

Subject Code	Subject Name	Period per Week		Credit
26151	Architectural Design-IV	T	P	C
		2	6	4

Rationale	Architectural design-iv course aims to make students understand how to consider impact of built environment while designing different types of public building. Main focus of the course is to enable students to get into the decision making process considering aspects of more center functional layouts. Major emphasis of the course includes program, design development and structural solutions. Student will understand institutional health facility structures in the context of Bangladesh considering the culture, climate and context along with formal expression of the structures. Importance should be given to building materials and technology and be able to design innovative ideas that respond to the need of the society.
Learning Outcome (Theoretical)	After undergoing the subject, students will be able to 1. Describe General conception of Health center. 2. Discuss Planning consideration of Health center. 3. Explain Consultants' rooms. 4. Discuss Emergency department. 5. Interpret school building design. 6. Describe secondary school design. 7. State Site Design and the safety & security of school. 8. Describe Parking.
Learning Outcome (Practical)	After undergoing the subject, students will be able to 1. Perform Site visit and case study. 2. Prepare process flow chart of a Healthcare center. 3. Prepare the Preliminary Design of a health center. 4. Design the health center. 5. Design emergency patient room. 6. Design of a school. 7. Prepare the detail plan of a class room. 8. Prepare the detail plan of teachers' room & library. 9. Prepare additional drawing of school.

Detailed Syllabus (Theory)

Unit	Topics with Contents	Class (1 Period)	Final Marks
1	BASIC CONCEPT OF HEALTH CENTER 1.1. State the Hospital and Health care service. 1.2. Define different types of Health center. 1.3. List the program and components for Health center. 1.4. Describe the feasibility of project location. 1.5. Interpret basic building code.	3	6
2	PLANNING CONSIDERATION OF HEALTH CENTER 2.1 Describe the consideration of physical structure design. 2.2 Calculate the capacity of health center facilities based on population. 2.3 Define Indoor and outdoor patient department. 2.4 Define diagnosis department, OT, ICU, HDU, CCU, Post operative room, waste management, kitchen, pantry and pharmacy. 2.5 Discuss air-conditioning, fire safety, and means of escape with location, parking, stair, lift, vehicular ramp and ramp for specially able people.	4	8
3	PLANNING CONSIDERATION OF CONSULTANTS' ROOMS 3.1 State the consultants' rooms. 3.2 State the size and basic ergonomics of consultants' rooms. 3.3 Describe the Furniture, Space allocation and medical fixture based on type of consultants' and room size. 3.4 Explain Doors & windows of the consultants' rooms. 3.5 Describe the Lighting facilities, electrical requirements & Medical gas system for the consultants' rooms.	5	8
4	PLANNING CONSIDERATION OF EMERGENCY DEPARTMENT 4.1 State the general concept of emergency department. 4.2 Discuss the design requirements of emergency department. 4.3 Describe location and entry of emergency department. 4.4 Describe the furniture, medical fixture, bed, space allocation of the emergency department based on room size and types of doctors'. 4.5 Describe the furniture, medical fixture, bed, space allocation of Emergency department nurse station based on room size. 4.6 Describe the lighting facilities, electrical requirements, air-conditioning, fire safety & medical gas system for the emergency department.	4	7
5	SCHOOL BUILDING PLANNING 5.1 Discuss types of school. 5.2 Define central and regional school, community school, daycare, elementary school, international school and kindergarten. 5.3 Discuss the pupil capacity of school. 5.4 Explain the working space relationships. 5.5 Discuss the building lay-out of school.	5	8

	5.6 Explain formal expression of school design.		
6	SECONDARY SCHOOL DESIGN 6.1 State the basic concepts of teaching/administration. 6.2 Discuss plan and orientation. 6.3 Discuss the class room planning. 6.4 Explain ventilation and lighting, electrical system and air-conditioning for school. 6.5 Explain the doors, acoustic and visual control of a class room. 6.6 Explain the furniture for a class room. 6.7 Discuss the lab facilities of secondary school. 6.8 Discuss the library for a school.	5	10
7	SITE, SAFETY & SECURITY OF SCHOOL DESIGN 7.1 State the site selection criteria and space allocation of a school. 7.2 Describe the recreational facility. 7.3 Relate playground with school building. 7.4 Explain building materials & drainage facility for school. 7.5 State landscaping and lighting consideration of school. 7.6 Describe school exits, stair ways, corridors, doors, school entry and toilet facilities.	3	7
8	PARKING DESIGN 8.1 Define drive way and drop off. 8.2 Describe the factors to determine a drive way. 8.3 Describe the length & width of school bus and car. 8.4 Discuss the slope of ramp, ramp break over angle, angle of departure and angle of approach. 8.5 State RAJUK rules for parking area.	3	6
	Total	32	60

Detailed Syllabus (Practical)

Sl.	Experiment name with procedure	Class (3 Period)	Continuous Marks
1	CONDUCT SITE VISIT & CASE STUDY 1.1. Visit a district or local Health center. 1.2. Take photographs of the health center building. 1.3. Analysis the orientation of the building. 1.4. Investigate the present needs of the health center. 1.5. Present the report with photograph. 1.6. Maintain the record of performed task.	2	5
2	PREPARE PROCESS FLOW CHART OF A HEALTHCARE CENTER 2.1. Draw a flow diagram of health center. 2.2. Draw a flow diagram of administration department and Consultants' rooms. 2.3. Draw a flow diagram of emergency department. 2.4. Draw a flow diagram of indoor and outdoor patient department. 2.5. Draw a flow diagram of service facilities and laundry	3	4

	department. 2.6. Maintain the record of performed task.		
3	PREPARE THE PRELIMINARY DESIGN OF A HEALTH CENTER 3.1 Draw the line sketch plan of a health center. 3.2 Draw the plan of the health center in 1:100 or 1/8"=1'-0". 3.3 Draw the elevation & section of the health center in 1:100 or 1/8"=1'-0". 3.4 Draw the detail car parking area. 3.5 Draw the landscape plan of the health center. 3.6 Maintain the record of performed task.	4	5
4	DESIGN THE HEALTH CENTER 4.1 Draw the floor plan of the health center with furniture. 4.2 Draw detail plan of consultants' rooms (1:50 or 1/4" =1'-0"). 4.3 Draw detail plan of nurse station (1:50 or 1/4" =1'-0"). 4.4 Draw detail plan of lobby and reception area with furniture (1:50 or 1/4" =1'-0"). 4.5 Make a model of health care centre. 4.6 Maintain the record of performed task.	4	7
5	DESIGN EMERGENCY PATIENT ROOM 5.1 Draw an emergency patient room in 1:50 or 1/4" =1'-0" scale. 5.2 Draw furniture of the patient room in 1:50 or 1/4" =1'-0" scale. 5.3 Draw the section of the patient rooms in 1:50 or 1/4" =1'-0" scale. 5.4 Draw a toilet for emergency patient. 5.5 Draw the detail of hand wash and scrub area. 5.6 Maintain the record of performed task.	4	7
6	DESIGN A SCHOOL 6.1. Draw the flow diagram showing different area used in school. 6.2. Sketch the line plan & front elevation of a school as per given requirements. 6.3. Develop the floor plan according to the scale. 6.4. Draw the front & side elevation according to scale. 6.5. Draw a section through the stair and part section through entrance & verandah. 6.6. Maintain the record of performed task.	4	8

7	PREPARE DETAIL PLAN OF CLASS ROOM 7.1 Draw seating arrangement of a classroom with clear dimension in 1:50 or $\frac{1}{4}'' = 1'-0''$ scale. 7.2 Detail of a seat for classroom with dimension in 1:25 or $\frac{1}{2}'' = 1'-0''$ scale. 7.3 Draw a wall cabinet for the classroom. 7.4 Draw the science lab with furniture arrangement. 7.5 Draw the common toilet detail for the student of the school in 1:50 or $\frac{1}{4}'' = 1'-0''$ scale. 7.6 Maintain the record of performed task.	4	6
8	PREPARE DETAIL PLAN OF TEACHERS' ROOM & LIBRARY 8.1 Draw the head master's room with furniture arrangement in 1:50 or $\frac{1}{4}'' = 1'-0''$ scale. 8.2 Draw the teachers' room with furniture arrangement in 1:50 or $\frac{1}{4}'' = 1'-0''$ scale. 8.3 Draw seating arrangement of a library with clear dimension in 1:50 or $\frac{1}{4}'' = 1'-0''$ scale. 8.4 Detail of a shelf for library with dimension in 1:25 or $\frac{1}{2}'' = 1'-0''$ scale. 8.5 Draw common room with sports facilities detail of the school in 1:50 or $\frac{1}{4}'' = 1'-0''$ scale. 8.6 Maintain the record of performed task.	4	5
9	PREPARE ADDITIONAL DRAWING OF SCHOOL 9.1. Draw the site and covered area. 9.2. Draw the drive way and parking. 9.3. Draw a plan of playground. 9.4. Draw the guard room, boundary wall with landscape. 9.5. Maintain the record of performed task.	3	3
	Total	32	50

Necessary Resources (Tools, equipment's and Machinery):

Sl	Item Name	Quantity
1.	Drawing sheet (Size A2, A3)	10 reams (500 Sheets per Reams)
2.	Cutting Matt size A ₂ (18''X 24'')	50
3.	PVC Sheet, size (4'x8') (thickness 1.5mm)	25
4.	Model paper size (24''x 32''), 260-300 GSM, Color (grey, light grey, brick red)	50
5.	Tracing paper (Size 60/65 gsm, 20meter long roll)	12 Nos
6.	Acrylic sheet, Size (4'x 8')	10pcs
7.	Wooden Pencil (2B) Garman quality	12 Dozens
8.	Color pencil	12 packets
9.	Eraser (soft)	4 Dozens
10.	Paper Tape (3/4'')	4 Dozens
11.	Drafting pen (0.1, 0.3, 0.5, 1.0)	20 set
12.	Triangular scale	48 Nos.
13.	Set square	48 Set.
14.	Drafting table/board with parallel bar	48 Nos
15.	Mechanical lid pencil (0.3mm,0.5mm,0.7mm)	48 nos
16.	Anti cutter (Zinc alloy +carbon tool steel, style 1:	50 nos

	100mm*15*8mm	
17.	Anti cutter blade 45 ⁰ & 30 ⁰	50 nos
18.	Steel scale 24+ inches	50 nos
19.	Superglue	50 nos
20.	Alpha/UHU (Crystal clear adhesive)	50 nos
21.	Ika glue 250 gm	50 nos

Recommended Books:

Sl	Book Name	Writer Name	Publisher Name & Edition
1.	School Building Design Asia, UNESCO		
2.	The new hospital	Christine nickl-weller Hans nickl (Hg.)	
3.	Time saver standards for building types	Joseph de Chiara, John Han Cock Callender	
4.	Time saver standards for interior design and space planning	joseph de Chiara Julius, Panero Martin Zelnik	
5.	ARCHITECTURE Form, Space and Order	Francis D.K.Ching	
6.	Basic Design Principals of Architecture	Parker, Leonard	

Website References:

Sl	Web Link	Remarks
01	https://www.archdaily.com/	Search here
02	https://www.researchgate.net/	Search here
03	https://www.academia.edu/	Search here
04	https://www.slideshare.net/	Search here