

## ARCHITECTURAL ASSISTANTSHIP (NEW SYLLABUS) 3<sup>rd</sup> SEMESTER

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### 1. Course Title–Computer Application & Programming (All Branches)

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1. **Course title: Computer Application & Programming**

2: **Course Code –Co-301**

3: **Semester- 3<sup>rd</sup>**

4: **Aim of the Course :**

- To give basic concepts related to organisation of a computer
- To give fundamental terminologies in networking
- To develop simple programs in C.

5: **Course Outcome:**

On completion of the course students will be able to:

- Explain the basics of a computer hardware and software
- Solve problems related to number systems
- Define basics of Operating System
- Familiarize with networking components
- Write simple C programs.

6: **Prerequisites for the Course:** Have basic idea about a computer and its functions.

7: Teaching Scheme (in hours):Teaching Scheme			
L	T	P	Total hours per week
3	0	3	6

8: **ExaminationScheme :**

	Theory (T)	Sessional (TS)	Practical (P)	Practical Sessional (PS)
Full Marks	70	30	25	25
Pass Marks	33		17	

**9: Detailed Course Content:**

Unit	Topic/Sub-Topics	Intended Learning Outcome	Hours
<b>1</b>	<b>Computer Architecture:</b> Brief history, Charles Babbage Machine, Von Neuman Architecture, block diagram, memory & its different types, I/O devices, Role of O.S., computer languages, translator software, editor. Data, different types of data, information and its characteristics	<ol style="list-style-type: none"> <li>1. Define a computer and identify its parts.</li> <li>2. Define computer memory &amp; describe its different types.</li> <li>3. Define computer languages &amp; translators.</li> <li>4. Describe the characteristics of information.</li> </ol>	<b>8</b>
<b>2</b>	<b>Number System and codes:</b> Different number system- decimal, binary, octal, hexadecimal number system, their conversion, 1's and 2's Complement, subtraction using complements. Different codes- ASCII, BCD, Ex-3, Gray. Conversion from Gray to binary and vice-versa, BCD addition.	<ol style="list-style-type: none"> <li>5. Define decimal, binary, octal &amp; hexadecimal number systems.</li> <li>6. Convert between different number systems.</li> <li>7. Define 1's &amp; 2's complements.</li> <li>8. Subtract using 1's &amp; 2's complements.</li> <li>9. Describe some different codes.</li> </ol>	<b>8</b>
<b>3</b>	<b>Introduction to Operating System:</b> Definition, single user and multi-user OS, different function performs by OS, various popular OS like DOS, Windows, UNIX/LINUX. DOS and UNIX commands.	<ol style="list-style-type: none"> <li>10. Define operating system.</li> <li>11. Operate different commands of DOS, Windows &amp; UNIX/LINUX</li> </ol>	<b>5</b>
<b>4</b>	<b>Computer Network and the Internet:</b> Definition, necessity of network, different types of network-LAN, MAN, WAN, network topology, transmission media, different network devices like NIC, hub, bridge, switch, gateway. Introduction to the internet, Internet services, browser, search engine.	<ol style="list-style-type: none"> <li>12. Define network.</li> <li>13. Describe different types of network.</li> <li>14. Define network topology.</li> <li>15. Describe different network devices.</li> <li>16. Define internet &amp; describe different internet services.</li> <li>17. Explain use of different browsers &amp; search engines.</li> </ol>	<b>6</b>



Unit	Topic/Sub-Topics	Intended Learning Outcome	Hours
5	<b>Introduction to C programming:</b> Fundamentals of programming, Basic structure of C programs, Executing a C program, Constants, Variables, and data types. Operators and expression, Input Output function like printf, scanf, getchar, putchar, gets, puts, Decision making and branching using IF..Else, Switch, looping using for, while, and do-while, array.	18. Define basic terminology of C language. 19. Write small program using C language. 20. Write diversified solutions using C language. 21. Differentiate between IF..Else and Switch statement.	15
	<b>Internal Assessment</b>		3

**10: Distribution of Marks:**

Unit	Topic	Type of Question			Total Marks
		Objective	Short	Descriptive	
1	Computer Architecture	6	5	5	16
2	Number System and codes	4	2	8	14
3	Introduction to Operating System	4	2	4	10
4	Computer Network and the Internet	5	3	6	14
5	Introduction to C programming	6	3	7	16
		25	15	30	70

**11: Table of specification :**

Unit	Topics (a)	Time allotted in hours (b)	Percentage Weightage (c)	K	C	A	HA
1	Computer Architecture	8	19	✓			
2	Number Systems & Codes	8	19	✓		✓	
3	Introduction to Operating Systems	5	12	✓			
4	Computer Network & the Internet	6	15	✓		✓	
5	Introduction to C Programming	15	35	✓		✓	
	<b>Total</b>	Σ b=42	100				



K = Knowledge C = Comprehension A = Application HA = Higher Than Application (Analysis, Synthesis, Evaluation)

$$c = \frac{b}{\Sigma b} * 100$$

### Detailed Table of Specifications

Unit	Topics	Objective				Short					Descriptive				
		K	C	A	T	K	C	A	HA	T	K	C	A	HA	T
1	Computer Architecture	7			7	5				5	4				4
2	Number Systems & Codes	4			4	2				2	4		4		8
3	Introduction to Operating Systems	4			4	2				2	4				4
4	Computer Network & the Internet	5			5	3				3	3		4		7
5	Introduction to C Programming	5			5	3				3	3		4		7
<b>Total</b>		25			25	15				15	18		12		30

K = Knowledge C = Comprehension A = Application HA = Higher Than Application T = Total

#### 10. Intellectual Skills :

- Logical reasoning
- Relating programming concepts in problem solving

#### 11. Motor Skills :

- Learn to use and handle a computer and its peripherals.

#### List of Lab Exercises :

##### I. Basic commands for computer system maintenance.

##### II. Preparation of Documents

Introduction to Word processing, Opening a document, preparing documents, inserting diagrams and tables, Editing document- (a) Character, word and line editing, (b) Margin Setting, Paragraph alignment, (c) Block Operations, (d) Spell Checker, (e) Saving a document, (f) Mailmerge.

##### III. Information Presentation through Spread Sheet

Application of Spread Sheet, Structure of spreadsheets, Preparing table for simple data and numeric operations, Using formulae and functions in excel operations, Creation of graphs, Pie charts, bar charts.

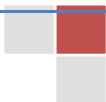
**IV. Preparation of presentation**

Creation of electronic slides on any topic, Practice of animation effect, presentation of slides.

**V. Programming in C**

Editing a C program, defining variables and assigning values to variables Arithmetic and relational operators, arithmetic expressions and their evaluation Practice on in iput/output function like getchar, putchar, gets, puts, scanf, printf etc. Programming exercise on simple if statement, If..else statement, switch statement Programming exercise on looping with do-while, while, for loop and array.

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## 2. Course Title– Architectural Delineation (Model and Photography)

**1. Course Title : Architectural Delineation (Model and Photography)**

**2. Course Code: AA-305**

**3. Semester: 3<sup>rd</sup>**

**4. Rationale of the Subject/ Courses:**

Photography course covers the different types of camera and its parts. It also covers the principles of lighting and composition techniques to produce quality pictures of buildings and structures, nature, etc.

**Course outcome:**

On completion of the course on Model Making and Photography, student will be able to

- CO<sub>1</sub>= List different type of cameras and its accessories.
- CO<sub>2</sub>= State the principles of lighting and exposure to control light for producing quality pictures.
- CO<sub>3</sub>= Apply the principles of composition to produce pictures of buildings and structures, nature, landscapes etc.
- CO<sub>4</sub>= Apply computer software for adapting and recreating photographs.
- CO<sub>5</sub>= Construct models out of materials like paper, board etc.
- CO<sub>6</sub>= Prepare architectural models for visualization of the architect and client.

**5. Teaching and Examination Scheme:**

Study Scheme (Contact Hours)			Evaluation Scheme							Total Marks (Theory + Practical)	Credit	
			Theory				Practical					
L	T	P	ESE	Sessional (SS)			Pass (ESE + SS)	Practical Test (PT) #	Practical Asses sment (PA) @	Pass (PT+PA )		
				TA	HA	Total (TA+ HA)						
1	0	3						50	50	33/100	100	2.5



## 6. Detailed Course Content

## PART-A (PHOTOGRAPHY)

Chapter	Contents	ILO	Hrs.
1	<b>CAMERAS AND ITS PARTS:</b> 1.1 Cameras and its parts. 1.2 Aperture. 1.3 Shutter Speed. 1.4 ISO. 1.5 Different Types of Modes. 1.6 Internal Flash. 1.7 Accessories.	1. List different types of cameras and its accessories. 2. Define aperture, shutter speed, ISO, Modes, tripod, etc.	5
2	<b>LENSES AND FILTERS:</b> 2.1 Lenses. 2.2 Filters. 2.3 Depth of Field.	1. Explain different types of lenses and filters used in photography. 2. Define Depth of Field and the factors that affect Depth of Field.	5
3	<b>COMPOSITION:</b> 3.1 Composition Techniques. 3.2 Shot Types. 3.3 Camera Angles. 3.4 Basic Camera Moves.	1. Explain different types of composition techniques. 2. Explain different type of camera shots, camera angles.	5
4	<b>LIGHTS AND LIGHTING TECHNIQUES:</b> 4.1 Natural and Artificial Light. 4.2 Primary Color and Complementary Color. 4.3 White balance. 4.4 Color Temperature. 4.5 Lighting Techniques.	1. State natural and artificial light. 2. Explain primary color, complementary color, white balance, color temperature. 3. State different types of lighting techniques.	5

<b>5</b>	<b>SOFTWARE AND IMAGE MANIPULATION:</b> 5.1 Scanning. 5.2 File Formats. 5.3 Image Manipulation Software.	1. Define scanning. 2. Explain various types of image formats.	<b>5</b>
<b>6</b>	<b>SPECIALIZATION:</b> 6.1 Architecture. 6.2 Landscapes. 6.3 Nature and close-ups.	1. Learn about the principles of composition to produce pictures of buildings and structures, nature, landscapes etc.	<b>5</b>

**PART-B (MODEL MAKING)**

<b>Chapter</b>	<b>Contents</b>	<b>ILO</b>	<b>Hrs.</b>
<b>1</b>	<b>NEED FOR MODEL MAKING IN THE PROFESSIONAL FIELD OF ARCHITECTURE.</b>		<b>1</b>
<b>2</b>	<b>SCALES AND PROPORTIONS FOR MODEL MAKING.</b>		<b>1</b>
<b>3</b>	<b>MATERIALS USED FOR MODEL MAKING.</b>		<b>1</b>
<b>4</b>	<b>ASSIGNMENTS:</b> 4.1 Preparation of geometrical forms. 4.2 Preparation of base of a campus/individual building. 4.3 Preparation of landscape around the building. 4.4 Preparation of contours. 4.5 Preparation of model of the residence designed by the students in this semester.		<b>27</b>

## Reference Book:

1. The Question and Answer Guide to Photo Technique-Lee Frost.
2. The Digital Photography's Guide to Exposure-Peter Cope.

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### 3. Course Title: Architectural Design & Presentation-I

**1. Course Title: Architectural Design & Presentation-I**

**2. Course Code: AA-304**

**3. Semester: 3<sup>rd</sup>**

**4. Rationale of the Subject/ Courses:**

Architectural Design & Presentation-I is a subject which deals with planning & designing of buildings and presenting the design in the form of two dimensional & three dimensional drawings.

**Course outcome:**

On completion of the course on Architecture Design & Presentation-I, student will be able to

- CO<sub>1</sub>= Identify the space requirements for different income groups.
- CO<sub>2</sub>= Compare the difference in construction techniques of R.C.C and Assam Type Housing.
- CO<sub>3</sub>= Collect relevant data and draw up the requirements leading to the process of design.
- CO<sub>4</sub>= Synthesize climatic factors into house design.
- CO<sub>5</sub>= Prepare the drawings required to express a design, drawn to an appropriate scale.
- CO<sub>6</sub>= Sketch three dimensional views / artistic impressions rendered in colour.

**5. Teaching and Examination Scheme:**

Study Scheme (Contact Hours)			Evaluation Scheme								Total Marks (Theory +Practical)	Credit
			Theory					Practical				
L	T	P	ESE	Sessional (SS)			Pass (ESE + SS)	Practical Test (PT) #	Practical Asses sment (PA) @	Pass (PT+PA )		
				TA	HA	Total (TA+ HA)						
6	0	3	100	33	67	100	66/200				200	7.5



## 6. Detailed Course Content

Chapter	Contents	ILO	Hrs.
1	<p><b>GROUP-A</b></p> <p><b>STUDY OFF THE GENERAL PRINCIPLE OF ARCHITECTURAL DESIGN:</b></p> <p>1.1 Understanding the requirements of various families lower income, middle income and higher income groups.</p> <p>1.2 Working out the difference in construction of Assam type houses and RCC building.</p>	<p>1. Recognize the need for different home designs for families from different income groups.</p> <p>2. Devise the space requirements for LIG, MIG and HIG housing.</p> <p>3. List out the differences between Assam Type Housing and R.C.C. buildings.</p>	
2	<p><b>THE CONCEPT OF HOUSE PLANNING:</b></p> <p>2.1 Working out of Requirements-and collection of data.</p> <p>2.2Evolving a circulation drawing.</p> <p>2.3Climatic consideration in design.</p>	<p>1. List the requirements for the design of a Residential House.</p> <p>2. Select the data required for the designs of a two bed room residential house.</p> <p>3. Prepare a bubble diagram illustrating the circulation between the different spaces.</p> <p>4. Organize the spaces by integrating climatic factors, site orientation and space function as essential parameters of a design exercise.</p> <p>5. Assess whether the above special arrangement is functional in nature whilst complying with the proposed area requirements and site limitations.</p>	
3	<p><b>STUDIO/TERM WORK:</b></p> <p>3.1 Design of a two bed room Assam type residential house after</p> <p>3.2 Study of 1.1 to 2.3 preparation of drawing with plan, Elevation and section of the designed</p>	<p>1. Develop the circulation / bubble diagram keeping climatic factors in mind.</p> <p>2. Draw a plan of the house to an appropriate scale keeping climatic factors in mind.</p>	



	house and site plan to suitable scale. 3.3 Design of R.C.C. residential house after study of 1.0 to preparation of all drawing with plan elevation and section and site plan to a suitable scale of the designed house.	3. Draw the elevation(front and side) of the design projected from the above plane to a suitable scale. 4. Draw a section of the above design to a suitable scale. 5. Draw a site plan to a suitable scale.	
4	<b>GROUP-B</b> <b>RENDERING TECHNIQUES:</b> 4.1 Draw a three dimensional artistic impression of the R.C.C. or Assam Type house design by you (in the group A of assignment). Show trees human figure etc at the surrounding. 4.2 Render the above drawings in colour.	1. Sketch a three dimensional view of the house that has been designed. 2. Sketch trees and human figures around the house. 3. Paint with water colours or use colour pencils to render the above drawing.	

Assignments: Submit the term work in the form of an album.

buildings in water colour ink and pencil.

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#### 7. TABLE OF SPECIFICATIONS for ARCHITECTURE DESIGN & PRESENTATION-I

Sl. No.	Topic (a)	Time allotted in hours (b)	Percentage Weightage (c)	Knowledge	Comprehension	Application	HA
1	<u>Group-A</u> Study off the general principle of architectural design	20	14.8	5	5	10	0
2	The concept of house planning	7	5.4	1	1	5	0
3	Studio/term work	88	65	12	10	66	0



4	<u>Group-B</u> Rendering techniques	20	14.8	5	5	10	0
	TOTAL	135	100	23	21	91	0

K=Knowledge, C=Comprehension, A=Application, HA=Higher Than Application(Analysis, Synthesis, Evaluation),

$$C = \frac{b}{\sum b} \times 100$$

### 8. Distribution of Marks:

#### Detailed Table of Specifications for Architecture Design & Presentation-I

Sl. No.	Topic	Objective Type				Short Answer Type					Essay Type					Grand Total
		K	C	A	T	K	C	A	HA	T	K	C	A	HA	T	
1	<u>Group-A</u> Study off the general principle of architectural design	7	4	4	15	0	0	0	0	0	0	0	0	0	0	15
2	The concept of house planning	3	1	1	5	0	0	0	0	0	0	0	0	0	0	5
3	Studio/term work	0	0	0	0	0	0	0	0	0	30	10	20	5	65	65
4	<u>Group-B</u> Rendering techniques	2	1	2	5	4	3	3	0	10	0	0	0	0	0	15
	Total	12	6	7	25	4	3	3	0	10	30	10	20	5	65	100

K=Knowledge C=Comprehension A=Application HA=Higher Than Application T=Total

9. Suggested Implementation Strategies:

10. Suggested Learning Resource:

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## 4 Course Title: Environmental Studies

**1. Course Title : Environmental Studies**

**2. Course Code: AA/MOM-301**

**3. Semester: 3<sup>rd</sup>**

**4. Rationale of the Subject/ Courses:**

To built our environment and shelter, we must be acquainted with nature and our surroundings. We must built in harmony with nature. The study of the environment will sensitize the students to design conforming to nature as far as practical.

**Course outcome:**

On completion of the course on Environmental Studies, student will be able to

- CO<sub>1</sub>= Explain the need for environmental control.
- CO<sub>2</sub>= Describe types of environmental pollution.
- CO<sub>3</sub>= State natural resources.
- CO<sub>4</sub>= Explain urban environmental problems.
- CO<sub>5</sub>= Identify importance of conservation of habitat.

**5. Teaching and Examination Scheme:**

Study Scheme (Contact Hours)			Evaluation Scheme								Total Marks (Theory +Practic al)	Credit
			Theory					Practical				
L	T	P	ESE	Sessional (SS)			Pass (ESE + SS)	Practi cal Test (PT) #	Practi cal Asses sment (PA) @	Pass (PT+PA )		
				TA	HA	Total (TA+ HA)						
3	0	0	70	10	20	30	33/100				100	3



## 6. Detailed Course Content

Chapter	Contents	ILO	Hrs.
1	<p><b>NATURAL RESOURCES:</b></p> <p>Renewable and non-renewable resources: Multi-disciplinary Nature of Environmental Studies Natural resources and associated problems.</p> <p>1.1 Forest Resources : Use and Over-exploitation, deforestation.</p> <p>1.2 Water resources :Use and over-utilization of surface and ground water, floods, drought, conflict over water, dams-benefits and problems.</p> <p>1.3 Mineral resources :Use and exploitation, environmental effects of extracting and using mineral resources, case studies.</p> <p>1.4 Food resources :World food problems, changes caused by agriculture and overgrazing, effects of modern agriculture, fertilizer, pesticides problems, water logging, salinity, case studies.</p> <p>1.5 Energy resources :Growing energy needs, renewable and non-renewable energy sources, use of alternate energy sources, case studies.</p> <p>1.6 Land resources : Land as a resource, land degradation, man induced landslides, soil erosion and desertification.</p>		
2	<p><b>ENVIRONMENTAL POLLUTION AT GLOBAL LEVEL - CAUSES, EFFECTS &amp; CONTROL MEASURES:</b></p> <p>2.1 Air, water, soil, marine, noise and thermal pollution.</p> <p>2.2 Nuclear hazards.</p> <p>2.3 Disaster management: floods, earthquakes, cyclones and landslides.</p>		



<b>3</b>	<b>URBAN ENVIRONMENTAL PROBLEMS:</b> 3.1 Water conservation - rain water harvesting. 3.2 Urban waste management. 3.3 Soil erosion, landslides, and water logging. 3.4 Noise, air, soil and thermal pollution. 3.5 Case studies and field survey.		
<b>4</b>	<b>HABITAT AND ITS CONSERVATION:</b> 4.1 Introduction-Definition. 4.2 Biodiversity at global, national and local levels. 4.3 Threats of biodiversity: habitat loss, poaching of wildlife, man-wildlife conflicts. 4.4 Endangered and endemic species of India.		

## 7. TABLE OF SPECIFICATIONS for Environmental Studies.

Sl. No.	Topic (a)	Time allotted in hours (b)	Percentage Weightage (c)	Knowledge	Comprehension	Application	HA
1	Natural Resources	14	31.12	0	0	0	0
2	Environmental pollution at global level - causes, effects & control measures	11	24.44	0	0	0	0
3	Urban environmental problems	11	24.44	0	0	0	0
4	Habitat and its conservation	9	20	0	0	0	0
	<b>TOTAL</b>	<b>45</b>	<b>100</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

K=Knowledge, C=Comprehension, A=Application, HA=Higher Than Application (Analysis, Synthesis, Evaluation),  $C = \frac{b}{\sum b} \times 100$

### 8. Distribution of Marks:

**Detailed Table of Specifications for Environmental Studies**

Sl. No.	Topic	Objective Type				Short Answer Type					Essay Type					Grand Total
		K	C	A	T	K	C	A	HA	T	K	C	A	HA	T	
1	Natural resources	6	2	0	8	2	2	0	0	4	8	0	0	0	8	20
2	Environmental pollution at global level - causes, effects & control measures	6	0	0	6	2	0	0	0	2	7	0	0	0	7	15
3	Urban environmental problems	5	0	0	6	2	2	2	0	6	8	0	0	0	8	20
4	Habitat and its conservation	5	0	0	5	3	0	0	0	3	7	0	0	0	7	15
	Total	22	3	0	25	9	4	2	0	15	30	0	0	0	30	70

K=Knowledge C=Comprehension A=Application HA=Higher Than Application T=Total

9. Suggested Implementation Strategies:

10. Suggested Learning Resource:

### Reference Books:

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## 5. Course Title: Building Materials-I

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1. **Course Title : Building Materials-I**
2. **Course Code: AA-303**
3. **Semester: 3<sup>rd</sup>**
4. **Rationale of the Subject/ Courses:**

### **RATIONALE**

Diploma holder in Architectural Assistantship are expected to prepare working drawings of buildings. Knowledge of building materials is very from the point of construction for providing detailed specifications in the detailed working drawings. The course in building materials includes imparting Basic Knowledge in the proprieties and use of the important materials like stones bricks, lime. Cement, paints, timber, exterior and interior finishes, glass plastics building hardware, roofing materials, additives and admixtures, adhesives etc.

Teachers are expected to show the samples of different materials, discuss their properties with particular reference to their use and situations depending upon climate and environmental conditions of the site. Students should be encouraged to collect samples of various materials and efforts should be made to maintain a good building materials store.

### **Course Outcome:**

After completion of the course on Building Materials-I, students will be able to:

- CO<sub>1</sub> = Illustrate different building materials and their suitability for various climatic conditions.
- CO<sub>2</sub> =Classify various building stones and bricks.
- CO<sub>3</sub> =Explain the sources and application of sand, lime and aggregate.
- CO<sub>4</sub> =Explain the characteristics ofcommon timber and their defects.
- CO<sub>5</sub> =Explain different grades of concrete and their allied areas.
- CO<sub>6</sub> =Illustratethe application alloys, metals and bituminous materials.



**5. Teaching and Examination Scheme:**

Study Scheme (Contact Hours)			Evaluation Scheme									Total Marks (Theory +Practic al)	Credit
			Theory					Practical					
L	T	P	ESE	Sessional (SS)			Pass (ESE + SS)	Practi cal Test (PT) #	Practi cal Asses sment (PA) @	Pass (PT+PA )			
				TA	HA	Total (TA+ HA)							
3	0	1	70	10	20	100	33/100				100	3.5	

**6. Detailed Course Content:**

Chapter	Contents	ILO	Hrs.
<b>1</b>	<p><b>INTRODUCTION TO VARIOUS BUILDING MATERIALS AND THEIR USES IN CONSTRUCTION:</b></p> <p><b>BUILDING STONES:</b></p> <p>1.1 Utility of stones.</p> <p>1.2 Selection of stones for different building stones.</p> <p>1.3 Characteristics of good building stones.</p> <p>1.4 Dressing of stones and polishing of stones.</p> <p>1.5 Granite Basalt Sandstone, Lime-stone, Slate and Marble.</p>		
<b>2</b>	<p><b>BRICKS:</b></p> <p>2.1 Classification of bricks-properties and uses of first, second class, third class and over burnt bricks.</p> <p>2.2 Brick making, composition of bricks earth moulding, drying, burning in different kilns.</p> <p>2.3 Testing, sizes and weight of traditional and metric bricks.</p> <p>2.4 Uses of bricks bats, surkhi, hollow, perforated and fire bricks.</p>		



3	<p><b>SAND:</b></p> <p>3.1 Sources and classification of sand.</p> <p>3.2 Grading of sand for plaster masonry, R.C.C works and other uses as per I.S. code.</p>		
4	<p><b>TIMBER:</b></p> <p>4.1 Characteristics and uses of common timbers i.e Sal Hollock, Pine, Bonsom and Titachap.</p> <p>4.2 Defects in timber.</p> <p>4.3 Seasoning, Preservation and treatment of timber.</p> <p>4.4 Ply wood and uses.</p>		
5	<p><b>ELEMENTARY BUILDING MATERIALS OF THE NORTH EASTERN REGION:</b></p> <p>5.1 Bamboo, Ekra and Thatch.</p>		
6	<p><b>LIME:</b></p> <p>6.1 Types of lime, properties and uses of lime</p>		
7	<p><b>CEMENT:</b></p> <p>7.1 Uses of cement.</p> <p>7.2 Composition of Portland cement.</p> <p>7.3 Setting and hardening of cement.</p> <p>7.4 Types of cement, their properties and uses (OPC, White, Rapid hardening cement)</p>		
8	<p><b>AGGREGATES:</b></p> <p>8.1 Coarse Aggregates.</p> <p>8.2 Fine Aggregates.</p>		
9	<p><b>CONCRETE:</b></p> <p>9.1 Definition of concrete, workability of concrete.</p> <p>9.2 Curing of concrete.</p>		



	9.3 R.C.C, M15, M20. 9.4 Introduction to Ready Mix Concrete (RMC) and light weight concrete.		
<b>10</b>	<b>ALLOYS AND METALS:</b> 10.1 Aluminium, Copper, Lead, UPVC.		
<b>11</b>	<b>BITUMINOUS MATERIALS:</b> 11.1 Uses of Tar, Bitumen and Asphalt.		

### Building Materials - I

#### 8. Distribution of Marks

Chapter No.	Chapter Title	Type of question			Total Marks
		Objective Type (Compulsory)	Short Question	Descriptive Question	
1	Building Stones	1x1=1	2x1=2	4x1=4	7
2	Bricks	1x1=1	2x1=2	4x1=4	7
3	Sand	1x1=1	2x1=2	4	7
4	Timber	1x1=1	2x1=2	4x1=4	7
5	Elementary Building materials of the North Eastern region	0	0	4x1=4	4
6	Lime	0	2x1=2	4x1=4	6
7	Cement	1x1=1	0	5x1=5	6
8	Aggregates	1x1=1	2x1=2	4x1=4	7
9	Concrete	0	2x1=2	4x1=4	6
10	Alloy and Metals	0	2x1=2	4x1=4	6
11	Bituminous Materials	1x1=1	2x1=2	4x1=4	7
<b>Total</b>					<b>70</b>



**Table of Specification**

Sr. no.	Topic	OBJECTIVE TYPE				SHORT ANSWAR TYPE					ESSAY TYPE			GT		
		K	C	A	T	K	C	A	HA	T	K	C	A	HA	T	
1.	Building Stones	1	0	0	1	2	0	0	0	2	0	4	0	0	4	7
2.	Bricks	1	0	0	1	2	0	2	0	2	0	4	0	0	4	7
3.	Sand	0	1	0	1	0	2	0	0	2	0	0	4	0	0	7
4.	Timber	1	0	0	1	2	0	0	0	2	0	4	0	0	5	7
5.	Elementary Building materials of the North Eastern region	0	0	0	0	0	0	0	0	0	0	0	4	0	4	4
6.	Lime	0	0	0	0	2	0	0	0	2	0	0	4	0	0	6
7.	Cement	1	0	0	1	0	0	0	0	0	0	4	5	0	4	6
8.	Aggregates	0	1	0	1	0	0	2	0	2	4	0	0	0	0	7
9.	Concrete	0	0	0	0	2	0	0	0	2	0	4	0	0	4	6
10.	Alloy and Metals	0	0	0	0	2	0	2	0	2	0	4	0	0	0	6
11.	Bituminous Materials	1	0	0	1	0	2	0	0	2	4	0	0	0	0	7
<b>Total</b>																70

**Annexure -I****TABLE OF SPECIFICATIONS FOR THEORY****Building Materials - I**

Sr. No.	Topic (a)	Time allotted in hours (b)	Percentage Weightage (c)	Modified Percentage Weightage (d)	K	C	A	HA
1.	Building Stones	6 hrs.	9.37%		✓	✓		
2.	Bricks	6 hrs.	9.37%		✓	✓		
3.	Sand	6 hrs.	9.37%			✓	✓	

4	Timber	6 hrs.	9.37%		✓	✓		
5	Elementary Building materials of the North Eastern region	2 hrs.	3.12%		✓		✓	
6	Lime	6 hrs.	9.37%		✓	✓		
7	Cement	7 hrs.	10.93%		✓	✓		
8	Aggregates	6 hrs.	9.37%		✓	✓		
9	Concrete	7 hrs.	10.93%		✓	✓		
10	Alloy and Metals	6 hrs.	9.37%			✓	✓	
11	Bituminous Materials	6 hrs.	9.37%		✓	✓		
<b>Total</b>		Σb=64 hrs.	100%					

K=Knowledge, C=Comprehension, A=Application, HA=Higher Than Application (Analysis, Synthesis, Evaluation),  $C = \frac{b}{\Sigma b} \times 100$

#### Recommended Books:

- 1) Sharma, SK; and Mathur, GC; "Engineering Materials;" Delhi- Jalandhar, S.Chand and Co.
- 2) Surendra Singh; "Engineering Materials; "New Delhi, Vikas Publishing House Pvt. Ltd.
- 3) Choudhary, N; "Engineering Materials; "Calcutta, Technical Publishers of India.
- 4) Bahl, SK; "Engineering Materials; "Delhi Rainbow Book Co. New Delhi
- 5) Kulkarni, GJ; "Engineering Materials; "Ahmedabad , Ahmedabad Book Depot.
- 6) Shahane; Engineering Materials; Poona, Allied Book Stall.

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## 6. Course Title: Building Construction Drawing-I

1. **Course Code:** AA-302
2. **Semester:** 3<sup>rd</sup>
3. **Rationale of the Subject/ Courses:**

The overall intent is to acquire knowledge of various construction details and methods with available building materials and technology related to them. Diploma holder in Architectural Assistantship students are expected to prepare construction drawings and details of buildings. Teachers are expected to lay considerable stress on construction drawings so that students attain desired competencies for producing good quality construction drawings.

### Course Outcome:

After completion of the course on Building Construction Drawing-I, students will be able to:

- CO<sub>1</sub> = Describe building construction drawings and details of a building.
- CO<sub>2</sub> = Apply knowledge of building construction by preparing drawings for project sites.
- CO<sub>3</sub> = Prepare detail construction drawings of a double storied building.
- CO<sub>4</sub> = Prepare drawings of stone masonry and brick masonry work.
- CO<sub>5</sub> = Prepare wooden and aluminum door and window details.
- CO<sub>6</sub> = Illustrate R.C.C form work and details of footing, column and slab.

### Teaching and Examination Scheme:

Study Scheme (Contact Hours)			Evaluation Scheme								Total Marks (Theory +Practical)	Credit
			Theory					Practical				
L	T	P	ESE	Sessional (SS)			Pass (ESE + SS)	Practical Test (PT) #	Practical Asses sment (PA) @	Pass (PT+PA )		
				TA	HA	Total (TA+ HA)						
4	0	3	100	33	67	100	66/200				200	5.5



**4. Detailed Course Content:**

Chapter	Contents	ILO	Hrs.
<b>1</b>	<b>BRICK MASONRY (SCALE DRAWING):</b> 1.1 Bonds in brick works		
<b>2</b>	<b>STONE MASONRY (SCALE DRAWING):</b> 2.1 Rubble masonry. 2.2 Retaining Wall (Rubble). 2.3 Stone Arches (in sketch form).		
<b>3</b>	<b>WOODEN DOORS (SCALE DRAWING):</b> 3.1 Types : Batten door , paneled door, flush door and ledged door showing joints and fixtures.		
<b>4</b>	<b>WINDOWS AND VENTILATORS (SCALE DRAWING):</b> 4.1 Wooden windows and ventilators. 4.2 Aluminium windows and ventilators.		
<b>5</b>	<b>SECTION OF DOUBLE STORIED BUILDING (SCALE DRAWING):</b> 5.1 Section of double storied Building through toilet and staircase showing necessary details of foundation, floor, window, lintel, chajja, R.C.C. roof, terrace and parapet.		
<b>6</b>	<b>R.C.C FORM WORK AND ITS DETAIL (SKETCH ONLY):</b> 6.1 Isolated Footing. 6.2 Column ( square and circular). 6.3 Slab.		

**Assignments :** Preparation and submission of an album with aforesaid drawings.





## 6. TABLE OF SPECIFICATIONS for Building Construction Drawing-I.

Sl. No.	Topic (a)	Time allotted in hours (b)	Percentage Weightage (c)	Knowledge	Comprehension	Application	HA
1	Brick masonry	18 hrs	16%		✓		
2	Stone Masonry	18 hrs	16%		✓	✓	
3	Wooden Doors	20 hrs	17.85%		✓	✓	
4	Windows and ventilators	20 hrs	17.85%		✓	✓	
5	Section of double storied building	18 hrs	16%		✓	✓	
6	R.C.C. form work and its detail	18 hrs	16%		✓	✓	
	TOTAL	112	100				

K=Knowledge, C=Comprehension, A=Application, HA=Higher Than Application (Analysis, Synthesis, Evaluation),  $C = \frac{b}{\sum b} \times 100$

## 7. Distribution of Marks:

## Detailed Table of Specifications for Building Construction Drawing-I

Sl. No.	Topic	Objective Type				Short Answer Type					Essay Type (Design & Drawing)					Grand Total
		K	C	A	T	K	C	A	HA	T	K	C	A	HA	T	
1	Brick masonry	1	0	1	2	2	2	2	0	6	0	0	4	0	4	12
2	Stone Masonry	1	1	0	2	2	2	2	0	6	0	4	0	0	4	12
3	Wooden Doors	0	0	0	0	2	2	2	0	6	4	4	4	0	12	18
4	Windows and ventilators	0	0	0	0	2	2	2	0	6	4	4	4	0	12	18
5	Section of double storied building	0	0	0	0	2	0	2	0	4	5	5	6	0	16	20



6	R.C.C. form work and its detail	1	0	0	1	2	2	0	0	4	5	5	5	0	15	20
	Total	3	1	1	5	12	10	10	0	32	18	22	23	0	63	100

K=Knowledge

C=Comprehension

A=Application

HA=Higher Than Application

T=Total

8. Suggested Implementation Strategies:

9. Suggested Learning Resource:

**Recommended Books:**

- 1) Sushil Kumar, Building construction Engineering .
- 2) Gurcharan Singh, Building Construction Engineering
- 3) Building construction W. B. Mackey ( volume- I,II, III,IV)

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## 7. Course Title: Professional Practice-I

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**1. Course Title : PROFESSINAL PRACTICE-I**

**2. Course Code: AA-310**

**3. Semester: 3<sup>rd</sup>**

**4. Rationale of the Subject/ Courses:**

To develop general confidence, ability to communicate and attitude, in addition to basic technological concepts through Industrial visits, expert lectures, seminars on technical topics and group discussion.

### Professional Practice-I

On completion of this paper of this subject the student will be able to

CO<sub>1</sub> : Prepare a report and explain the sound construction practice and architectural drawings followed at the site visited.

CO<sub>2</sub> : Identify sources and collect informations on any topic (related to this paper ) and participate in discussions with professionals and experts in the relevant field. And present seminar on the same.

CO<sub>3</sub> : Interact and share their views with others and be able to list and take note by brain storming on any topic.

CO<sub>4</sub> : Prepare questionnaire on the site visited and list/ identify design short comings and strong points. Further, suggests and explain improvement and modifications in the design of the building.

**5. Teaching Scheme (In Hours):**

Lecturer	Tutorial	Practical	Total
1Hrs.	0Hr.	2Hrs.	3Hrs.



**6. Teaching and Examination Scheme:**

Study Scheme (Contact Hours)			Evaluation Scheme							Total Marks (Theory +Practic al)	Credit	
			Theory				Practical					
L	T	P	ESE	Sessional (SS)			Pass (ESE + SS)	Practi cal Test (PT) #	Practi cal Asses sment (PA) @	Pass (PT+PA )		
				TA	HA	Total (TA+ HA)						
0	0	2							50	16.5/50	50	1

**Activities****1. INDUSTRIAL VISITS:****10**

Structured industrial visits be arranged and report of the same should be submitted by the individual student, to form part of the term work.

Two Site Visits as hereunder:

- Building under construction (2 Site Visits)
- Or Visit a well designed complete building and one site visit of the above.

**2. GUEST LECTURE (S)****6**

Lectures by Professional / Industrial Expert / Student Seminars based on information search to be organized from the following areas:

- Pollution control.
- Fire Fighting / Safety Precautions and First aids.
- Topics related to Social Awareness such as - Traffic Control System, Career opportunities, Communication in Industry, Yoga Meditation, Aids awareness and health awareness, Stress and Stress Management.



3. GROUP DISCUSSION:

6

The students should discuss in a group of six to eight students and write a brief report on the same as a part of term work. Two topics for group discussions may be selected by the faculty members. Some of the suggested topics are -

- i. Sports
- ii. Current news items
- iii. Discipline and House Keeping
- iv. Local architecture of Assam

4. STUDENT ACTIVITIES:

8

The students in a group of 3 to 4 will perform any one of the following activities (others similar activities may be considered Activity :

- I. Prepare questionnaire on the site visits.
- II. List design shortcomings and strong points of the existing building which was taken for site visit.
- III. Suggest improvements/modification in the design of the building visited by the students.

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