects of human settlement, Designing an Adaptation Initiative, Tools and Methodologies for Designing an Adaptation Initiative.

### Module III: Climate zones and criteria of building design

thermal comfort, heat transfer, thermal insulation and thermal control in buildings - Energy balance of human and built environment, Adaptive model of thermal comfort and its application to sustainable design of buildings. Sustainable techniques adopted in traditional buildings - Implementation of climate change adaptation through design and development, building planning and designing – Integrated Sustainable building design Tools for visualizing building energy implications of climates

### Module IV: Bio Climatic Design Techniques

Designing for climate change, bio climatic design concepts and techniques – different stages, solar architecture, renewable energy, sustainable architecture, passive and active systems, for cooling heating and lighting, for site planning, building design, landscaping

## Examination Scheme:

Components	A	CE	CT	EE
Weightage (%)	05	25	20	50

## Text Books /Reference Books/Journals/Other Study Material:

- Contemporary Processes in Architecture – by Ali Rahim
- Digital Cities AD: Architectural Design – Prof. Neil Leach
- Performative Architecture : Beyond Instrumentality – by Branko Kolarevic
- Versatility and Vicissitude: Performance in Morpho-Ecological Design- by Michael Hensel
- Biosensors for environmental monitoring – by Ursula Bilitewski, Anthony Turner
- Biosensor principles and Application – by Loic J.Blum, Pierre R.Coulet
- Digital Tectonics – Prof. Neil Leach

# BAR709 PROFESSIONAL PRESENTATION TECHNIQUES

Course Code: BAR709

Credit Units: 02

L/2-T/0-P/0

Teaching hours: 02

## Course Objective:

- To introduce basic language skills for oral professional communication that enables effective technical and professional conversation.
- To introduce the concept of tonality of the written word as a basic value for selection of terms and their composition in non-spoken forms of professional communication.
- To orient students towards developing skills for an effective communication of his/her ideas, as well as to profess the values and ethics of the design profession especially with regards to interaction with people.
- To help student in developing design portfolio of their own academic projects.

## Course Contents:

### Module I: Introduction to Architectural presentation

Definition of an Architectural Presentation; Stakeholders in an Architectural Project; Process of architectural design development and need of communication; Technical meetings; Professional presentation; Various modes of presentation

### Module II: Professional Communication I-3 weeks

Dimensions of communication (Formal and Informal, upward, downward etc.); Types of professional communication, Letters, E-mail, Short messages, reports Planning, composing, and writing, Guide to effective writing.

Writing a short Research Paper/ report. This may include reportage of readings, site visits, field trips, conversations with experts and public, etc.

### Module III: Professional Communication II-3 weeks

Importance of conversation, definition, process and feedback in communication, cultural influences as barriers to effective communication, features of effective communication . Listening and responding, Modes of one to one communication i.e. personal meetings, video conferencing, etc.; Ethics related to various forms of communications.

Planning and conducting conversations, interviews, preparation and rehearsal of oral statements for presentations, body language, effective listening, and telephonic communication.

### Module IV: Introduction to Portfolio Design-5 weeks

Multiple forms of representation, written and visual, students will explore methods that facilitate describing and representing their design work. Understanding relationship between form and content, and more specifically, the understanding of particular modes of representation as different filters through which their work can be read. Recordings of materials, assembly, customization, reproduction techniques; graphic design and composition; The page layout – organization and sequencing of project documentation. The traditional hard copy portfolio and the digital portfolio.

## Examination Scheme:

Components	A	CE	CT	EE
Weightage (%)	05	25	20	50

## Text Books /Reference Books/Journals/Other Study Material:

- Raman, M. & Sharma, S., Technical Communication : Principles and Practice, 2ndEd.
- Mike, 2012. Technical Communication Rizvi, M. Ashraf, Effective Technical Communication,
- Anderson, Paul V., Technical Communication : A Reader- Centred Approach, 6 Ed.

# BAR710 DESIGN OF LOGO & SIGNAGE'S

## Course objective:

Course Code: BAR710 Credit Units: 02 In/T/O-P/0 Teaching hours: 02

- To familiarize the students towards its application in the field of architecture and built-environment globally

## Course contents:

### Module I: Introduction

Definition of Graphic design and its specialized industries; History of Visual communication, pivotal movements & designers that led to the development of Graphic Design industry dealing with Symbols, Logos and Signage as witnessed today.

### Module II: Visual Design Fundamentals

Visual design elements and principles, theory of graphics and visualization, Colour theory, Typography and Photography; 2D and 3D visual elements for representation and transformations.

### Module III: Design Process – Symbols and Logos

Creative thinking processes and methods; Typology fundamentals; designing, narrating and concept evolution for symbols and logos; Designing fundamentals of words, images, aesthetics, identity and expressions; Case Studies of famous examples of Logo and Symbol design;

### Module IV: Design Process - Signage

Understanding importance of signage as per the building typologies; impact of commercial signage on users; ergonomics of informative signage; sign regulations, harmony with contextual urban design, architecture and environment, Design process and Case Studies of key informative and commercial signage.

### Module V: Technology

Commercial Printing, materials & techniques for signage fabrication and erection, Signage lighting, Use of Graphic design softwares for designing symbols, logos and signage.

## Examination Scheme:

Components	A	CE	CT	EE
Weightage (%)	05	25	20	50

## Text Books /Reference Books/Journals/Other Study Material:

- Chris Calori, David Vanden-Eynden, Signage and Wayfinding Design: A Complete Guide to Creating Environmental graphic design system, 2015 wiley
- Lisa Silver, Logo Design that Works: Secrets for Successful Logo Design, 2001, Rockport Publishers
- Michelle Galindo, Signage Design, 2011, Braun
- Edo Smitshuijzen, Signage Design Manual, 2007 Prestel Pub

## BSS 705 BEHAVIOURAL SCIENCE – VII (Individual, Society & Nation)

**Course Code: BSS 705**

**Credit**

**Units:**

**01**

**Teaching hours: 01**

### **Course Objective:**

- To understand the basis of interpersonal relationship
- To understand various communication style
- To learn the strategies for effective interpersonal relationship

### **Course Contents:**

#### **Module I: Understanding Relationships**

- Importance of relationships
- Role and relationships
- Maintaining healthy relationships

#### **Module II: Bridging Individual Differences**

- Understanding individual differences
- Bridging differences in Interpersonal Relationship – TA
- Communication Styles

#### **Module III: Interpersonal Relationship Development**

- Importance of Interpersonal Relationships
- Interpersonal Relationships Skills
- Types of Interpersonal Relationships

#### **Module IV: Theories of Interpersonal Relationships**

- Theories: Social Exchange, Uncertainty Reduction Theory
- Factors Affecting Interpersonal Relationships
- Improving Interpersonal Relationships

#### **Module V: Impression Management**

- Meaning & Components of Impression Management
- Impression Management Techniques (Influencing Skills)
- Impression Management Training-Self help and Formal approaches

### **Examination Scheme:**

<b>Components</b>	<b>SAP</b>	<b>A</b>	<b>Mid Term Test (CT)</b>	<b>VIVA</b>	<b>Journal for Success (JOS)</b>
<b>Weightage (%)</b>	20	05	20	30	25

### **Text & References:**

Vangelist L. Anita, Mark N. Knapp, Inter Personal Communication and Human Relationships: Third Edition, Allyn and Bacon

Julia T. Wood. Interpersonal Communication everyday encounter

Simons, Christine, Naylor, Belinda: Effective Communication for Managers, 1997 1<sup>st</sup> Edition Cassell

Goddard, Ken: Informative Writing, 1995 1<sup>st</sup> Edition, Cassell

Harvard Business School, Effective Communication: United States of America

Foster John, Effective Writing Skills: Volume-7, First Edition 2000, Institute of Public Relations (IPR)

Beebe, Beebe and Redmond; Interpersonal Communication, 1996; Allyn and Bacon Publishers.

# FOREIGN LANGUAGE 701

## FLF 701 FRENCH - VII

Course Code: FLF 701

Credit Units: 02

Teaching hours: 02

### Course Objective:

Revise the portion covered in the first volume, give proper orientation in communication and culture.

### Course Contents:

**Module A: Unités 1 – 3 : pp. 06 - 46**

#### Contenu lexical : Unité 1: Rédiger et présenter son curriculum vitae

Exprimer une opinion

Caractériser, mettre en valeur

Parler des rencontres, des lieux, des gens

#### Unité 2: Imaginer - Faire des projets

Proposer - conseiller

Parler des qualités et des

défauts Faire une demande

écrite Raconter une anecdote

Améliorer son image

#### Unité 3: Exprimer la volonté et l'obligation

Formuler des souhaits Exprimer unanque/un besoin

Parler de l'environnement, des animaux, des

catastrophes naturelles

#### Contenu grammatical:

1. Le passé : passé composé/imparfait
2. Pronoms compléments directs/indirects, y/en (idées/choses)
3. Propositions relatives introduites par qui, que, où
4. Comparatif et superlatif
5. Le conditionnel présent
6. Situer dans le temps
7. Féminin des adjectifs
8. La prise de paroles : expressions
9. Le subjonctif : volonté, obligation

#### Examination Scheme:

Components	CT1	CT2	C	I	V	A
Weightage (%)	20	20	20	20	15	5

C – Project + Presentation

I – Interaction/Conversation Practice

#### Text & References:

le livre à suivre: Campus: Tome 2

# FLG 701 GERMAN - VII

Course Code: FLG 701

Credit Units: 02

Teaching hours: 02

## Course Objective:

To enable the students to converse, read and write in the language with the help of the basic rules of grammar, which will later help them to strengthen their language.

To give the students an insight into the culture, geography, political situation and economic opportunities available in Germany. Introduction to Advanced Grammar and Business Language and Professional Jargon

## Course Contents:

### Module I: Dass- Sätze

Explain the use of the conjunction “-that”, where verb comes at the end of the sentence

### Module II: Indirekte Fragesätze

To explain the usage of the “Question Pronoun” as the Relative Pronoun in a Relative Sentence, where again the verb falls in the last place in that sentence.

### Module III: Wenn- Sätze

Equivalent to the conditional “If-” sentence in English. Explain that the verb comes at the end of the sentence.

### Module IV: Weil- Sätze

Explain the use of the conjunction “because-” and also tell that the verb falls in the last place in the sentence.

### Module V: Comprehension texts

Reading and comprehending various texts to consolidate the usage of the constructions learnt so far in this semester.

### Module VI: Picture Description

Firstly recognize the persons or things in the picture and identify the situation depicted in the picture; Secondly answer questions of general meaning in context to the picture and also talk about the personal experiences which come to your mind upon seeing the picture.

## Examination Scheme:

Components	CT1	CT2	C	I	V	A
Weightage (%)	20	20	20	20	15	5

C – Project + Presentation

I – Interaction/Conversation Practice

## Text & References:

Wolfgang Hieber, Lernziel Deutsch

Hans-Heinrich Wangler, Sprachkurs Deutsch

Schulz Griesbach, Deutsche Sprachlehre für

Ausländer P.L Aneja, Deutsch Interessant- 1, 2 & 3

Rosa-Maria Dallapiazza et al, Tangram Aktuell A1/1,2

Braun, Nieder, Schmöe, Deutsch als Fremdsprache 1A, Grundkurs

# FLS 701 SPANISH - VII

Course Code: FLS 701

Credit Units: 02

Teaching hours: 02

## Course Objective:

To enable students acquire working knowledge of the language; to give them vocabulary, grammar, expressions used on telephonic conversation and other situations to handle everyday Spanish situations with ease.

## Course Contents:

### Module I

Revision of earlier semester modules

### Module II

Zodiac signs. More adjectives...to describe situations, state of minds, surroundings, people and places.

### Module III

Various expressions used on telephonic conversation (formal and informal)

### Module IV

Being able to read newspaper headlines and extracts (Material to be provided by teacher)

### Module V

Negative commands (AR ending verbs)

### Module VI

Revision of earlier sessions and introduction to negative ER ending commands, introduction to negative IR ending verbs

## Examination Scheme:

Components	CT1	CT2	C	I	V	A
Weightage (%)	20	20	20	20	15	5

C – Project + Presentation

I – Interaction/Conversation Practice

## Text & References:

Español En Directo I A,

1B Español Sin Fronteras

Material provided by the teacher from various sources

## FLC 701 CHINESE – VII

Course Code: FLC 701

Credit Units: 02

Teaching hours: 02

### Course Objective:

The story of Cinderella first appears in a Chinese book written between 850 and 860 A.D. The course aims at familiarizing the student with the basic aspects of speaking ability of Mandarin, the language of Mainland China. The course aims at training students in practical skills and nurturing them to interact with a Chinese person.

### Course Contents:

#### Module I

Drills

Dialogue practice

Observe picture and answer the question.

About china part – I Lesson 1, 2.

#### Module II

Pronunciation and intonation

Character Writing and stroke order.

#### Module III

Ask someone what he/she usually does on weekends?

Visiting people, Party, Meeting, After work....etc.

#### Module IV

Conversation practice

Translation from English to Chinese and vice-versa.

Short fables.

#### Module V

A brief summary of grammar.

The optative verb “yuanyi”.

The pronoun “ziji”.

### Examination Scheme:

Components	CT1	CT2	C	I	V	A
Weightage (%)	20	20	20	20	15	5

C – Project + Presentation

I – Interaction/Conversation Practice

### Text & References:

“Kan tu shuo hua” Part-I Lesson 1-7

# BAR 801 PRACTICAL TRAINING

**Course Code: BAR 801**

**Credit Unit:- 25**

**L/0-T/0-P/0**

**Teaching hours:00**

## Course Objectives:

- The intent of the 'Professional Training' is to make students acquire the practical experience which will concoct them for their likely responsibilities, immediately after qualifying B. Arch. Course.
- Students are expected to learn with the realm of architectural discipline ranging from generation of idea, preparation of drawings to the final execution of design on site.

## Course Contents:

At the end of the 7<sup>th</sup> Semester, and as a part of the Academic Curriculum, the students of the **Bachelor's of Architecture** are required to undergo a compulsory **Practical/Field Training** for a period of **6 Months**.

### **Module I: Nature of works expected during the training**

To the following but not necessarily containing all-

- Preparation of:
  - Sketch designs, presentation drawings etc.
  - Municipal drawings according to the byelaws.
  - Workings drawings and details.
  - Estimates, bill of quantities & specifications.
- Discussions with:
  - Clients
  - Structural Consultants
  - Services Consultants
- Inspection and management of site:
  - Preparation of Models, perspectives and photographs
  - Preparation of Reports, progress charts etc.
  - Other administrative works

### **Module II: Content of Training Report**

Following contents will be followed for both intermediate and final submissions:

After completion of practical training, the trainee is required to submit the following in a hard copy. Training report should contain:

- Office profile
- Listing of current project being undertaken
- Project wise details of work undertaken by student
- Trainee's own assessment and experience about office, working, projects etc.

All projects listed in the report should compulsorily correspond with the list of projects mentioned in the monthly log. Copies of drawing shall be attached as annex to support the content of the report. The drawing prints shall be obtained with the permission of the office and stamped/sealed by the 'Supervisor'/Head of the firm/office.

## Assessment:

The Practical/Field Training will be supervised by the faculty from time to time by making regular visits to the places of the training to get a first-hand feedback about the students' work & discipline etc. In addition, the office will be requested to submit a confidential report about discipline/behavior/punctuality, which will be part of marking system.

## Submission

At the end of Practical/Field Training each student will submit a portfolio\* of his/her work along with the aspects which the student has learnt to enhance his/her professional capability.

The portfolio will be assessed by an internal Jury where each student will be given time to display, present & conclude the experience gained.

**\*: A portfolio shall include written report, blue print/photocopies of the practical work done and or photographs of the work executed during this period.**

**Note:** The Practical/Field Training will be organized by the School; however a student will be allowed to choose a place of his/her preference for which prior approval of the School will be required.

*Any important note or instruction for course coordinator*

**Examination Scheme:**

<b>Components</b>	<b>S</b>	<b>VIVA</b>
<b>Weightage (%)</b>	<b>50</b>	<b>50</b>

# BAR 901 DESIGN – VIII

Course Code: BAR 901

Credit Units: 15

L/0-ST/10-P/0

Teaching hours: 10

## Course Objectives:

- To understand Architecture as genesis of Urban Design and vice-versa
- To investigate design issues pertaining to Architecture and Urban Design
- To create architectural design intervention for issues of Urban design, Urban development or Urban renewal

## Course Contents:

### **Module I: Introduction to Urban Design concept and Development Regulations**

Introduction to urban design concepts and their relation with the Architecture, Understanding of development regulations, Master Plan and other legal restrictions and making presentations.

### **Module II: Case studies**

Students shall visit live site, take photographs, measurements to identify urban design elements, issues and potential design intervention in the selected urban context for design, development or renewal. The Study Shall be presented through sheet work and report.

### **Module III: Process of urban design**

Learning the process of urban design, delineation of the study area, making detailed analysis, mapping the area, identifying the important onsite and offsite elements, heritage structures and working out inferences.

### **Module IV: Design formulation**

Working out the alternative proposals of the area delineated in module III. Preparation of vision statement, analyzing the proposal and working out detailed design providing necessary interventions, Phasing out the development, preparing and comparison of existing situation to the proposed images, possibilities of development.

### **Module V: Presentation**

Presentation of studies and design proposal through submission of sheet work – drawings and views as well as contextual model. *An A4 Design Report - documenting the process & progress of work through clippings of sketches/ photographs of models highlighting design concept as well as the final proposal drawings etc- shall be an essential part of submission.*

Design exercise can include urban development/ redevelopment/renewal schemes -Neighbourhood unit, University campus, riverfronts, Business District Centres, city nodes etc. **The design shall include detailing of one of the main building.**

## Examination Scheme:

Components	A	S1	S2	CT	EE	
Weightage (%)	05	15	20	10	20 Viva	30 EE

## Text Books/Reference Books/Journals/Other Study Material:

- Landscape Design – John O. Simonds
- Urban Spaces – Aldo Rossi
- Urban Design: The Architecture of Town and Cities, Paul D Spreiregen (1965)– Tata McgrawHill
- 'Ching Francis, (1979), Architecture Form, Space and Order, Van Nostrand Reinhold Company, New York.
- Neufert Ernst, (1970), Architect's Data, Crosby Lockwood and Sons, London.
- Chiara JD and Calender, (1983), Time Savers Standards for Building Types, McGraw Hill Book Company, New York.

## Online Resources

- <https://www.archdaily.com>
- <http://www.architectmagazine.com>
- <https://www.architecture.com/knowledge-and-resources/resources-landing-page>

# BAR 902 ADVANCED MATERIALS & CONSTRUCTION TECHNOLOGY

Course Code: BAR 902

Credit Units: 03

L/1-T/1-P/1

Teaching hours: 03

## Course Objective:

Understanding modern building materials and different technology used in construction methods.

## Course Contents:

### **Module I: Introduction to Pre-Fabrication Technology – 3 weeks**

Introduction to prefabrication and its relevance in the construction field.Aspects such as – construction terminology, types, Applications, Detailing. Site visits and material collection from Pre-Fabrication manufacturing units and live examples.

### **Module II: Introduction to Pre-Stressed Technology and large span construction– 3 weeks**

Introduction to the topic and its relevance in the construction field.Aspects such as – construction terminology, types, Applications, Detailing. Site visits and material collection from Pre-Stressed manufacturing units and live examples.

### **Module III: Advanced Glazing systems – 3 weeks**

Structural use of glass such as Curtain wall –Design, detailing and specifications, Staircase and railing in glass-details of junction fixing etc.Market survey of available materials, technology and hardware.

### **Module IV: Advanced Architectural details – 3 weeks**

Advance details of grooves, beading and patterns in furniture and fixtures and their continuity, understanding the use of modern fixtures and hinges as applied to various building material. Students shall prepare details of some of works done by them in the previous years.

### **Module V: Advance use of metals – 3 weeks**

Miscellaneous metals such as copper, stainless steel etc. and their advanced application in buildings such as cladding, piping etc along with their detailing of their construction and joints.

## Examination Scheme:

Components	A	CE	CT	EE
Weightage (%)	05	25	20	50

## Text Books /Reference Books/Journals/Other Study Material:

- Building Construction – Materials by M.V. Naik Strength of Materials – Khurmi R. S.
- Applied Mechanics and Strength of Materials – Khurmi R. S. Civil Engineering Handbook – P.N. Khanna
- R.C.C. Design – Khurmi, Punmia, Sushil Kumar Design of Steel Structure – Negi
- Structure in Architecture – Salvadori and Heller

## References:

- Elements of Structure by Morgan
- Structures in Architecture by Salvadori
- Building Construction by Mackay WB Vol. 1-4 Construction Technology by Chudley Vol. 1-6 Elementary Building Construction by Mitchell Structure and Fabric by Everet

# BAR903 DISSERTATION

Course Code: BAR 903

Credit Units: 02

L/0-T/0-P/4 Teaching hours: 04

## Course Objectives:

To make students able to integrate learning of all previous semesters to establish a research component in architecture that preferably should also lead to contribute in their architecture thesis in final project.

- To acquaint students with appropriate tools & methodologies of research in architecture.

## Course Contents:

### **Module I: Introduction - 2 weeks**

Introduction to the dissertation project and get the project/ topic approved by the review committee/faculties giving suitable justifications and reasons for the research. The proposal of research should include the aims, objectives, methodology, limitations, bibliography, site etc. at the time of approval of topic.

### **Module II: Data Collection (Case Studies)- 3 weeks**

Selection of appropriate case studies, conducting the case studies, analyzing site and surroundings, user behavior and requirements utility and space enhancements, form and function, topography, existing landscape, micro & macro climate, structure, Site and surroundings survey, impact of socio economic & cultural behavior of users on design etc.

### **Module III: Data Analysis - 3 weeks**

Research analysis of collected data, Review & Justification of topic selected, Detailed study of functions, Study of relationships between built and open spaces, interlinking of various activities.

### **Module IV: Compilation - 3 weeks**

Compilation of data collected & analyzed in previous modules in suitable manner to yield tangible or intangible outcomes of study.

### **Module V: Presentation - 3 weeks**

For final review & presentation; preparation of a report having suitable illustrations/sketches/texts etc. in prescribed format provided by the faculty/committee.

## Examination Scheme:

Components	A	C	S	TP	VIVA
Weightage (%)	05	25	20	30	20

## Text Books/Reference Books/Journals/Other Study Material:

- 'Ching Francis, (1979), Architecture Form, Space and Order, Van Nostrand Reinhold Company, New York.
- Neufert Ernst, (1970), Architect's Data, Crosby Lockwood and Sons, London.
- Groat, L. & Wang, D., 2002. Architectural Research Methods. New York: John Wiley publication
- Ching, F. D. K., 1979. Architecture: Form, Space and Order. New York: Van Nostrand Reinhold Company.
- Neufert, E., 1970. Architect's Data. London: Crosby Lockwood and Sons.
- Site Planning Standards, J. D. Chaiara.

## Online Resources

- <https://www.archdaily.com>
- <http://www.architectmagazine.com>
- <https://www.architecture.com/knowledge-and-resources/resources-landing-page>

# BAR904 LIGHT AND ARCHITECTURE

Course Code: BAR 904

Credit Units: 02

L/2-T/0-P/0

Teaching hours: 02

## Course Objectives:

The primary focus of this course is the study of natural and Artificial lighting in an architectural context. The course promotes the integration of occupant comfort, energy efficiency and daylight availability throughout the design process and places an emphasis upon the role light can play in shaping architecture.

## Course Contents:

### **Module I: Introduction to Daylighting- 3 weeks**

Introduction: Physics of light, Photometry, Transmission of light, recommended illuminances, Glare, Daylight illuminance, Luminance distribution, Design methods, Total flux method, Daylight factor method, BIS method, Pepper-pot diagram, Models and computer tools. Planning for daylight, day light utilization factor.,Indoor and outdoor daylighting light,

**Lab:** Introduction to Lux meter. Simple experiments to measure Lux levels under different sky conditions, Class room lux measurements, etc.

### **Module II: Introduction to Artificial Lighting- 2 weeks**

Study of interior lighting, different types of lighting their effects types of lighting Fixtures. Controls system , SOLAR control with artificial lighting, Artificial sky, Computer modelling.

### **Module III: Elements of Interior Architecture – lighting accessories- 2 weeks**

Study of interior lighting, different types of lighting their effects types of lighting Fixtures.

### **Module IV: Philosophy of Lighting in Architecture - 3 weeks**

The physiology of vision:The eye and sight (visual perception), Temporal sensitivity of vision,The spatial perception of the human eye,Visual comfort,Biological effects of lighting,The perception of light in architecture. Exhibiting philosophy,Lighting Legislation

### **Module V: Application of lighting and illumination in Architecture with Case Studies- 4 weeks**

Designing using light as an architectural element,Necessity of lighting in designing spaces,Concept of Architectural Lighting, Phases of lighting design- Pre and post Analysis, Architectural lighting design focuses on fundamental aspects of the illumination of buildings-In aesthetic appeal,The functional aspects, Energy efficiency and wastage of light, Emphasis on Architectural features, Layout and Pattern,innovative daylighting systems,the future of daylighting and artificial lighting. Case Studies- Residential,Education,Ecclesiastical,Leisure,Transport, Display,Industrial.

## Examination Scheme:

Components	A	CE	CT	EE
Weightage (%)	05	25	20	50

## Text Books /Reference Books/Journals/Other Study Material:

### Text:

- Architectural Lighting by M. David Egan, Victor W. Olgyay
- Gordon, Gary; Interior Lighting for Designers; Wiley Publishing, 2003
- Flynn, John; Seegil, Arthur; Steffy, Gary; Architectural Interior Systems: Lightng/Acoustic/Air Conditioning; Van Nostrand Reinhold,
- Karlen, Mark; Benya, James; Lighting Design Basics; Wiley Publishing, 2004
- Russell, Sage; The Architecture of Light; ConceptNine, La Jolla, 2008.
- Schiler, Marc; Simplified Design of Building Lighting, Wiley, 1998, Steffey, Gary; Architectural Lighting Design, Wiley, 2008
- Lam, W. M. C. (1986). Sun-lighting as Form-giver for Architecture. New York : Van Nostrand Reinhold

### Online Resources

- [https://www.academia.edu/35571106/\\_Architecture\\_Ebook\\_Daylighting\\_-\\_Natural\\_Light\\_in\\_Architecture?auto=download](https://www.academia.edu/35571106/_Architecture_Ebook_Daylighting_-_Natural_Light_in_Architecture?auto=download)
- [https://books.google.co.in/books/about/Lighting\\_Historic\\_Buildings.html?id=Jk8ckqj6b7sC&redir\\_esc=y](https://books.google.co.in/books/about/Lighting_Historic_Buildings.html?id=Jk8ckqj6b7sC&redir_esc=y)

# BAR905 INTELLIGENT INTERIORS

Course Code: BAR 905

Credit Units: 02

L/2-T/0-P/0

Teaching hours: 02

## Course Objectives:

Technology is becoming inherent part of modern life and has invaded every aspect of our life including the building interiors. Intelligent interiors are one of the most important parts of the modern buildings and objectives of the course is to make students aware of the use of technology in interiors.

## Course Contents:

### **Module I: Introduction - 2 weeks**

Overview of intelligent interiors and use of electronics & IT equipment for creating interesting interiors.

### **Module II: Intelligent Safety Systems - 3 weeks**

Use of technology to maximize the performance of fire alarms and security systems while at the same time minimizing costs. Incorporation of safety equipment such as CCTV etc aesthetically in the interiors.

### **Module III: Workplace automation - 2 weeks**

Intelligence with respect to workplace automation in an intelligent interior consists of the use of high – tech office automation systems to render the operation of a company more efficient. This can be done at a reduced cost to tenants by virtue of the equipment being shared.

### **Module IV: Automation of interiors - 2 weeks**

Remote control in interiors, Managing and monitoring building efficiency from distance. Managing Security, HVAC etc from distance.

### **Module V: Virtual spaces and interiors - 3 weeks**

Learning ways & system of creating such spaces that change shape/ size/ ambience/ colour etc. to change according to performance & suite the audience- D/4D/6D interiors. Interiors to suit the model & behavior of the user. Right from ones entry to the building to reach his final destinations. Temperature, light and colour control.

### **Module VI: Intelligent use of energy - 2 weeks**

Intelligent interiors consist of energy use to the minimum with computerized system. To control light, airflow, air-conditioning, outdoor light entering the building heating and minimizing the energy consumption.

## Examination Scheme:

Components	A	CE	CT	EE
Weightage (%)	05	25	20	50

## Text Books/Reference Books/Journals/Other Study Material:

### Text

- Drywall (Pro Tips for Hanging & Finishing), John D. Wagner
- Graphic Interiors (Space Designed by Graphic Artists), Corina
- Dean Interior design illustrated , Francis D.K. Ching
- Graphic Interiors (Space Designed by Graphic Artists), Corina Dean

### Reference Books

- A.J. Metric Handbook, Jan Bilwa and Leslie Fair weather Architectural Graphic standards, Boaz Joseph
- The Curtain Book, Mitchll Beazlty
- Illustration + Perspectives (In Pantone Colors), Eiji Mitooka

# BAR906 DISASTER RESISTANT ARCHITECTURE

Course Code: BAR 906

Credit Units: 02

L/2-T/0-P/0

Teaching hours: 02

## Course Objectives:

- To familiarize the students to the various theoretical and practical aspects of disasters and explain them the precautions to be taken in design resistant structures.
- To introduce the disaster management techniques and method of rehabilitation
- To make them understand the concept of shelter housing, etc.

## Course Contents:

### **Module I: Introduction - 2 weeks**

Overview of disasters; major natural disaster – flood, cyclone, droughts, landslide, heat waves, earthquakes, fire hazards etc. and their importance to architects.

### **Module II: Factors Causing Earthquake - 3 weeks**

Module content Basic understanding on fragile eco-system, physiographic and geo-chemical data mapping, soil and topography, hydrological factors, climatic conditions. Site planning, building form and shape, considerations for earthquake resistant buildings

### **Module III: Strategies for Disaster Prevention- 3 weeks**

Engineering, architectural, landscaping and planning solutions for different types of calamities. Norms, standard practice procedures for shelter and settlement

### **Module IV: Fire Safety in Buildings - 3 weeks**

Understanding Fire. Learning precautions for fire resistant buildings, Designing the fire resistant building using modern construction techniques and materials, Fire safety in multistoried buildings.

### **Module V: Laws Related to Disasters- 3 weeks**

Fire related Laws for buildings, Earthquake related laws, provisions in NBC and other standards laid down by Bureau of Indian Standards

## Examination Scheme:

Components	A	CE	CT	EE
Weightage (%)	05	25	20	50

## Text Books/Reference Books/Journals/Other Study Material:

- Dynamics of Structures by A. K. Chopra
- Building Configuration and Seismic Design, C. Arnold and R. Reitherman
- Earthquakes An Architect's Guide to Non-Structural Seismic Hazard, H. J. Lagorio
- Handbooks by IIT Kanpur for Earthquake Design.
- The Seismic Design Handbook, F. Naeim
- Design for Earthquakes, J. Ambrose and D. Vergun

# BAR907 TENSILE CONSTRUCTION

**Course Code: BAR 907**

**Credit Units: 02**

**L/2-T/0-P/0**

**Teaching hours: 02**

## Course Objectives:

- To demonstrate how tension structures, expand the boundaries of form and function while educating you on the process of their development from concept to completion.

## Course Contents:

### **Module I: Introduction to tensile constructions-2 weeks**

The theme and concept of the tensile construction shall be introduced to give the background from the temporary to permanent tensile structures.

### **Module II: Tensile Shapes and Structures-3 weeks**

The creative challenge to designers is to explore the development of striking new forms, which satisfy the structural requirements of the membranes surface. Developing new shapes of push-up elements, and varying the design of the perimeter connections enables dramatic variation in the appearance of a structure. so, this can be done by learning Stress – strain diagram in simple tension, perfectly elastic, Rigid – Perfectly plastic, Linear work – hardening, Elastic Perfectly plastic, Elastic Linear work hardening materials, Failure theories, yield conditions.

### **Module III: Materials for Tensile Structure-3 weeks**

The ability of fabric to form double curvature surfaces and its inherent translucency has always been attractive for designers. But with the advent of computer form finding and the development of reliable structural fabrics the world of tensile structures took a giant leap forward this will also lead to know and design different other kinds of material used for such structure.

### **Module IV: Tensile Structure for Indoors and Outdoors Spaces-3 weeks**

This is to understand the various use of tensile in outdoors as well as in indoors for space designing and also develop an effective means and method of its design, installation, and use.

### **Module IV: Model Making in Tensile Structure-2 weeks**

One common issue is that tensile are difficult to draw and harder still for the client to visualize to solve this we need to resolve this by the help of models.

The traditional way around this was to create a physical model (using a curious combination of foamboard, timber dowels and ladies' tights). Now we have a whole range of CAD programs such as 'Rhino Membrane'\* that can give designers the tools for the job.

## Examination Scheme:

Components	A	CE	CT	EE
Weightage (%)	05	25	20	50

## Text Books /Reference Books/Journals/Other Study Material:

- Timoshenko & Goodier, "Theory of Elasticity", McGraw Hill.
- Srinath L.S. (1994), Advanced Mechanics of Solids, 10th print, Tata McGraw Hill Publishing company, New Delhi,
- Sadhu Singh, "Theory of Elasticity", Khanna Publishers.

# BAR908 INTERIOR DESIGN

**Course Code: BAR 908      Credit Units: 02      L/2-T/0-P/0      Teaching hours: 02**

## Course Objectives:

To study the Interior Design principles and their applications in interiors, and to foster creative ability and inculcate skills to understand and conceive architectural design.

## Course Contents:

### **Module I: Introduction to Interior Architectural Design -2 weeks**

Definition of interior design, Interior architectural design process, vocabulary of design in terms of principles and elements, Introduction to the design of interior spaces as related to typologies and functions, themes and concepts - Study and design.

### **Module II: History of Interior Architectural Design-3 weeks**

Brief study of the history of interior architectural design through the ages relating to historical context, design movements and ideas etc. Brief study of folk arts and crafts. (vernacular design in India) with reference to interior design and decoration.

### **Module III: Elements of Interior Architecture - Enclosing Elements-3 weeks**

Introduction to various elements of interiors like floors, ceilings, walls, staircases, openings, interior service elements, incidental elements etc., and various methods of their treatment involving use of materials and methods of construction in order to obtain certain specific functional, aesthetic and psychological effects.

### **Module IV: Elements of Interior Architecture – lighting accessories & interior landscaping-3 weeks**

Study of interior lighting, different types of lighting their effects types of lighting fixtures. Other elements of interiors like accessories used for enhancement of interiors, paintings, objects-de-art, etc. Interior landscaping, elements like rocks, plants, water, flowers, fountains, paving, artifacts, etc. their physical properties, effects on spaces and design values.

### **Module V: Elements of Interior Architecture - Space Programming-3 weeks**

Study of the relationship between furniture and spaces, human movements & furniture design as related to human comfort. Function, materials and methods of construction, changing trends and lifestyles, innovations and design ideas. Study on furniture for specific types of interiors like office furniture, children's furniture, residential furniture, display systems, etc. Design Projects on Residential, Commercial and Office Interiors.

*Any important note or instruction for course coordinator*

*Any important note or instruction for course coordinator*

## Examination Scheme:

Components	A	CE	CT	EE
Weightage (%)	05	25	20	50

## Text Books/Reference Books/Journals/Other Study Material:

- Ching, F. D. K. (1987). Interior Design Illustrated. New York : V.N.R. Publications.
- Doshi, S. (Ed.) (1982). The Impulse to adorn - Studies in traditional Indian Architecture. Marg Publications.
- Kathryn, B. H. and Marcus, G. H. (1993). Landmarks of twentieth Century Design. Abbey Ville Press.
- Pendero, J. and Zelnik, M. (1979). Human Dimension and Interior space: A Source Book of Design Reference Standards. New York : Whitney Library of Design
- Slesin, S. and Ceiff, S. (1990). Indian Style. New York : Clarkson N. Potter.
- Dorothy, S-D., Kness, D. M., Logan, K. C. and Laura, S. (1983). Introduction to Interior Design. Michigan : Macmillan Publishing.

## **BAR909 SET DESIGN**

**Course Code: BAR 909**

**Credit Units: 02 L/2-T/0-P/0**

**Teaching hours: 02**

### **Course Objectives:**

Set Design is an important and interesting section of design industry as it gives shape to ones' imagination and visualization. Set designing intends to expose students to different backgrounds and enhance designing skills by expressing ones' visualization into scenes. In this, students will be able to explore a new arena of employment

### **Course Contents:**

#### **Module I: Orientation to the Set design**

Introduction to set design, History of set designing, Materials and techniques, In sync of traditional set designing to contemporary sets. Case studies of classical & modern sets as submission of reports.

#### **Module II: Application of set design**

Practical use of Elements and principles of design in set Design, Presentation on different Film studios such as Ramoji film city, and Universal Studio/AUR Studio etc.

#### **Module III: Workshop**

Designing sets by using local low cost materials, designing artistic backdrops for various events held in college/ Students in groups designing sets such as News reports office, café.

#### **Module IV :Virtual sets**

Adoption of technology in design of sets, virtual sets. Incorporation of multimedia & modern gadgets within sets.

#### **Module V :Modern set**

Study of modern set, requirements for stage shows for different activities such as dances/ dramas/ plays/ solo and group performances/ reality shows/ discussion stage/ mobile & reusable stages. Understanding the equipments required and that aesthetic incorporation to enhance viewer pleasure.

### **Examination Scheme:**

<b>Components</b>	<b>A</b>	<b>CE</b>	<b>CT</b>	<b>EE</b>
<b>Weightage (%)</b>	05	25	20	50

### **Text Books /Reference Books/Journals/Other Study Material:**

- Drafting for the theatre- Dennis Dorn and Mark Shanda
- Light Fantastic: The Art and Design of Stage Lighting- Max Keller
- The Handbook of Set Design- Crowood Press
- Set Design by Tony Davis

# BAR 1001 ARCHITECTURAL THESIS PROJECT

Course Code: BAR 1001

Credit Units: 18

L/0-ST/12-P/0

Teaching hours: 12

## Course Objectives:

- To provide the students an opportunity to research and develop a design scheme for a project of their choice and approved by the school maintaining professional working standards and attain a professional level approach with extensive details.
- To attain independent professional approach analysis based design projects achieving high level of workability, efficiency and aesthetics in 3-D form with all the services properly worked out in a way as a professional office works for getting a competition project.

## Course Contents:

### **Module I: Introduction**

Introduction to the thesis design and get the project approved with the finalization of thesis guide/s. (Consent to be taken from internal and external guide both). The **Synopsis** should include the followings:

Justification to topic selected	Aim and Objective of Project	Project Information
Methodology of research	Identified and selected Case studies	Limitation and scope of Research and Design

### **Module II: Research**

Extensive research specific to project conducted through the primary and secondary data collection. Conduct the case studies with extensive study and analyze (comparative) to comprehend the existing prototypes. Detailed site study to grasp site peculiarities to enable contextual design. Conclude Design Criteria to form basis for Concept Development. Finalize the Project Brief and Area Statement based on Conclusions. Presentation of compilation of Research data and conclusions drawn in the form of A4 Report.

### **Module III: Concept Development and Designing**

Development of concept based on Design criteria and Area statement brief concluded in previous module to be presented with conceptual model and 3-D sketches. Design to be developed through a series of appraisals and open discussions. Planning at site as well as building level to be frozen and workability, efficiency of design to be worked out and finalized.

### **Module IV: Specifications and Estimation**

The project estimation with all the necessary specifications to be detailed to reflect the cost of the project. The details should include all the interior and exterior details.

### **Module V: Presentation**

Complete project development and analysis to be compiled Thesis Report (Final) containing all the details of the project. VIVA-presentation on 3-D drawings and detailed Model of the Project. Mode of presentation may be mutually devised by co-coordinators and student that may be project specific.

## Examination Scheme:

Components	A	P	S	EE	
Weightage (%)	05	25	20	20 Viva	30 EE

*The thesis project to be evaluated through open jury comprise of thesis guide and external expert members.*

## Text Books /Reference Books/Journals/Other Study Material:

### **Text:**

- Site Planning Standards, J. D. Chairara.
- Time Saver Standards, J. H. Callender and J. D. Chairara
- Architectural Graphic Standards, C. G. Ramsey
- Neufert's Architects Data, V. Jones, Ed. Gen.
- Towards a Human Architecture, A. Bruce
- Architectural Graphics: C. Leslie Martin
- Perspective for the Architect: Themes and Hudson
- Interior Design: Ahmed Kasu
- Architectural Graphics – Ching Frank
- Engineering Drawing – P.S. Gill

### **References:**

- Form and Structure, D. Philip and O. Frei
- Architectural Graphic standards editor – Boaz Joseph
- Planning – the Architect's handbook, E and E.O.
- Time Saver standards for building types, Editor Joseph D.C. and John Callender.
- Practical Plane and Solid Geometry – H. Joseph and Morris
- Architectural Thesis done by other people

# BAR1002 PROFESSIONAL PRACTICE & MANAGEMENT

Course Code: BAR 1002

Credit Units: 02

L/2-T/0-P/0

Teaching hours: 02

## Course Objectives:

- To make students gain substantial knowledge about various norms, rules, codes etc controlling the profession of architecture particularly in Indian context.
- To make the students understand the professional intricacies, professional responsibilities and conduct, legal obligations and implications so that at the end of their studies the Students is familiar of their responsibilities as an architect.
- To equip students to face the challenges of contemporary, professional practice and to have the skills to become reflective practitioners.

## Course Contents:

### **Module I: Introduction to Professional Bodies - 2 weeks**

Familiarization with different national & international Professional Bodies directly and in-directly controlling the architecture profession such as The Indian Institute of Architects (IIA), The Council of Architecture (COA), The Indian Institute of Interior Designers (IIID), International Union of Architects (UIA), The Institute of Town Planners India (ITPI) & other key bodies.

### **Module II: Council of Architecture; Architect's Act of 1972 - 3 weeks**

Detailed study of the Act, different clauses and their vitality. The Council of Architecture- its formation procedure, functions role and responsibilities, members of the council, rules and regulations of the COA. Minimum Standards of Architectural Education as set up by the COA.

### **Module III: Council of Architecture - Professional Conduct & professional charges - 3 weeks**

Rules & acts as laid down by the COA with addendums. Procedures that an architect must adhere to for keeping a legal as well as ethical practice. Awareness about Architectural Competitions and the Procedure lay down by the COA. Does and Don'ts for Architectural Competitions.

### **Module IV: Indian Institute of Architects (IIA) - 3 weeks**

Introduction to IIA & its formative History, Its bye laws, rules and regulations, membership procedure and categories, IIA Elections, Functions and formation of the IIA Council, Importance of IIA, Activities of IIA and Awards by IIA.

### **Module V: Setting up Architecture Practice & Office Management -3 weeks**

Architectural practice and office, Work Structure of office, Client management, Human Resource management, Financial management, Contracts and tenders and Fee Structure

## Examination Scheme:

Components	A	CE	CT	Viva	EE
Weightage (%)	05	25	10	15	50

## Text Books /Reference Books/Journals/Other Study Material:

- COA documents.:Architect's Act 1972;
- Architectural Practice in India – Prof. Madhav Deobhakta Construction Project Management – K.K. Chilkar

## Online Resources

- <https://www.coa.org>
- [www.indianinstituteofarchitects.com](http://www.indianinstituteofarchitects.com)

# BAR1003 PRODUCT DESIGN

Course Code: BAR 1003

Credit Units: 02 L/2-T/0-P/0

Teaching hours: 02

## Course Objective:

To expose the students to the various theoretical and practical aspects of ergonomics and product design

## Course Contents:

### **Module I: Ergonomics**

Definition of human factors, Application of human factors data, Human activities – their nature and effects, man-machine system and physical environment.

### **Module II: Human control system**

human performance and system reliability, information input and processing, , visual display, visual discrimination, Alphanumeric and related displays, visual codes and symbols, Auditory, tactual and olfactory mechanism, applied anthropometric, physical space and arrangement.

### **Module III: Product Design**

Form, colour, symbols, user specific criteria; material, technology and recyclability; packaging; multiple utility oriented approach to product design; design of household elements, tools and devices; element design for the physically and mentally repaired. Creative thinking –creativity and problem solving- creative thinking methods- generating design concepts-systematic methods for designing – f

### **Module IV: Product Design Applications**

Design Definitions and Design Spectrum, Product Attributes – Function and Emotion, Product configurations and Component relationships, Product Analysis – Diachronic, Synchronic, Understanding and Analyzing contexts, parallel situations, future situations, Understanding modularity and modular systems, 3D lattice and structures, Design of Modular System ,abstract design, Process of conception and its documentation. Identifying customer needs,voice of customer,customer populations,hierarchy of human needs,need gathering methods – affinity diagrams – needs importance-establishing Product Design characteristics-competitive benchmarking- quality function deployment- house of quality-product design specification-case studies

### **Module V: Industrial application of Product Design**

Industrial Product design, human factors design, user friendly design, design for serviceability, design for environment, prototyping and testing, cost evaluation, categories of cost, overhead costs, activity based costing methods of developing cost estimates, manufacturing cost, value analysis in costing

**Exercise :**Hands on Workshops on Product Design Studio, Case Studies on Product Design Development and ValueEngineering

## Examination Scheme:

Components	A	CE	CT	EE
Weightage (%)	05	25	20	50

## Text Books /Reference Books/Journals/Other Study Material:

### Text:

- A-Level Product Design, Will Potts
- Materials and Design: The Art and Science of Material Selection in Product Design, Michael Ashby, Kara Johnson Human Factors in Product Design, W.S. Green
- Product Design: Graphics with Materials Technology, Lesley Cresswell

### References:

- Creativity in Product Innovation, Jacob Goldenberg, David Mazursky Building Product Models, Charles M. Eastman
- Building Better Products with Finite Element Analysis, Vince Adams, AbrahamAskenazi

# BAR1004 COST EFFECTIVE ARCHITECTURE

Course Code: BAR 1004

Credit Units: 02L/2-T/0-P/0

Teaching hours: 02

## Course Objective:

To familiarize the student with cost-effective construction for building economy. To develop an understanding of different issues, types and techniques involved in the design and construction of low cost structures

## Course Contents:

### Module I: Introduction

Basic shelter issues in India and Affordability, Need for achieving low costs in building construction – Low cost vs. Quality. Factors constituting building costs, Controlling parameters for achieving Cost Effective Architecture – land, space, materials, design, construction techniques, construction time & labour.

### Module II: Understanding needs of economically weaker sections

Cultural study of economically weaker sections in India in different pockets like slums & existing EWS & LIG housings, space usage pattern studies, study for modifications and alterations done by dwellers in existing EWS & LIG Schemes.

### Module III: Architectural Planning & Design for Cost Effective Architecture – Space Optimization

Site planning and Architectural Design as tools for Cost Effective Architecture, Space planning Norms of National Building Code, India for Economically weaker Sections in Urban and Rural Areas; National building organization – Recommendation of Housing and Urban Development Corporation, Space optimization as a process of cost reduction, Multiple use of space. Multiple use of furniture.

### Module IV: Building Materials, Construction techniques & Time Optimization for Cost Effective Architecture

Local materials and traditional technologies, Improved traditional technologies, Innovative Materials and construction methods developed Laurie baker; CBRI Roorkee, HUDCO, Anangpur Building Centre, Development Alternatives, Auroville Building Centre and many others for different types of walling, roofing and foundation with materials like Pressed soil blocks, soil cement blocks and other alternative materials – fly ash brick, gypsum byproducts, Ferro cement products, bamboo, jute stalk etc; Ways to cut down the use of unwanted building materials, Project time optimization to reduce project costs, Use of effective project management techniques.

### Module V: Studies and Comparative Analysis for Cost Effectiveness

Case studies presentations of low cost/ cost effective projects and their comparative cost analysis with conventional projects.

## Examination Scheme:

Components	A	CE	CT	EE
Weight age (%)	05	25	20	50

## Text Books /Reference Books/Journals/Other Study Material:

- Alternative Construction, Contemporary Natural building Methods: Edited by Lynne Elizabeth and CassandrAdams.
- Low cost housing in developing countries by G. C. Mathur
- How the other half builds – Vol 1, 2 & 3 by Vikram Bhatt et al.
- National Building Code of India, 2005 – PART 3 – ANNEX C, E & F Laurie Baker – Life, work, writings by Gautam Bhatia
- Low Cost Housing – An analytical Study of the current practices & techniques by Vastu Shilpa Foundation
- CBRI Publications – Book 1-9
- Low Cost Housing competitions 1974 – 96 by HUDCO How to reduce building costs by Laurie Baker

# BAR1005 GEOGRAPHICAL INFORMATION SYSTEM

Course Code: BAR1005

Credit Units: 02

L/2-T/0-P/0

Teaching hours: 02

## Course Objectives:

To develop an understanding of the land and its designed modifications, with an integration of Earth sciences. To develop understanding and capacity building to use information science in architecture to address various problems of geography, cartography, geosciences and related branches of science and engineering in design and planning.

## Course Contents:

### Module I: Introduction of Remote Sensing - 2 weeks

Concept and Foundation of Remote Sensing, Elements of Photographic System Types of Aerial Photographs: Vertical Photographs, Oblique Photographs, Satellite Imagery

### Module II: Introduction of Photogrammetry - 2 weeks

Introduction to Air Photo Interpretation, Photogrammetry for Map Making :Introduction /Definition, Geometric Elements of a Vertical Photograph, Relief Displacement, Ground Control for Aerial Photography

### Module III: Introduction of Geographical Information System - 2 weeks

Geographical Information Systems: Definition, Composition of Geographical Information System, Computer Hardware Module, GIS Software Module, Data Input, Data Storage, Data Output, Database Structures

### Module IV: Digital Image Processing and Applications - 3 weeks

Geoprocessing Tools, Digital Image Processing, Applications: Geological & Soil mapping, Land-use / land cover Mapping , Land use Classification, Agriculture Applications, Forestry Applications, Water resource Applications: Water Pollution Detection, Flood Damage Estimation, Architectural Applications, Wetland mapping

### Module V: GIS Data Analysis and Modeling - 3 weeks

Application of GIS & Remote Sensing, Automated Mapping / Facility Management. (AM/FM), 3-D GIS Digital Elevation Model & Digital Terrain Model, Digital Image Processing and Editing; Error Detection and Correction, Geo Spatial Analysis: Turning Data into Meaningful information. Comparison of Vector & Raster Methods, Internal G.I.S., Network Analysis, Open GIS.

*Any important note or instruction for course coordinator*

## Examination Scheme:

Components	A	CE	CT	EE
Weightage (%)	05	25	20	50

## Text Books /Reference Books/Journals/Other Study Material:

### **Text:**

- Batty, D.M.a.M. (ed.) (2005) GIS, Spatial Analysis and Modeling, ESRI Press.
- Brewer, C.A. (n.d) Designing Better Maps: A Guide for GIS Users, ESRI Press.
- C, H.T. (n.d) Land Form Designs, P D A Publication.
- C.Hanna, K. (1999) GIS for Landscape Architects, ESRI press.
- G.S.Srivastava (2014) An Introduction to Geoinformatics, McGraw Hill Education.
- Garcia, J. (2017) Introduction to Geographic Information System, Larsen and Keller Education.
- H, P.P. (1995) Concrete Floors Finishes , Butterworth-Heinemann.

### **References:**

- K.R, B. (1990) Integrating GIS into Urban Regional Planning, Alternative approaches for developing countries regional development Dialogue , Japan: UNCRD.
- Michael, L. (1988) Tree Detailing , London: Butterworth Architecture.
- Michael, L. (1993) Landscape Detailing Vol.1 Enclosure , 3rd edition, Architectural Press.

### **Online Resources**

- [https://www.researchgate.net/publication/297049548\\_A\\_Tutorial\\_on\\_Geographic\\_Information\\_Systems\\_A\\_ten-year\\_update](https://www.researchgate.net/publication/297049548_A_Tutorial_on_Geographic_Information_Systems_A_ten-year_update)
- <https://www.manage.gov.in/studymaterial/GIS.pdf>
- [https://unstats.un.org/unsd/publication/SeriesF/SeriesF\\_79E.pdf](https://unstats.un.org/unsd/publication/SeriesF/SeriesF_79E.pdf)

# BAR1006 ARCHITECTURE JOURNALISM

**Course Code: BAR 1006**

**Credit Units: 02**

**L/2-T/0-P/0**

**Teaching hours: 02**

## Course Objectives:

- Architectural Journalism aims to provide foundations for writing about architecture and design.
- This course deals with the basics of news writing, news structure, editing and presenting and discusses the elements and principals of writing.
- This course is intended to help those, who have inclination for writing to develop their skills to enable then to record, analyze and evaluate architecture both in its theoretical and practical forms.
- To understand the process of documenting a projects in the field of architecture.

## Course Contents:

### **Module I: Introduction - 2 weeks**

Journalism in general, Theories of journalism, Techniques and processes, Contemporary Architectural journalism

### **Module II: Basics of writing - 3 weeks**

News – Source, Elements, News Values and Impact, Journalism – History, Focus on India, Journalism and Society News Writing – Style and principals. Types of leads & Body text, News Structure – 5W 1H, Inverted Pyramid, Diamond and Hourglass style of news writing, Understanding your reader, Writing in perception of the user, Career in Architectural journalism.

### **Module III: Writing about design & architecture - 3 weeks**

Overview of journalistic assignments. Design – Analysis and Writing, Writing review and critical analysis, Collecting information and presenting data, Elements of architecture: the form, the materials, the design concept or the key planning – Idea Creation, Documenting of projects, Brining Flair and Objectivity in Writing, Architectural Criticism, Writing on interior and construction, Writing on urban planning and sustainability, Interview and Personal Writing, Writing facts and establishing debate, Corporate Reporting, Press Meeting and press releases.

### **Module IV: Editing & Presentation - 3 weeks**

Profreading techniques – Languages, Grammar and Style, Electronic Copyediting, Writing Headlines and captions Writing an editorial and opinion , Style sheet, Constructing Narrative , Writing for various media – Print, Visual and Online, Lay-out – Newspaper and Magazine, Introduction to Publishing Softwares.

### **Module V: Magazine Writing - 3 weeks**

Introduction to magazine journalism and writing, Reviews of famous architectural magazine and writers, Principals of writing magazine story, Feature writing , Using pictures and graphics,

**Project :** Student must prepare two features; one for newspaper and other for the magazine about a project and an architect

*Any important note or instruction for course coordinator*

## Examination Scheme:

Components	A	CE	CT	EE
Weightage (%)	05	25	20	50

## Text Books /Reference Books/Journals/Other Study Material:

- Miller, Randy & Wilber, Rick (2002). *Modern Media Writing*.
- Wadsworth Publishing Sharma, Sangeet (2013). *Architecture, Life & Me*. Rupa & Co. Delhi.
- Wray, Cheryl (1997). *Writing for Magazines: A Beginner's Guide*. McGraw Hill.
- Architectural Criticism and Journalism by Majd Musa and Mohammad Al-Asad (1 March 2007)
- Challenges to the Epistemology of Journalism: The Architecture of the Contemporary Mediascape (Economy and Society... by George Lazaroiu (15 August 2012)

## Magazines

- Metropolis Magazine,
- architecture and design
- Plan, architecture, design,
- art and urban planning, Surface Magazine,
- architecture, design, and fashion

\*Manuscript based on Presentation, Discussions and Minutes of Meetings of 12th B.O.S held on 5th Dec 2020

# BAR1007 BUILDING ECONOMICS AND LEGISLATION

Course Code: BAR 1007    Credit Units: 02    L/2-T/0-P/0    Teaching hours: 02

## Course Objective:

- To understand Architectural projects as an economic function and understanding their evaluation techniques.
- To help the students for understand the concept of building economics behavior and legislation of buildings with emphasis laid on the principles of various costs & economic performance of building.

## Course Contents:

### Module I: Introduction to Building Economics-2 weeks

Concepts of economics: Utility, Demand & Supply, Wants, Cost, Value, Price, Micro and Macro Economics. Meaning and scope of Building Economics.

### Module II: Project Costing and Benefits of Building-2 weeks

Elements of cost components, initial costing, future costing, different types of costs and their impact on building projects. Monetary and non-monetary benefits of buildings.

### Module III: Economics Performance of Building -2 weeks

Types of economic performance; accounting for risks & uncertainty; techniques of performance analysis; cost benefit analysis, incremental analysis, bread-even analysis; life cycle cost analysis, rate of return analysis.

### Module IV: Value Engineering and Feasibility Analysis-3 weeks

Concept, application to architectural projects, Real Estimate PRO-FORMA Analysis. Concept and types of feasibility, feasibility analysis.

### Module V: Legislation-3 weeks

Definition, Resources scheduling and levelling. Labour welfare, applicable labour legislation- nature and scope – Indian constitution and labour – labour laws for the building Industry – laws regulating wages and payments to workers – social security laws – industrial relations laws – miscellaneous laws - Industrial relations and trade unions

## Examination Scheme:

Components	A	CE	CT	EE
Weightage (%)	05	25	20	50

## Text Books /Reference Books/Journals/Other Study Material:

- Building Economics for Architects, Thorbjoern Mann
- The Economics of Building: A Practical Guide for the Design Professional, Robert E. Johnson
- Design and Construction: Building in Value, Rick Best, Gerard de Valence
- Best Value in Construction, Kelly.
- Design and the Economics of Construction, D.D. Jaggar, R. Morton.

# BAR1008 BUILDING INFORMATION MANAGEMENT

Course Code: BAR 1008

Credit Units: 02L/2-T/0-P/0 Teaching hours: 05

## Course Objectives:

- To introduce students about the technology of 'Building Information modelling'.
- To discuss the Roles and Impacts of BIM in the Design, Construction Engineering and Management, Infrastructure Engineering.
- To understand application of various tools of BIM in clash detection, scheduling, estimation & all phases of construction.

## Course Contents:

### Module I: Introduction - 1 week

Introducing students the technology of Building Information modelling, explaining students its requirements & benefits in construction industry, life cycle, work flow & familiarizing with different application tools for various phases of project.

### Module II: Construction Scheduling & 4D Simulation - 4 weeks

Module to focus explaining students on how to accommodate/integrate needs of schedulers/estimators in the modeling process – students should be demonstrated with the do's and do not's of estimation, scheduling and construction through BIM tools. Explaining 'Level of details' and their impact on formulating project schedules & budget. Demonstrating commonly used BIM application tools such as REVIT, Navisworks, Microsoft project & Primavera for Scheduling and estimation.

### Module III: Design Coordination - 4 weeks

Integrating models of all disciplines, checking conformity between architecture, structure & building services, understanding the system of building design coordination & clash detection. Developing the suitable workflow of modelling for 4D & 5D simulations, transferring or linking models in REVIT & Navisworks, Understanding both the tools for clash detections, sequencing & other functions of construction management.

### Module IV: BIM to the field- 3 weeks

Module should explain Sheet formatting & plotting, drawing sets, scales & paper sizes, annotations & other details, presentation and animations, Developing the fabrication or shop drawings. Basic energy Simulations using commonly used BIM applications. Other relevant details if felt important by the instructor may be deliberated.

Any important note or instruction for course coordinator

A small scale project model may be developed a fresh or taken up from previous semester for preparing schedules , budgets, clash detections & other activities.

## Examination Scheme:

Components	A	CE	CT	EE
Weightage (%)	05	25	20	50

## Text Books /Reference Books/Journals/Other Study Material:

- 'Ching Francis, (1979), Architecture Form, Space and Order, Van Nostrand Reinhold Company, New York.
- Neufert Ernst, (1970), Architect's Data, Crosby Lockwood and Sons, London.

## Online Resources

- <https://www.archdaily.com>
- <http://www.architectmagazine.com>

# BAR1009 ENVIRONMENT IMPACT ASSESMENT

Course Code: BAR 1009

Credit Units: 02

L/2-T/0-P-0

Teaching hours: 02

## Course Objective:

- To know the process of assessment of impact of architectural projects on environmental.
- To learn about the legal requirements of the prevalent acts on environmental protection.
- To able to create buildings having less impact of the environment.

## Course Contents:

### Module I: Introduction

Understanding Necessity of the EIA and Introduction to the existing EIA framework. Brief history of EIA in India and related developments.

### Module II: EIA and related Acts

Detailed understanding of the Environmental Protection Act 1986, its clauses, role and responsibilities of different bodies and formation of EIA rules/Act. Necessity of EIA and environmental clearance of projects. Awareness of Central and State Government Acts.

### Module III: EIA Procedure

Definition of environmental impact assessment; Methods of EIA, procedures, formats, important clearances and legal framework. Financial impact of EIA. Understanding of the projects requiring the Environmental clearance and their procedure.

### Module IV: Case Studies of EIA and Environmental Clearance

Case studies for applications to of concepts to projects of various scales-individual buildings, group buildings etc. Emphasis shall be on cost benefit analysis.

**Project:** Student must do environmental impact assessment exercise for any of their design studio project.

## Examination Scheme:

Components	A	CE	CT	EE
Weightage (%)	05	25	20	50

## Text Books/Reference Books/Journals/Other Study Material:

- Canter, R.L., "Environmental Impact Assessment", McGraw Hill Inc., New Delhi, 1996.
- Shukla, S.K. and Srivastava, P.R., "Concepts in Environmental Impact Analysis", Common Wealth Publishers, New Delhi, 1992.
- Environmental Protection Act 1986 with UpToDate revisions.

## References

- John G. Rau and David C Hooten "Environmental Impact Analysis Handbook", McGraw Hill Book Company, 1990.
- "Environmental Assessment Source book", Vol. I, II & III. The World Bank, Washington, D.C., 1991.
- Judith Petts, "Handbook of Environmental Impact Assessment Vol. I & II", Blackwell Science, 1999.
- Prof. Singh Jitendra, Environmental Impact Assessment Report

# BAR1010 PREFABRICATION

**Course Code: BAR 1010 Credit Units: 02 L/2-T/0-P-0 Teaching hours: 02** *Course Objective:*

- To understand the Prefabrication techniques in the residential & industrialized construction and also understanding of prefabricated elements.
- To familiarize the students with construction method/ techniques used for these elements in building works.

*Course Contents:*

**Module I: Introduction of prefabrication – 3 Weeks**

Need & importance of prefabrication technique, benefits and drawbacks of prefabrication, Principles, Materials, Modular construction technique, Standardization, Systems, Production, Transportation and Erection.

**Module II: Prefabricated Components- 2 Weeks**

Behavior of structural components, Large span constructions, Construction of roof and floor slabs, Wall panels, Columns & Shear walls.

**Module III: Design Principle -2 Weeks**

Disuniting of structures- Design of cross section based on efficiency of material used – Problems in design because of joint flexibility – Allowance for joint deformation.

**Module IV: Joints in Structural Members- 3 Weeks**

Joints for different structural connections – Dimensions and detailing – Design of expansion joints. Basic Construction and fixing details used for various prefabricated panel/ elements, their applications, types, pricing, advantages & disadvantages

**Module V: Design for Abnormal Loads- 3 Weeks**

Progressive collapse – Code provisions – Equivalent design loads for considering abnormal effects such as earthquakes, cyclones, etc., – Importance of avoidance of progressive collapse.

*Examination Scheme:*

Components	A	CE	CT	EE
Weightage (%)	05	25	20	50

*Text Books /Reference Books/Journals/Other Study Material:*

- CBRI, (1990) Building materials and components, India,
- Gerostiza C.Z., Hendrikson C. and Rehat D.R. (1994), “Knowledge based process planning for construction and manufacturing”, Academic Press Inc.
- Koncz T. (1976)., “Manual of precast concrete construction”, Vol. I, II and III, Bauverlag, GMBH.
- Netherland Betor Verlag, (2009) “Structural design manual”, Precast concrete connection details, Society for the studies in the use of precast concrete.

# BAR1011 VIRTUAL ARCHITECTURE

Course Code: BAR 1011 Credit Units: 02. L/2-T/0-P/0. Teaching hours: 02

## Course Objective:

- To familiarize students with recent trends that led to development of virtual architecture with development of virtual reality and simulation technology
- To train students in basic and advance softwares for architectural visualization

## Course Contents:

### **Module I: Introduction- 2 weeks**

Definition of virtual architecture, historic developments tracing influence of virtual reality and simulation technology on the contemporary architecture, advantages and disadvantages, major movements, key architects and architectural examples of this era.

### **Module II: Basic Modeling and Rendering- 2 weeks**

3D Cad Modeling, Wire frame, mesh, solid and superficial Management of the 3d scene, Poly-mesh modeling and for dividing surfaces, 3D animation, Basic surface materials, Elaboration of the image, direct analysis and experimentation of the most solid and fruitful techniques of modeling and of management of 3D geometries in the AutoCAD

### **Module III: Advanced Module- 3 weeks**

BIM- Parametric modeling, Management of the 3d scene, Exterior and interior lighting, studio setup, Advanced surface materials, Creation of 3d models starting from a photogrammetric relief, Photorealistic rendering, 3D vegetation – environment design, Grammar of the direction, Elaboration of the image, Video compositing, Storyboard, Video mounting, Video post-production, Color correction, Multiphases and animation, Visual effects, 3D spaces

### **Module IV: Advanced architectural visualization- 3 weeks**

Tools for photorealism, During the advanced module of the Masters, students will explore techniques of BIM technology, modeling inside the Revit software.

### **Module V: Project - 4 weeks**

Students will work on the research of the photorealism and of the quality of the image inside the 3DS Max software, also thanks to the addition of a V-Ray output engine: this is a couple that since many years is the real standard in many productive realities all around the world.

## Examination Scheme:

Components	A	CE	CT	EE
Weightage (%)	05	25	20	50

## Text Books /Reference Books/Journals/Other Study Material:

- Conway Lloyd Morgan, Giuliano Zampi, Virtual Architecture, 1995, McGraw-Hill Inc.,US Marta Jecu, Architecture and the Virtual, 2015, Intellect
- Don Cameron, Greg Regnier, The Virtual Interface Architecture, 2002, Intel Press
- Daniela Bertol, David Foell, Designing digital space: an architect's guide to virtual reality, 1997, Wiley
- Michael Beigl, Disappearing Architecture: From Real to Virtual to Quantum, 2005, Springer Science & Business Media