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UNIVERSITY OF MYSORE

Estd. 1916

VISHWAVIDYANILAYA KARYA SOUDHA
CRAWFORD HALL, POST BOX NO. 406
MYSORE-570 005

No.AC.2(S)/508/12-13 Dated: 13-09-2013.

NOTIFICATION

Sub: Modifications in the existing Syllabus and Scheme of Teaching for the **Bachelor of Architecture (B.Arch)** course.

Ref: 1. Proceedings of Faculty of Science & Technology Meeting held on 21-02-2013.
2. Proceedings of the Meeting of Academic Council held on 27-03-2013.

The Board of Studies in **University School of Design** at its meeting held on 19-12-2012 has resolved to change/modify the Syllabus & Scheme of Teaching for the **Bachelor of Architecture (B.Arch)** course during the academic year 2013-14 and onwards.

The Faculty of Science and Technology and the Academic Council at their meetings held on 21-02-2013 and 27-03-2013 respectively have approved the above proposals and the same is hereby notified.

The copy of the modified Syllabus & Scheme of Teaching in Bachelor of Architecture (B.Arch) is annexed herewith.

REGISTRAR.

To

1. The Registrar (Evaluation), University of Mysore, Mysore.
2. The Chairperson, BOS in University School of Design, MGM.
3. The Dean, Faculty of Science & Technology, DOS in Zoology, MGM.
4. The Director, University School of Design, MGM.
5. The Director, College Development Council, UOM, Mysore.
6. Sri Narasimha Murthy, Statistician, E.B. UOM, Mysore.
7. The Deputy/Assistant Registrar (Evaluation), University of Mysore, Mysore.
8. The Supdt. AC.1 & AC.2, A.B., Academic Section, UOM., Mysore.
9. The P.A. to the Vice-Chancellor/Registrar/Registrar(Evaluation), UOM., Mysore.
10. The Case Worker, AC.7, Academic Section, University of Mysore, Mysore.
11. The Section Guard File(Supdt.AC.2), A.B., A.C., UOM.
12. The Schedule File.

AC2.Eng.25-4.R

ANNEXURE - II

UNIVERSITY OF MYSORE
THE UNIVERSITY SCHOOL OF DESIGN

Course: BACHELOR OF ARCHITECTURE (B.ARCH)
SCHEME OF TEACHING ; ACADEMIC YEAR 2013-14

Yr 1 Sem I

Sl. No.	Subject Code	Credits	Title of the Subject	L:T:P	Hrs/week	Evaluation		
						Internal	External	Mode of Exam
i	ARC101	6	Architectural Design-I	0 : 6 : 0	9	60	40	JURY
ii	ARC102	4	Building Construction & Material-I	1 : 3 : 0	6	60	40	3 HOUR EXAM
iii	ARC103	3	Technical Representation Drawing-I	0 : 3 : 0	4.5	60	40	3 HOUR EXAM
iv	ARC104	2	History of Architecture-I	1 : 1 : 0	3	60	40	2 HOUR EXAM
v	ARC105	2	Theory of Design-I	1 : 1 : 0	3	60	40	2 HOUR EXAM
vi	ARC106	1	Structures-I	1 : 0 : 0	2	60	40	2 HOUR EXAM
vii	BRC101	2	Fine Arts	0 : 0 : 2	6	100	-	Progr. marking
viii	BRC102	1	Photography	0 : 0 : 1	3	100	-	Progr. marking
		21			**36.5**			

Yr 1 Sem II

i	ARC201	6	Architectural Design -II	0 : 6 : 0	9	60	40	JURY
ii	ARC202	4	Building Construction and Materials-II	1 : 3 : 0	6	60	40	3 HOUR EXAM
iii	ARC203	3	Technical Representation Drawing-II	0 : 3 : 0	4.5	60	40	3 HOUR EXAM
iv	ARC204	2	History of Architecture-II	1 : 1 : 0	3	60	40	2 HOUR EXAM
v	ARC205	2	Theory of Design-II	1 : 1 : 0	3	60	40	2 HOUR EXAM
vi	ARC206	2	Climatology-I	1 : 1 : 0	3	60	40	2 HOUR EXAM
vii	ARC207	1	Structures-II	1 : 0 : 0	2	60	40	2 HOUR EXAM
viii	BRC201	2	Applied Arts-Sculpture	0 : 0 : 2	6	100	-	Progr. marking
		22			**36.5**			

UNIVERSITY OF MYSORE
THE UNIVERSITY SCHOOL OF DESIGN

Course: BACHELOR OF ARCHITECTURE (B.ARCH)
SCHEME OF TEACHING ; ACADEMIC YEAR 2013-14

Yr 2 Sem III

i	ARC301	6	Architectural Design-III	0 : 6 : 0	9	60	40	JURY
ii	ARC302	4	Building Construction and Materials-III	1 : 3 : 0	6	60	40	3 HOUR EXAM
iii	ARC303	3	Technical Representation Drawing-III	0 : 3 : 0	4.5	60	40	3 HOUR EXAM
iv	ARC304	2	History of Architecture-III	1 : 1 : 0	3	60	40	2 HOUR EXAM
v	ARC305	2	Climatology-II	1 : 1 : 0	3	60	40	2 HOUR EXAM
vi	ARC306	2	Building Technology-I (Water Supply, Plumbing And Sanitation)	1 : 1 : 0	3	60	40	2 HOUR EXAM
vii	ARC307	1	Structures-III	1 : 0 : 0	2	60	40	2 HOUR EXAM
viii	BRC301	1	Computers-I	0 : 0 : 1	3	100	-	Progr. marking
		21			**33.5**			

Yr 2 Sem IV

i	ARC401	6	Architectural Design-IV	0 : 6 : 0	9	60	40	JURY
ii	ARC402	4	Building Construction and Materials-IV	1 : 3 : 0	6	60	40	3 HOUR EXAM
iii	ARC403	2	History of Architecture-IV	1 : 1 : 0	3	60	40	2 HOUR EXAM
iv	ARC404	2	Modern Architecture	1 : 1 : 0	3	60	40	2 HOUR EXAM
v	ARC405	2	Building Technology-II (Electricals)	1 : 1 : 0	3	60	40	2 HOUR EXAM
vi	ARC406	1	Survey and Levelling	1 : 0 : 0	2	60	40	2 HOUR EXAM
vii	ARC407	1	Structures-IV	1 : 0 : 0	2	60	40	2 HOUR EXAM
viii	BRC401	1	Computers-II	0 : 0 : 1	3	100	-	Progr. marking
		19			**31**			

UNIVERSITY OF MYSORE
THE UNIVERSITY SCHOOL OF DESIGN

Course: BACHELOR OF ARCHITECTURE (B.ARCH)
SCHEME OF TEACHING ; ACADEMIC YEAR 2013-14

Yr 3 Sem V

i	ARC501	8	Architectural Design-V	0 : 8 : 0	12	60	40	JURY
ii	ARC502	4	Building Construction and Materials-V	1 : 3 : 0	6	60	40	3 HOUR EXAM
iii	ARC503	2	Contemporary Architecture	1 : 1 : 0	3	60	40	2 HOUR EXAM
iv	ARC504	2	Building Technology-III (HVAC)	1 : 1 : 0	3	60	40	2 HOUR EXAM
v	ARC505	2	Structures-V	1 : 1 : 0	3	60	40	3 HOUR EXAM
vi	BRC501	1	Sociology	1 : 0 : 0	2	100	-	Progr. marking
vii	BRC502	1	Architectural Appreciation-I	0 : 1 : 0	2	100	-	Progr. marking
viii	BRC503	1	Computers-III	0 : 0 : 1	3	100	-	Progr. marking
		21			**34**			

Yr 3 Sem VI

i	ARC601	8	Architectural Design-VI	0 : 8 : 0	12	60	40	JURY
ii	ARC602	4	Building Construction and Materials-VI	1 : 3 : 0	6	60	40	3 HOUR EXAM
iii	ARC603	2	Building Technology-IV (Acoustics)	1 : 1 : 0	3	60	40	2 HOUR EXAM
iv	ARC604	2	Urban Planning	1 : 1 : 0	3	60	40	2 HOUR EXAM
v	ARC605	2	Structures-VI	1 : 1 : 0	3	60	40	3 HOUR EXAM
vi	ARC606	1	Estimation & Costing-I	1 : 0 : 0	2	60	40	2 HOUR EXAM
vii	BRC601	1	Architectural Appreciation-II	0 : 1 : 0	2	100	-	Progr. marking
		20			**31**			

Yr 4 Sem VII

i	ARC701	10	Architectural Design-VII	0 : 10 : 0	15	60	40	JURY
ii	ARC702	4	Building Construction and Materials-VII	1 : 3 : 0	6	60	40	3 HOUR EXAM
iii	ARC703	2	Professional Practice	1 : 1 : 0	3	60	40	2 HOUR EXAM
iv	ARC704	2	Introduction to Landscape Architecture	1 : 1 : 0	3	60	40	2 HOUR EXAM
v	ARC705	1	Estimation & Costing-II	1 : 0 : 0	2	60	40	2 HOUR EXAM
vi	BRC701	3	Interior Design	0 : 3 : 0	4.5	100	-	Progr. marking
vii	BRC702	2	Research Methodology	1 : 1 : 0	3	100	-	Progr. marking
		24			**36.5**			

UNIVERSITY OF MYSORE
THE UNIVERSITY SCHOOL OF DESIGN

Course: BACHELOR OF ARCHITECTURE (B.ARCH)
SCHEME OF TEACHING ; ACADEMIC YEAR 2013-14

Yr 4 Sem VIII

i	ARC801	**16**	Professional Training	0 : 16 : 0		60	40	JURY

Yr 5 Sem IX

i	ARC901	14	Architectural Design-IX	0 : 14 : 0	21	60	40	JURY
ii	ARC902	2	Introduction to Urban Design	1 : 1 : 0	3	60	40	2 HOUR EXAM
iii	ARC903	2	Introduction to Conservation	1 : 1 : 0	3	60	40	2 HOUR EXAM
iv	BRC901	3	Pre Architectural Design Thesis	1 : 2 : 0	4.5	100	-	Progr. marking
v	BRC902	1	Building Economics	1 : 0 : 0	2	100	-	Progr. marking
vi	BRC903	2	Specialised Subject	1 : 1 : 0	3	100	-	Progr. marking
		24			**36.5**			

Yr 5 Sem X

i	ARC1001	**20**	Architectural Design Thesis	0 : 20 : 0	**30**	60	40	JURY

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ANNEXCIRE - II

UNIVERSITY OF MYSORE

THE UNIVERSITY SCHOOL OF DESIGN

Degree: Bachelor of Architecture

YEAR-1 **SEMESTER-I** **2013-14**

Subject : ARCHITECTURAL DESIGN - I		
Code : ARC101	**Credits : 6**	**Hours / Week : 9 hrs.**
Progressive Marks : 60 %	**Examination Marks : 40 %**	**Mode of Exam : Jury**

Course Overview

This course is to introduce the student to fundamental design principles and problem solving. Students will learn to control point, line, surface and volume to shape spaces for human use. Principles of compositions and basic organizational principles. Study of everyday objects to heighten student's power of observation and appreciation of design.

Content

- Introduction to subject and design fundamentals
- Simple drawing skills
- Study of form and function and their relationship with examples of objects
- Technique of composition like repetition, scale, rhythm, variation, symmetry and order
- Figure-Ground ideas
- Introduction to orthographic projects with plan, section and elevation, through measured drawing of small spaces and furniture
- Introducing the students to different materials, construction techniques and functional aspects through various exercises like Dustbin, Kiosk, etc.
- Introduction to Isometric and axonometric by way of presentation for design exercise

References:

1. Wucius Wong "Principles of two-dimensional designs"
2. Francis D.K.Ching "Architecture-form space and order".
3. Robertson Howard "The principles of architecture composition"
4. Leon Baptista Alberti "The Ten Books of Architecture"
5. John Hanock "Time Saver Standards for Architectural Design Data"
6. Ramsay and Sleeper "Architectural Graphic Standards"

THE UNIVERSITY SCHOOL OF DESIGN

Degree: Bachelor of Architecture

Subject : BUILDING CONSTRUCTION AND MATERIALS - I		
Code : ARC102	**Credits : 4**	**Hours / Week : 6 hrs.**
Progressive Marks : 60 %	**Examination Marks : 40 %**	**Duration of Exam : 3 hrs.**

Course Overview

This course is to introduce the student to principles of drawing, basic elements of the building and understanding basic materials in construction.

Content

- Tools for drawings and introduction to drawing methods
- Terms and definitions of principles of construction
- Primary elements of load bearing buildings and their design principles
- Simple introduction to material costing

1. Bricks: types and kinds of bricks, brick masonry, brick bonds, to draw in plans, elevation, and in isometric.
2. Stones: study of stones and stone bonds, stone masonry and its supervision and precaution. Etc.
3. Foundation: functions of foundations, types of foundations, Simple Stone and Brick foundations for load bearing structures
4. Mud as a construction material : stabilization, adobe, rammed earth construction
5. Super structure: Section through external walls from foundation – showing coping, cornices with different materials.
6. Lintel: Definition of Lintel, various types of lintels and roof slab
7. Jali: Brick and Cement jali, etc.,
8. Building Material:
   Understanding of building materials, physical, behavior and manufacturing.
   a. Brick
   b. Stone
   c. Clay and its products

References:

1. W.B.Mackay - "Building Construction Metric- Volume I"
2. Barry - "Construction of Buildings"
3. Susheel Kumar "Building Construction"
4. Rangwala – "Engineering Materials"
5. B.C.Punmia - "Building Construction"

THE UNIVERSITY SCHOOL OF DESIGN

Degree: Bachelor of Architecture

Subject : TECHNICAL REPRESENTATION DRAWING - I		
Code : ARC103	**Credits : 3**	**Hours / Week : 4.5 hrs.**
Progressive Marks : 60 %	**Examination Marks : 40 %**	**Duration of Exam : 3 hrs.**

Course Overview

To enhance drawing, visualization and representation skills. Familiarization with drawings materials and equipments like scales, set squares pencils and its application and uses.

Contents:

1. Lines: Using different pencils (H, HB, 2B, 3B....) draw lines to understand the quality of line and other exercises to improve drafting skills
2. Lettering: Different fonts
3. Scales: reading the scale and using it to draw rectangles and squares of various dimensions. (Reduction and enlargement)
4. Construction: Regular Polygons, Ellipse, Parabola, Ovals, Arches, etc...
5. Orthographic Projections:
    a. Planes: exercises in planes
    b. Solids: To study simple geometric solids in plan, elevation and section to enhance the 2 dimensional and 3 dimension perceptions.
6. Study of solids and three dimensional representations of simple forms
    a. Isometric
    b. Axonometric
    c. Exploded Views

References:

1. N.D.Bhat "Engineering Drawings"
2. I.H.Morris. "Geometrical Drawing for art students"
3. K.R.Gopalkrishna "Engineering Drawings (vol-1&2)"

Subject : HISTORY OF ARCHITECTURE – I		
Code : ARC104	**Credits : 2**	**Hours / Week: 3 hrs.**
Progressive Marks : 60 %	**Examination Marks : 40 %**	**Duration of Exam: 2 hrs.**

Course Overview

To introduce the growth of human civilization and study of their social, cultural and architectural works. Growth of concept of architecture, introduction to art and architecture and its relationship, technology and architecture, culture and architecture, society and architecture etc. growth and development of human settlement, their socio economic and cultural aspects, geographical and climatic influences on their shelters, lifestyles and evolution of built forms.

THE UNIVERSITY SCHOOL OF DESIGN

Degree: Bachelor of Architecture

Contents:

1. Prehistoric Architecture: Study of buildings/settlements in Europe and Central Asia.
2. Egyptian Architecture: Its importance in world architecture
3. Mesopotamian Architecture: Early Mesopotamian, Assyrian and Persian
4. Indian Architecture: Indus Valley Civilization – Harappa, Mohenjo-Daro, Lothal and Vedic village
5. Buddhist Architecture: Its influence over the sub continent.
6. Jain Architecture: Its development, styles and trends in Indian sub continent.

References:

1. Sir Banister Fletcher's "The History of Architecture"
2. Tadgell Christopher. "The History of Architecture in India"
3. Percy Brown. "Indian architecture Buddhist and Hindu period"
4. Henry Stierlin "Hindu India"
5. Shereen Ratnagar "Understanding Harappa"
6. Sunil Vaidyanathan "Temples of South India"
7. Emily Cole "Grammar of Architecture"
8. Francis D K Ching "Global History of Architecture"

Subject : THEORY OF DESIGN - I		
Code : ARC105	**Credits : 2**	**Hours / Week : 3 hrs.**
Progressive Marks : 60 %	**Examination Marks : 40 %**	**Duration of Exam : 2 hrs**

Course Overview

Architecture is a thoughtful art that involves knowledge of space and form. While creating a functional space to live is quite simple, it is the theoretical framework supporting the design that is complex. This theoretical framework is based on the ideology of the architect, often differing from one architect to another.

Contents:

1. Arts and Art of Architecture:
   a. Origin of form & grammar of design concept of elements such as Point, Line, Plane & Volume.
2. Principles of Design: Axis, Symmetry, Hierarchy, Repetition, rhythm, emphasis, balance, etc.
3. Introduction to concepts of - Pattern, Shapes, Place, Space, Enclosure, Order, Mass.
4. Form:
   a. Properties of form
   b. Transformation of form
5. Scale and proportion in Architecture.
   a. Material, Structural and Manufactured Proportions
   b. Proportioning system- Golden Section, Classical Orders, Modular, Anthropometry

References:

1. Francis D.K. Ching "Architecture Form, Space and order"
2. Yatin Pandya "Elements of Space Making"

Subject : STRUCTURES - I		
Code : ARC106	**Credits : 1**	**Hours / Week : 2 hrs.**
Progressive Marks : 60 %	**Examination Marks : 40 %**	**Duration of Exam : 2 hrs.**

Contents:

1. Introduction to fundamentals of structural system, technical names of structures, component from foundation to roof and their functions, loads, dead, live, wind, impact and earthquake loads.
2. Definition, cause, effect, and units: force as a vector, graphical representation coplanar, concurrent, non-concurrent, and parallel forces.
3. Analytical Methods: Triangle Law of Forces, Parallelogram Law of Forces, equilibrium of Forces, Method of Resolution of Forces.
4. Moment's of forces, moment of couples, and static equilibrium of rigid bodies.
5. Determination of centre of gravity, reference to I.S.I table of various steel sections and their properties.

References:

1. S S Bhavikatti & K G Rajashekarappa "Engineering Mechanics"
2. Sushil Kumar "Building Construction"
3. Dongre A P "Structural Engineering for Architects"

Subject : FINE ARTS		
Code : BRC101	**Credits : 2**	**Hours / Week : 6 hrs.**
Progressive Marks : 100 %		

Contents:

1. To train the students with free hand movements, doodling, strokes, lines, shading, hatching, and controlling the pressure on pencil.
2. Still life (group objects): includes measurement, shading, materials and introducing color in pencil, dry & oil pastels.
3. Shading: objects with different tones, like light and dark, shading with different types of material, e.g.: plastic, steel etc.
4. Sketching in pencil and pastel colors, monochrome washes to suit trees, building and complete landscape, on the spot sketches. Developing sketching ability in different mediums and to help

the imaginative power. Copying the sketches of artists; humans, street sketches, heritage buildings, modern buildings.

5. Basics of freehand indoor and outdoor perspective drawings: Interior- One-Point Perspective, Exterior – Two Point Perspective.
6. Colors: Color pencils, crayons, water colors, oil pastels and mixed media.

Subject : PHOTOGRAPHY		
Code : BRC102	**Credits : 1**	**Hours / Week: 3 hrs.**
Progressive Marks : 100 %		

Contents:

1. History, technical details of camera
   Introduction, Basic Principles, History of photography, Types of cameras, Basic Techniques, technical details of camera.

2. Shooting, processing, Printing & Displays.

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UNIVERSITY OF MYSORE

THE UNIVERSITY SCHOOL OF DESIGN

Degree: Bachelor of Architecture

YEAR-1 SEMESTER-II 2013-14

Subject : ARCHITECTURAL DESIGN - II		
Code : ARC 201	**Credits : 6**	**Hours / Week : 09 hrs.**
Progressive Marks : 60 %	**Examination Marks : 40 %**	**Mode of Exam : Jury**

Course Overview

This semester, the students are introduced to basic skills of design and design expression. Space, form and simple ordering principle is introduced. Program, structure and circulation are discussed. Ideas of concept leading to design. Analysis of site determinants, social and cultural parameters.

Content

- Spatial order and Structural order
- Solid-Void
- Positive and Negative spaces
- Analytical techniques
- Evolution of forms and various kinds of forms
- Site, location, climate and site correlation
- Conceptual design to spatial organization
- Analysis of functions and requirement
- Introduction to Anthropometry
- Introduction to case study methodology

Project

- Small abstract exercise on order and form
- Design and full scale development prototype model of simple furniture, such as chair, lamp-post, magazine hanger, etc., using basic materials
- Design of small spaces, such as Canteen, Clinic, News Paper kiosks, my space, kindergarten etc.

Subject : BUILDING CONSTRUCTION AND MATERIALS - II		
Code : ARC 202	**Credits : 4**	**Hours / Week : 6 hrs.**
Progressive Marks : 60 %	**Examination Marks : 40 %**	**Duration of Exam : 3 hrs.**

Course Overview

Introduction to wood / timber in construction. Tools used in carpentry, simple hardware, principles of construction in wood and its properties.

THE UNIVERSITY SCHOOL OF DESIGN

Degree: Bachelor of Architecture

Contents:

1. Timber joinery with practical demonstration in working or at building.
2. Timber doors – frames, types – ledged and battened, ledged, braced and battened paneled doors. Glazed wooden doors, flush door in wood, plywood, particle board, moulded and decorative paneled doors.
3. Timber windows – simple casement windows, wooden shutters, glazed wooden shutters, fanlights, top hung ventilators. Complicated wooden windows like horizontal and vertical pivot windows. Glazed louvered windows, adjustable timber louvers in window, shutters vertical louvers, adjustable vertical louvers in building iron material and finishes, double glazing.
4. Wooden roofs (flat, sloping) and floors: Simple pitched roof, lean to, close collar and couple close roofs with Mangalore tile finish and country tile, butter sections.
5. Various alternatives to span an opening
   a. Idea of arch, corbel, vault and dome
   b. Types of Arches; Construction and Demonstration of simple arches.
6. Alternative technology using Bamboo, concrete, etc., for construction of the wall
7. Materials:
   a. Timber – growth of trees, felling, varieties, defects and decay, seasoning and prevention, fire proofing, properties, strength and uses of manufactured wood products, wood and its products for sound and thermal insulation.
   b. Other factors: cost factor, available in Karnataka (locally) visit to the timber yard (Industry), natural form, and manufactured form.
   c. Lime -Types, Properties, Manufacture, Use
   d. Cement – Types, Properties, Composition and storing of cement, lime and cement plaster – visits to cement factory- cost per bag, plastering per sq.mts.

References:

1. W.B. Mackey (vol – II) "Building Construction"
2. B.C. Punmia "Engineering Materials"
3. Foster Stround Mitchee "Advanced Building Constructions"
4. Barry - "Construction of Buildings"
5. Susheel Kumar "Building Construction"
6. B.C.Punmia - "Building Construction"

Subject : TECHNICAL REPRESENTATION DRAWING - II		
Code : ARC 203	**Credits : 3**	**Hours / Week : 4.5 hrs.**
Progressive Marks : 60 %	**Examination Marks : 40 %**	**Duration of Exam : 3 hrs.**

Course Overview

To develop skills for technical representation of architectural designs

Contents:

1. Sections of Solids
2. Developments of Surfaces
3. Study of solids and three dimensional representations of complex forms in
   a. Isometric

THE UNIVERSITY SCHOOL OF DESIGN

Degree: Bachelor of Architecture

Subject : APPLIED ARTS		
Code : BRC 201	**Credits : 2**	**Hours / Week : 6 hrs.**
Progressive Marks : 100 %		

Course Overview

The creativity of students is honed through 3 dimensional models making using different materials. This may be through abstract models or architectural models.

Workshop Exercises:

1. Geometrical shapes in clay
2. Impression and mould methods in Plaster of Paris, carving the plaster block
3. Wood carving
4. Scrap work using the waste materials.
5. Cement sculpture with using 6mm rod and wire mesh on the top cement mortar and carving.
6. Stone carving in Soap stone

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UNIVERSITY OF MYSORE

THE UNIVERSITY SCHOOL OF DESIGN

Degree: Bachelor of Architecture

YEAR-2 SEMESTER-III 2013-14

Subject : ARCHITECTURAL DESIGN - III		
Code : ARC 301	**Credits : 6**	**Hours / Week : 9 hrs.**
Progressive Marks : 60 %	**Examination Marks : 40 %**	**Mode of Exam : Jury**

Course Overview

The course will introduce students to techniques of spatial representation relating to Architectural design. Introduction to structure and envelope as space makers. Students will use case study analysis to uncover disciplinary issues within the design problem. Obvious correlation between form, structure, function, organizational and spatial terms will be highlighted in the design exercise. The student's skill is enhanced to now start transitioning from simple concept to detailed spatial design.

Content

- Introduction to the site as a building form generator
- Introduction to simple structural concepts
- Bionic forms
- Basic material study
- Study of light and its sensory qualities
- Respect to Climatic conditions and its control

Project

- Small abstract exercise on carving of a defined mass having definite volume to create space without compromising of natural light and ventilation. Additive / Subtractive form.
- Design and scale model of an open geometrical form, with basic functions. Examples of this could be a simple cabin, security cabin, Information kiosk, etc., or a short design to evaluate and design a small compact residence for an Artist, Musician, Bachelor, Yoga teacher, etc., The problem is to focus that limitations encourage creativity.
- Design of a small institution space, such as Primary School, Crèche, Bank, Public Health Unit, etc.

THE UNIVERSITY SCHOOL OF DESIGN

Degree: Bachelor of Architecture

Subject : BUILDING CONSTRUCTION AND MATERIALS - III		
Code : ARC 302	**Credits : 4**	**Hours / Week : 6 hrs.**
Progressive Marks : 60 %	**Examination Marks : 40 %**	**Duration of Exam : 3 hrs.**

Course Overview

To give an introduction to roof elements - local construction methods and materials and the weather proofing compounds.

Contents:

1. Roofs:
   a. Trusses: Principles of truss, action of forces, A frames, Understanding only the concept of Typical – king post & Queen post truss and built up truss – Details of joinery, finish of Mangalore tiles and roofing material – water disposal from roofs.
   b. Different Types of Roof / Floor: Brick jack arch, madras terrace, ordinary flat brick floor (used in North India) with various floors finishes, skirting and adding.
   c. RCC Beams and Slabs:
      Standard beam, up stand beams, sunken slabs,
      One way Slab, Two way Slab, Ribbed Filler Slab
      Various forms of concrete slabs – waffle, flat, capital , continuous.
   d. Skylights: Construction – skylight, roof lights, dormer windows in sloped and flat roofs.
   e. Domes & Vaults: Practical demonstration and Application.
2. Formwork, shuttering, centring, shoring, strutting works
   a. Trench work for foundation
   b. TCC simple shuttering (wooden and metal/sheet) methods for RCC columns, beams, slabs, staircases , Pile cantering / scaffolding
3. Water and Weather proofing: Water and weather proofing of flat terraces, sloping roofs, in different materials, finishes in bathrooms, basics of water proofing, bitumen felts method.
4. Building Materials:
   a. Concrete: Plain cement concrete proportions, constituents, definition of aggregate, grading of aggregates, role of water, reinforcement, curing, tests , types including light weight concrete, Hydrated, cellular, foam concrete etc.
   b. Water proofing compounds: Flexible, Semi-Rigid, Rigid and Grout materials – market survey.
   c. Paints: Types, manufacture, use. Paints for interiors and exterior, oil bound cement based distemper, varnishes, plastic emulsion etc., and their uses.

References:

1. Sushil Kumar "Building Construction".
2. W.B. Mackay "Building Construction".
3. Rangwala "Building Construction"

THE UNIVERSITY SCHOOL OF DESIGN

Degree: Bachelor of Architecture

Subject : TECHNICAL REPRESENTATION DRAWING - III		
Code : ARC 303	**Credits : 3**	**Hours / Week : 4.5 hrs**
Progressive Marks : 60 %	**Examination Marks : 40 %**	**Duration of Exam : 3 hrs**

Course Overview

To introduce students to the concept of Perspectives and Sciography.

Contents:

1. Perspectives:
   One-Point Perspective of Planes, Solids, Interiors by projection method.

   Two-Point Perspective of Planes, Solids, Interiors & Exteriors by projection method.

2. Sciography:
   Study of sciography of planes, solid blocks in different planes. e.g.: vertical plane, horizontal plane.

References:

1. N.D. Bhat "Engineering drawings"
2. I.H. Morris "Geometrical drawing for art student's"
3. K.R. Gopalkrishna "Engineering drawings" (vol-I & 2)

Subject : HISTORY OF ARCHITECTURE – III		
Code : ARC 304	**Credits : 2**	**Hours / Week : 3hrs.**
Progressive Marks : 60 %	**Examination Marks : 40 %**	**Duration of Exam : 2 hrs.**

Course Overview

To provide an understanding of the evolution of Roman, Early Christian and Islamic Architecture in their various stylistic modes characterized by technology, ornamentation and planning practices.

Contents:

1. Roman Architecture:
   - Architecture and Planning of Roman Empire
   - Religious and Civic buildings built by them
2. Early Christian and Byzantine Architecture:
   - Development, influence and trends in European countries
   - Examples such as stages of changes in plans, the early Basilicas, Later Byzantine churches etc.
3. Islamic Architecture:
   - Rise of Islam and Evolution of Islamic Architecture

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- World Islamic Architecture
- Indian Islamic Architecture: Brief reference to religion and culture of Muslim period in India
- Dynasty: Tughlaq, Khilji, Sayyid, Lodi, Bahamani, Moghals
- Provincial Islamic Architecture in India: Delhi, Bengal, Bijapur, Gujarat, and Rajasthan

References:

1. Sir Banister Fletcher "The History of Architecture"
2. Emily Cole "The Grammar of Architecture"
3. David Watkin "A History of Western Architecture"
4. Henry Stierlin "Islam"
5. Satish Grover "Islamic Architecture in India"
6. Thames and Hudson "Architecture of the Islamic World"
7. Rustam J Mehta "Master Pieces of Indo-Islamic Architecture"
8. Rupinder & Reeta Khullar "Delhi, Agra and Jaipur"

Subject : CLIMATOLOGY-II		
Code : ARC 305	**Credits : 2**	**Hours / Week : 3 hrs.**
Progressive Marks : 60 %	**Examination Marks : 40 %**	**Duration of Exam : 2 hrs.**

Contents:

1. Thermal effects on buildings: Thermal insulation of buildings, heat insulating materials, techniques of thermal insulation, roofs, exposed walls, exposed windows, doors and application of the principles of climate control - applicable under different tropical climate conditions.
2. Effect of Landscape elements on climate / building.
3. Day Lighting: Sky as the source of internal light, day light factor, components of day light factor, the sky component, the external reflected component and internal reflected component, glare, recommended levels of illumination for different types of buildings (ref. Relevant IS code)
4. Shelter for different climates: Hot-dry, warm-humid, composite and tropical upland climate

References:

1. Koenigsberger, Otto H "Manual of tropical housing and building".
2. Victor Olgyay "Design with climate"
3. G Z Brown "Sun, Wind, Weather"
4. C P Kukreja "

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Subject : BUILDING TECHNOLOGY – I (WATER SUPPLY, PLUMBING AND SANITATION)		
Code : ARC 306	**Credits : 2**	**Hours / Week : 3 hrs.**
Progressive Marks : 60 %	**Examination Marks : 40 %**	**Duration of Exam : 2 hrs.**

Course Overview

This course is to introduce the student to definite building technologies available, which complement the principles of good design and building efficiency. With the advent of the construction industry and specialists in place, the course is taught to the student with an Architect's perception and meaningful understanding. Only Engineering principles are understood in the process.

Objective:

To impart the knowledge & skills required for understanding the building services of water supply & sanitation & their integration with architectural design.

Contents:

1. Water supply:
   a. Sources of water supply, estimation of quantity of water.
   b. Impurities in water and quality of potable water, Hard & soft water, treatments of water.
   c. Conveyance of water & distribution systems.
   d. Domestic water supply systems, Sump & overhead tank.
   e. Pipe & fittings, pipe sizes. Cold & hot water systems of supply.
   f. Supply for multistoried buildings. Provision for fire fighting.

2. Sanitary engineering:
   a. Importance & refuse types.
   b. Basic principles of sanitation & disposal of waste water from buildings.
   c. Collection types – Conservancy system & water carriage system, comparison of both.
   d. Quantity of sanitary waste. Conveyance of sanitary waste: Design and layout of sewerage system.
   e. Separate & combined systems of drainage & sewerage
   f. Self cleansing velocity

3. Sewers:
   a. Types, materials used for different types of sewers. Sewer appurtenances – Man holes, Drop man holes, Lamp holes street inlets, Flushing tanks, Catch basins, Sand, Grease & oil traps etc., Ventilation of sewers. Construction or laying, testing, cleaning & maintenance of sewers.
   b. Characteristics of sewage.
   c. Disposal of sewage. A brief on sewage treatment, Septic tanks, Soak pits, oxidation ponds. Disposal of sewage by natural method like dilution, landfill, composting, drying, incineration etc. Disposal of sewage by artificial methods with preliminary treatments like screening, skimming tanks, grid chamber/detritus tank, sedimentation, Sewage filtration like contact beds, percolating or trickling filter, humus tanks contact aerators, Activated sludge

process and oxidation ditches. Disposal of sewage from isolated buildings through septic tanks and imhoff tanks.

d. Oxidation or waste stabilization ponds.

4. Plumbing and Drainage
   a. Water distribution network, fittings and fixtures in building. Drainage network in a building, domestic sanitary installation, Indian standards for sanitary convenience.
   b. Storm water drains. Conveying, collecting, disposing or reusing storm water.
   c. Rain water harvesting, Recharging ground water table, Conservation of water.

5. Principles of Public Health Engineering
   a. Fixture usages in toilets
   b. Service requirement for toilet needs
   c. Waste management such as STP, sustainable watershed management, etc.,
   d. Solar water management
   e. Rain water harvesting and reuse

References:

1. Water supply & sanitary engineering – G.S.Birde
2. Water supply & sanitary engineering – Volume 1 & volume 2 Gurucharan Singh
3. Indian Practical Civil Engineer's Handbook- P.N.Khanna
4. A Textbook of Water Supply and Sanitary Enigineering-S.K.Husain
5. Sewerage and Sewage treatment Manual: Central Public Health, an Environmental Engineering organization.

Subject : STRUCTURES - III		
Code : ARC 307	Credits : 1	Hours / Week : 2 hrs.
Progressive Marks : 60 %	Examination Marks : 40 %	Duration of Exam : 2 hrs.

Contents:

1. **Bending stresses in beams.**
   a. Theory of simple bending, neutral axis, moment of resistance,
   b. Section modules.
   c. Shear stresses in beams in cross sections

2. **Analysis of Indeterminate structures by using tables**
   a. Analysis of fixed beams for various types of loads.
   b. Analysis of single bay and single storey frames with point loads and UDL.

3. **Analysis of columns and struts.**
   a. Definition of long column and short column.
   b. Importance of effective length
   c. Euler's theory for axially loaded elastic long column.
   d. Analysis of long column and short column.
   e. Column subjected to axial loads.
   f. columns subjected to eccentric loads

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References:

1. Ramamrutam S. (1981) "Strength of Materials". Dhanpat rai and Sons Delhi.
2. Vazirani and Ratwani- "Analysis of Structure"- vol II khanna publications, Delhi.
3. Punmia B.C. – "Strength of Materials" and "Theory of Structures".

Subject : COMPUTER - I		
Code : BRC 301	**Credits : 1**	**Hours / Week : 3 hrs.**
Progressive Marks : 100 %		

AUTOCAD – I

Contents

1. CAD Work station
2. Introduction to CAD
3. Working with drafting package
4. Develop 2D drawings of simple objects
5. Developing 2D drawings of Buildings Components
6. Plotting 2D drawing of different projects
7. Composition of 2D drawing to different scale in a single sheet
8. Concept of Paper space, Printing/Plotting of the above drawings

Reference Books:

1. Auto CADD reference manual
2. Auto CADD for dummies - Bud Smith
3. Mastering Auto CADD - George Omura
4. Inside Auto CADD - D.Raker, H.Rice
5. Advance Auto CADD - Robert M Thomas

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YEAR-2 SEMESTER-IV 2013-14

Subject : ARCHITECTURAL DESIGN - IV		
Code : ARC 401	**Credits : 6**	**Hours / Week : 9 hrs.**
Progressive Marks : 60 %	**Examination Marks : 40 %**	**Mode of Exam : Jury**

Course Overview

The semester will focus on Integration of Place, Environment, Society, Culture and its impact on Architecture. The idea of a given program and student's analytical evaluation of the brief and its interpretation in design.

Content

- Correlation study of plan and the third dimension
- Develop effective graphic communication techniques
- Multiple material study
- Color theory and associations
- Evaluation of conceptual thinking towards the process of synthesis and formation of design
- Part detail construction model
- Typical exterior building components and making of façade.

Project

- Abstract exercise relating plan to section and elevation. Openings on exterior surfaces and evaluation of good composition. The idea to design in section. Project discussion and presentation only with model
- Abstract exercise to understand behavior and meaning of colors.
- Small abstract exercise of a unit type, similar to subjects like Basic shelter, Artists retreat, Small museum
- Design of a public spaces such as Arts and Crafts center, Architecture school, Small industrial projects, Social club, etc.

Subject : BUILDING CONSTRUCTION AND MATERIALS - IV		
Code : ARC 402	**Credits : 4**	**Hours / Week : 6 hrs.**
Progressive Marks : 60 %	**Examination Marks : 40 %**	**Duration of Exam : 3 hrs.**

Course Overview

To acquaint the students with construction practices pertaining to RCC foundations, roofs and staircase. Uses and applications of metals, alloys and glass.

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Contents:

1. **Foundation:**
   a. RCC column foundations and its use: Isolated, strip, pile, grille, mat, raft footings DPC. Strengthening of existing foundations. Different kind of foundation for different structures-lagoon area, near high vibrations.
   b. Shoring and Strutting: Types (local) way of shoring and strutting. Strutting and under pinning of loose foundation trenches – shoring between two walls of building.
   c. Retaining wall: using concrete / stone (principles of trust and water drainage)Gabian walls, pitching, soil embankment
2. **Roof:**
   a. RCC Slabs: Waffle Slab, Flat Slab, Continuous Slab
3. **Staircase:**
   a. General types of staircases, principles of designing treads and risers, standards, covering all details, design of staircase with architectural character.
   b. Different forms – doglegged, open well, circular, pre-cast, spiral with balustrade detail - Handrail, timber, metal / pipe, aluminum, glass PVC.
   c. Composite staircases steel with wooden cast in situ with pre-cast wooden with steel folded plate steel.
   d. Masonry staircases, construction found in North Karnataka. Construction of entrance steps, external steps, garden steps etc.
4. **Materials:**
   a. Glass: Types of glass plates, tinted decoration, pin net fluted, heat absorbing laminated, structural glass bricks. Use of curved and tinted glass, process involved in glass making.
   b. Metals: Manufacture of pig iron, wrought iron and mild steel, aluminum, steel, stainless steel, composition and uses, chromium plating, electroplating, preservative coating of metals.
   c. Alloys: Architectural characteristics and manufacture of materials employed in building industry and their use – lead, copper, tin, zinc, iron, galvanizing and chromium plating process.

References:

1. Sushil Kumar "Building Construction".
2. W.B. Mackay "Building Construction".
3. Rangwala "Building Construction".

Subject : HISTORY OF ARCHITECTURE - IV		
Code : ARC 403	**Credits : 2**	**Hours / Week : 3 hrs.**
Progressive Marks : 60 %	**Examination Marks : 40 %**	**Duration of Exam : 2 hrs.**

Course Overview

To provide an understanding of Western Architecture during Renaissance and the Articulation of structures in the Romanesque and Gothic period.

Contents:

Romanesque Architecture: Articulation of structures, its importance in the development of different trend in architecture.

1. Gothic Architecture:
   Its beginning, development and its influence in the European countries.

2. Renaissance Architecture:
   - The architecture of the renaissance and post-renaissance
   - Examples: Italy, Florence, Spain, and Portugal, Austria, Germany and central Europe,
   - The Low Countries and Britain, Europe, Russia and Scandinavia, post-renaissance Europe.

References:

1. Sir Banister Fletcher "The History of Architecture"
2. Emily Cole "The Grammar of Architecture"
3. David Watkin "A History of Western Architecture"
4. Christian Norberg-Schulz "History of World Architecture"

Subject : MODERN ARCHITECTURE		
Code : ARC 404	**Credits : 2**	**Hours / Week : 3 hrs.**
Progressive Marks : 60 %	**Examination Marks : 40 %**	**Duration of Exam : 2 hrs.**

Course Overview

- This course is to introduce the student to various styles and movements in Architecture. Design theory continually changes as ideas evolve and respond to previous architectural movements and the rest of the world. The most recent forms of architectural styles, such as modernism, post-modernism and contemporary are discussed.
- The course also introduces the Master's and their works. Discuss ideologies and philosophies of the Master's.
- Introduction to building appreciation and critique

Content

1. Introduction to the Arts and Craft movement, Baroque, Art Nouveau, Bauhaus, Modern, Post Modern, Deconstruction and the present.
2. Great Masters like Le Corbusier, Frank Lloyd Wright, Walter Gropius, Louis Kahn and Mies Van Der Rohe.
3. Term work will focus on one of the Master's and the class will study selected works in detail. Project interpretation, concepts, process and built form are evaluated. Group presentations and scale model are made for the above.
4. Individual work to understand and critique Architectural essays in Design Magazines. Including assimilating the format / structure of the article, style of writing, interpretation of ideas and judgmental analysis.

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Degree: Bachelor of Architecture

Subject : BUILDING TECHNOLOGY II (ELECTRICALS)		
Code : ARC 405	**Credits : 2**	**Hours / Week : 3 hrs.**
Progressive Marks : 60 %	**Examination Marks : 40 %**	**Duration of Exam : 2 hrs.**

Course Overview

To develop knowledge & skills required for understanding the building services of Electricity & illumination & their integration with architectural design.

Contents: *Electricity:*

1. Sources of Electricity: Conventional & non conventional- viz
2. Hydel, Thermal, Nuclear & solar, wind tidal, biogas, diesel etc. Types of electric current – AC current, DC current their applications & comparison.
3. Conveyance of electric current from generating station to consumer. Distribution system.
4. Transformer & Substations. Stepping up & stepping down of current. Low tension current High tension current
5. Definition of various terms Current, Voltage, watt, ampere, resistance, inductance phase, Neutral.
6. Service connection – Electric service to a building, Energy meter, panel board, Main control board, main switch.
7. Cables: Over head & Underground cables. Types of cables selection criteria, merits & demerits, comparison.
8. Wires, types of Wires & selection for heating & lighting. Wiring: Systems of wiring. Exposed & concealed- TRS, Metal sheet head,
9. Conduits: Types of conduiting. Advantages & disadvantages of types. Conduit wiring, capping–casing. Tee system, Loop in system. Single phase & three phase wiring. Determination of electric load for a residential building.
10. Protective devices: Fuses, types of fuses, Circuit breakers, Relay etc.
11. Earthing: Methods of Earthing-Plate earthing & pipe earthing, standard practice.
12. Indian electricity rules, relevant provisions of NBC (National Building Code).
13. Techniques & requirement of energy conservation in buildings.
14. Internal wiring to light point, fan point, 2 way point, heating point, wiring of pumps & ware house wiring.
15. Application of the above for electrical works in various projects

Illumination:

1. Introduction to lighting. Need for good lighting, its Characteristics & advantages. General terminology in lighting & Illumination: Luminous intensity, Flux, Lux, lumen etc
2. Lighting design & factors governing it. Lighting systems: Direct, Indirect, Semi direct, Semi indirect etc, their applications for different tasks.
3. Electric lamps, types of lamps: Incandescent, fluorescent, Discharge lamps, sodium vapour lamps, Mercury discharge lamps etc. Characteristics of lamps & their applications.
4. Recommended levels of illumination for different types of tasks