

II - SEM

# STUDY AND EVALUATION SCHEME ARCH ASSTT 2013

## II SEMESTER

S n	Subject Code	Subject	Teaching Load			Evaluation Scheme				Total Marks
			L	T	P	Internal		External		
						Theory	Practical	Theory	Practical	
1	AA-230	Architectural Design I	2	-	8		100		100	200
2	AA-231	Building Construction I	2	-	6		50		100	150
3	AA-232	Art Appreciation & Graphics II	2	-	6		50		100	150
4	AA-233	Communication Techniques II	2	-	--	50		100		150
5	AA-234	Applied Mathematics II	3	2	--	50		100		150
6	AA-235	Applied Chemistry	2	-	--	50			100	150
7	AA-236	Introduction to Computers II	--	-	3		50			150
8	AA-238	Portfolio & Viva II				A Design 100, BC 50, AAG 50				200
9		Outdoor/ Library Exposure	13	2	25					1300

Portfolio & Viva will be jointly conducted by internal and external examiners and will consist of equal weightage of portfolio and viva in each subject

Objective : To make students aware of the proportions and dimensions of the human body and their impact on architectural design and detailing. Through practical, hands on activities, students will learn to estimate the area requirements for various spaces in conjunction with the postures, occupancy, furniture, circulation, and functional and behavioural needs of people. Students will study the dimensions of various household items/ fixtures and learn to apply this knowledge while designing spaces, so that they are able to develop designs that are comfortable, functional and optimally use the resources and material. Students learn to think about human dimensions when individuals are in motion and learn to apply this knowledge in design of circulation within spaces.

1. Study of Anthropometrics, based on age / sex through the practical exercises done by the students in groups. The students should take measurements of each other in different posture- i.e. - standing heights, height while sitting, vertical reach of objects, horizontal reach of objects, eyelevel in standing and sitting postures, etc and also while doing various solo activities like carrying a tray, brushing teeth, etc. The students must be able to appreciate the value of applying this knowledge in architectural designing and detailing.
2. Study of spaces for different human activities based on practical exercises- For example- sitting informally in groups, sitting formally on sofa, working on a table, eating on a dining table etc
3. Circulation and its relation with design in building
4. Study of dimensions of various household fixtures /items for example washbasins, kitchen sinks, W.C., T.V., fridge, plates, glasses, storage boxes, suitcases, shirt while hanging, shirt while folded etc. The students must be able to appreciate the value of applying this knowledge in actual drawing and detailing.
5. Problem in composition of various 2D and 3D geometrical figures (square, triangle, circle, rectangle, pentagon, etc.) in different tones and textures
6. Preparation of plan and elevation from the models of various forms (compositions of prisms, cubes, cylinders etc using the principles of design)
7. Study of design and furniture layout of house units under fixed roofs such as living, dining, bedroom, kitchen, study room and toilets and their combinations.
8. Design of one bedroom house with garage, on ground floor preferably on grid and prefixed roof systems.
  - 8.1. Circulation analysis
  - 8.2. Presentation drawings:
    - Basic Site analysis – approach, surroundings, orientation and natural vegetation
    - Floor plan,
    - Elevations,
    - Sections,
    - Furniture layout
9. Two time problems on any simple topic such as house/ canteen/ bus stand.

## AA-231 BUILDING CONSTRUCTION I

L T P

Hours/week 2 - 6

	Theory	Drawing work
1.	Brick work and stone work	
1.1	Different sizes and types of bricks. Characteristics of a good brick	Drawing of different shapes and sizes of bricks( 1 sheet)
1.2	Wall thickness, T-junctions, Cross-junction. Introduction to different types of bonds (English, Flemish and Rat Trap Bond), their advantages and disadvantages.	Drawings of different bonds, T-junctions, cross junction in wall thickness given below (6 sheets) <ul style="list-style-type: none"><li>• Half Brick Wall</li><li>• One Brick Wall</li><li>• One and half Brick Wall</li></ul>
1.3	Brick jallies and reinforcement	Reinforced brick work and <i>jallies</i> in half & one brick wall, in both English & Flemish Bond (1 sheet)
1.4	Different stone facing. Characteristics and classification of stone masonry	Drawings of different type of stone facing (1 sheet).
2	Openings in walls	
2.1	Classification of arches as per finish, shape and material.	Drawings of lintels, arches of various materials in half brick& one brick walls (1 sheet).
3.	Damp Proof Course	
3.1	Explanation of DPC and reasons for use.	Drawings showing of Damp proof course in a horizontal and vertical brick wall and in basements (1 sheet).
3.2	Sources and effects of dampness.	
3.3	Classification as per hardness of material & BIS stipulations of damp proofing	
3.4	Treatment of building components for effective damp proofing.	
4.	Foundations	
4.1	Different types of foundations with reference to advantage of one over other.	Drawings of Foundation details for Wall foundation for normal and eccentric footing for internal and external walls. Foundation detail for brick pier Foundation detail for 300mmx 300mm RCC column foundation Toe Wall Foundation Veranda Steps Foundation. (2 sheets).
4.2	Brief knowledge of different types of foundations	

Note: Field visits should be organized to clarify concepts.



**Objective:** To develop the skills of students in thinking and composing in three dimension using the principles of design. To develop a nuanced understanding in students on how to create and appreciate art which is aesthetically pleasing. Students also need to develop advanced skills of perspective drawing and architectural rendering in order to present their compositions and develop an effective communication style with clients/end users through visuals and graphics.

### 1. Theory of perspective

- 1.1. Fundamentals, Dimension, fore shortening and convergence.
- 1.2. Reality and appearance.
- 1.3. Basis of perspective, cone of vision central visual ray, picture plane, line of sight through picture plane, spectator, vanishing points, eye levels.

2. Characteristics of perspective construction, determining vanishing points.
3. Relationship between station point (spectator) picture plane and perspective.
4. Two-Point perspective of a simple building with or without overhead roof (5 Sheets).
5. Comparative study of perspective of cubes and other solids like cylinders, prisms etc by changing eye levels and position of station point on side and in front of picture plane.
6. Perspective division of an area into area of equal sizes.
7. Two point perspective of a house (2 Sheets).
8. One point perspective, interior perspective (2 Sheets).
9. Perspective drawing using short cut methods (1 Sheet).
10. Sciography on plan, elevation and perspective of small buildings as per standard conventions( 3 Sheets)
11. Shades and shadow of rounded bodies, shadow of a circular opening (arch) projection and cantilevers (2Sheets).
12. Rendering of perspective in different mediums- inks/ colour/ charcoal and free hand perspective view (2 Sheets)

### 13. Elements of Design

Definition, examples and applications of the following:

- 13.1 Primary elements - Point, Line, Figure, Plane, Volume, Color
- 13.2 Composition – Shape, Size, Form, Function, Layout
- 13.3 Balance - Symmetry & stability, Formal and informal balance
- 13.4 Contrast - Light and shade, Nature and man-made
- 13.5 Rhythm in movement - Rhythm in nature, Manmade rhythm
- 13.6 Proportion
- 13.7 Scale - Intimate scale, Human scale, Monumental scale
- 13.8 Emphasis
- 13.9 Colour
  - 13.9.1 Colour chart- tints, tones, shades, warm and cool colours; complimentary and contrasting colours
  - 13.9.2 Colour variations
  - 13.9.3 Effect of colour on building

14. Composition exercises in 2D and 3D using principles of design through the use of simple materials

15. Time problem on composition exercises

**AA – 233 COMMUNICATION TECHNIQUES –II**

L T P

Hours / week 2 - -

**1. Precise and Comprehension (25%)**

1.1 Précis writing of simple passages selected from a pre-prescribed textbook. The selected passage should be of 100 to 150 words and easy to summarize. In order to test comprehension, a few questions on the passage may be set.

**1.2 Unseen Passages**

**2. Communication techniques (10%)**

- 2.1. Importance of Communication
- 2.2. One-way and two-ways Communication
- 2.3. Essentials of good Communication
- 2.4. Methods of Communication-oral, written and non-verbal.
- 2.5. Barriers of Communication
- 2.6. Techniques of overcoming barriers.
- 2.7. Concept of effective Communication

**3. Written Communication (50%)**

- 3.1. Formal letters
- 3.2. Informal letters
- 3.3. Notices
- 3.4. Advertisements
- 3.5. Invitations & Replies

**4. Technical report writing (15%)**

- Technical report writing from a given outline. A choice to attempt one out of three questions is to be given in the examination. The question paper shall provide the required outlines

**5. Practice of writing personal resume and applications for a job/ employment**

**6. Book Review (Not for Examination)**

**7. Practice of speaking English (Not for Examination)**

Student should present their drawings done in any subject to the entire class to develop public speaking confidence

AA-234 APPLIED MATHEMATICS – II

	L	T	P
Hours/Week	3	2	-

1. Algebra: (30%)

1.1 Mensuration - Area of plane figures:-

- Triangle,
- Rectangle,
- Circle,
- Parallelogram

1.2 Calculation of volume and surface area of a right rectangular prism,

- Pyramid
- Cylinder
- Cone
- Sphere and area of irregular figures.

1.3 Arithmetic and Geometrical Progression - Definition and simple problems.

2. Vector algebra: (25%)

- 2.1. Definition, notation and rectangular resolution of a vector.
- 2.2. Scalar vector products of two vectors only.
- 2.3. Simple problems related to work, moment and angular velocity.
- 2.4. Addition and subtraction of vectors.

3. Elementary Numerical Analysis: (25%)

Newton's forward and backward differences and shift operator, differences table, Newton's Gregory forward and backward interpolation formulae, Langrange's interpolation formulae.

4. Integral Calculus: (20%)

- 4.1. Indefinite integrals
- 4.2. Physical meaning of integration,
- 4.3. Integration as inverse process of differentiation,
- 4.4. Integration by substitution, by parts and by partial fraction.
- 4.5. Definite integrals - Evaluation of definite integral, simple problems of integrations,
- 4.6.  $\sin^n x \, dx$ ,  $\cos^n x \, dx$ ,  $\sin^n x \cos^n x \, dx$  (without proof),
- 4.7. Numerical integration by Simpson's rule.
- 4.8. Definition of differential equations
- 4.9. Formation of differential equation of first order and first degree.

**AA – 235 APPLIED CHEMISTRY**

L T P

Hours/Week 2 - -

1. Raw materials and admixtures used in the manufacture of copper, aluminium, iron and steel. Manufacturing process to be dealt in brief with flow diagrams.
2. Properties and uses of copper, aluminium iron and steel. Meaning of corrosion, prevention of corrosion by various methods.
3. Plastics-review of saturated and unsaturated hydrocarbons (Methane, ethane, ethylene acetylene and vinyl chloride, etc.), condensation and polymerization, thermosetting and thermoplastic, cold setting and hot setting. However, emphasis should be given to name of common varieties of plastics and their uses, adhesives and epoxy resins.
4. Refractors: Meaning of refractory material, general method of manufacturing of
  - i. Acid refractories
  - ii. Basic refractories
5. Paints and varnishes, drying oil, pigment, drier, thinner.



**1. Microsoft Excel (Latest version available)**

- **Getting Started**  
Spreadsheet terminology, exploring the Excel window, getting help, opening and navigating workbooks, closing workbooks.
- **Entering and Editing data**  
Creating workbooks, entering and editing labels and values, entering and editing formulas and saving & updating workbooks
- **Modifying a Worksheet**  
Moving and-copying data, moving and copying formulas, using absolute references and Inserting & deleting ranges
- **Using Functions**  
Entering functions, using AutoSum, using AVERAGE, MIN, and MAX
- **Formatting Worksheets**  
Formatting text, formatting rows and columns, number formatting using Format Painter and AutoFormat
- **Creating Charts**  
Chart basics, modifying charts,
- **Printing**  
Preparing to print, page Setup options, printing worksheets and charts

**2. Power Point****Introduction to Presentation Graphics**

- Open a blank presentation, insert text in it, add slides and saving it.
- Work with slide views, move around in a presentation, check spelling, print a presentation and apply a different template.
- Insert objects in a presentation
- Move, copy, duplicate and delete slides
- Work in outline view and create a summary slide

**Editing and Formatting Presentations**

- Select and align text in a presentation, enhance text appearance, and apply
- Slide colour schemes and backgrounds.
- Copy text formatting, move and copy text, adjust paragraph spacing.
- Create slide and title masters, work in slide master view, insert footer in
- Change text and bullets.
- Work with rulers and guides, use floating toolbars, create graphic objects,
- Work with auto shapes, group and ungroup objects and layer objects.
- Create a custom template and work with custom templates.
- Add an organization chart and use charts and tables in a presentation.

**Setting Up a Slide Show**

- Check slides for style and consistency, show a presentation, add transitions, Sound and timings.
- Work with animation and animation effects toolbar. Use the annotation feature.
- Create notes pages and handouts; work with notes master and handout master.
- Set up and run a presentation and create continuously running presentations.

**2 Practice of computer typing using a typing software****3 Typing an assignment and submission of prints using different architectural scales.**