



RAMAIAH
Institute of Technology

CURRICULUM

for the Academic year 2019 – 2020

SCHOOL OF ARCHITECTURE

I & II Semester B. ARCH.

RAMAIAH INSTITUTE OF TECHNOLOGY

(Autonomous Institute, Affiliated to VTU)

Bangalore – 560054.

About the Institute:

Ramaiah Institute of Technology (RIT) (formerly known as M. S. Ramaiah Institute of Technology) is a self-financing institution established in Bangalore in the year 1962 by the industrialist and philanthropist, Late Dr. M S Ramaiah. The institute is accredited with “A” grade by NAAC in 2014 and all engineering departments offering bachelor degree programs have been accredited by NBA. RIT is one of the few institutes with prescribed faculty student ratio and achieves excellent academic results. The institute was a participant of the Technical Education Quality Improvement Program (TEQIP), an initiative of the Government of India. All the departments have competent faculty, with 100% of them being postgraduates or doctorates. Some of the distinguished features of RIT are: State of the art laboratories, individual computing facility to all faculty members. All research departments are active with sponsored projects and more than 304 scholars are pursuing PhD. The Centre for Advanced Training and Continuing Education (CATCE), and Entrepreneurship Development Cell (EDC) have been set up on campus. RIT has a strong Placement and Training department with a committed team, a good Mentoring/Proctorial system, a fully equipped Sports department, large air-conditioned library with over 1,35,427 books with subscription to more than 300 International and National Journals. The Digital Library subscribes to several online e-journals like IEEE, JET etc. RIT is a member of DELNET, and AICTE INDEST Consortium. RIT has a modern auditorium, several hi-tech conference halls and all are air-conditioned with video conferencing facilities. It has excellent hostel facilities for boys and girls. RIT Alumni have distinguished themselves by occupying high positions in India and abroad and are in touch with the institute through an active Alumni Association. RIT obtained Academic Autonomy for all its UG and PG programs in the year 2007. As per the National Institutional Ranking Framework, MHRD, Government of India, Ramaiah Institute of Technology has achieved 64th rank in 2019 among the top 100 engineering colleges across India.

SCHOOL OF ARCHITECTURE

Ramaiah Institute of Technology (RIT), Bangalore, is a leading institution offering undergraduate, post graduate and research programs in the areas of Engineering, Management and Architecture. The institute was established in the year 1962 under the aegis of Gokula Education Foundation. Its mission is to deliver Global quality technical education by nurturing a conducive learning environment for better tomorrow through continuous improvement and customization.

The School of architecture, RIT, Bangalore, was established in the year 1992. Since its establishment, the school has played a vital role in providing quality education. The Council of Architecture (COA) and AICTE has recognized this program.

The Mission of the School is to uphold RIT mission, thus provide quality education to the students and mould them to be excellent Architects with adequate management skills and noble human qualities.

Full time faculty members having Postgraduate qualification from prestigious institutions in India and abroad are teaching in this school. Experienced and well respected practicing architects are invited to provide their experiences as visiting faculty. New milestones are continually being set and achieved. The synergy of the progressive management, committed faculty and students ensure in excellent academic results year after year. This is reflected in the high number of University ranks that are secured.

The School of Architecture is now autonomous (affiliated to VTU) providing scope for further improvement. The focus has been towards fostering novel concepts and solutions in Architectural design. The student's response is very encouraging and the school recognizes and appreciates such good students by awarding them. Many of the students after graduation have pursued higher studies in various universities in India and abroad. There is a good demand for the school graduates in the industry and is developing initiatives towards co-branding of the industry and the institution school. Many have started their own enterprise and architectural practice as well.

All this has been possible as a result of the efforts of the impeccable faculty of the school. The faculty is committed to the welfare and success of the students. The teachers of the school are also engaged in enhancing their knowledge and skills and many are engaged in research activities as well. The school has experts in specialized disciplines like Habitat Design, Product Design, Urban Design, Urban Planning, Landscape Architecture, Heritage Conservation and Interior Design. Faculties of the school also actively participate in National and International conferences and publish and present papers.

The school as part of consultancy started off with the maiden project to redevelop the RIT engineering college campus and is now involved in various campus designs.

VISION OF THE INSTITUTE

To be an Institution of International Eminence, renowned for imparting quality technical education, cutting edge research and innovation to meet global socio-economic needs

MISSION OF THE INSTITUTE

MSRIT shall meet the global socio-economic needs through

- Imparting quality technical education by nurturing a conducive learning environment through continuous improvement and customization
- Establishing research clusters in emerging areas in collaboration with globally reputed organizations
- Establishing innovative skills development, techno-entrepreneurial activities and consultancy for socio-economic needs

QUALITY POLICY

We at MS Ramaiah Institute of Technology strive to deliver comprehensive, continually enhanced, global quality technical and management education through an established Quality Management System complemented by the synergistic interaction of the stake holders concerned.

VISION OF THE DEPARTMENT

To achieve and propagate high standards of excellence in architectural education.

MISSION OF THE DEPARTMENT

- The school's commitment is to prepare people to make a difference;
- To create an environment that shall foster the growth of intellectually capable, innovative and entrepreneurial professionals, who shall contribute to the growth of the society by adopting core values of learning exploration, rationality and enterprise; and
- To contribute effectively by developing a sustainable technical education system to meet the changing technological needs incorporating relevant social concerns and to build an environment to create and propagate innovative designs and technologies.

PROGRAM EDUCATIONAL OBJECTIVES (PEOs):

- PEO 1:** Use the knowledge and skills of Architecture to analyze the real life problems and interpret the results.
- PEO 2:** Effectively design, implement, improve and manage the integrated socio-technical systems.
- PEO 3:** Build and lead cross-functional teams, upholding the professional responsibilities and ethical values.
- PEO 4:** Engage in continuing education and life-long learning to be competitive and enterprising.

PROGRAM SPECIFIC OUTCOMES (PSOs):-

- a. Apply knowledge and skills of arts and sciences to the various architectural scenarios.
- b. Design and develop projects based on function, form and analysis.
- c. Design and improve integrated systems of people, materials, information, facilities, and technology.
- d. Function as a member of a multi-disciplinary team.
- e. Identify, formulate and solve industrial requirements and problems.
- f. Understand and respect professional and ethical responsibility.
- g. Communicate effectively both orally and in writing.
- h. Understand the impact of design solutions in a global and societal context.
- i. Recognize the need for and an ability to engage in life-long learning.
- j. Have knowledge of contemporary issues in industrial and service sectors.
- k. Use updated techniques, skills and tools of architecture throughout their professional careers.
- l. Implement the concepts of project and construction management to satisfy customer expectations.

Curriculum breakdown structure:

The curriculum of Architecture program is so structured to include all the courses that together satisfy the requirements of the program specific criteria prescribed by the **Council of Architecture**. The Course code, Course title, the number of contact hours and the number of credits for each course are given in the following table. The courses are grouped in line with the major components of the curriculum namely: (i) Humanities and Social Sciences, (ii) Arts and Science, (iii) Basic Architecture and Engineering courses, (iv) Professional core courses, (v) Electives and (vi) Project and industry exposure/internship.

Breakup of Credits for B Arch Degree Curriculum. (I to X Semester)

Sem	HSS	AS	BAE	PCS	Electives	Project / Internship	Total Credits
I	1	7	7	11	-	-	26
II	-	8	7	11	-	-	26
III	-	6	8	11	-	1	26
IV	1	3	11	11	-	-	26
V	2	6	6	11	-	1	26
VI	2	-	13	11	-	-	26
VII	3	-	9	11	3	-	26
VIII	2	-	6	15	3	-	26
IX	-	-	-	-	-	26	26
X	-	-	-	5	3	18	26
Total	11	30	67	97	9	46	260

HSS	- Humanities and Social Sciences	- 11
AS	- Arts and Science	- 30
BAE	- Basic Architecture & Engineering	- 67
PCS	- Professional Core Subjects	- 97
Elective	- Professional Electives, relevant to the chosen specialization	- 09
Project / Internship	- Project Work and Internship in Architect's office	- 46

Board of Studies for the Term 2019-2020

- | | | |
|-----|-------------------------------|--------------------------|
| 1. | Prof. (Dr.) Pushpa Devanathan | Chairperson |
| 2. | Ar. Chitra Vishwanath | VTU Nominee |
| 3. | Ar. Vidyadhar S. Wodeyar | External Industry Expert |
| 4. | Ar. Ulhas Rane | External Industry Expert |
| 5. | Dr. Rama RS | Academician |
| 6. | Dr. Chidambara Swamy | Academician |
| 7. | Ar. Subbiah T S | Alumni |
| 8. | Prof. Vishwas Hittalmani | Member |
| 9. | Prof. (Dr.) Rajshekhar Rao | Member |
| 10. | Prof. (Dr.) Jyotimay Chari | Member |
| 11. | Dr. Rashmi Niranjana | Member |
| 12. | Dr. Monalisa Vyas | Member |
| 13. | Er. Vijayanand M | Member |

SCHOOL OF ARCHITECTURE

TEACHING STAFF

Sl No	Name	Qualification	Designation
1	Ar. Pushpa Devanathan	M.Arch., P.G.D.I.(PhD)	Professor & Head of Department
2	Ar. Vishwas Hittalmani	M Des	Professor
3	Ar. Rajshekhar Rao	M L Arch (PhD)	Professor & Head-M.Arch(Landscape Architecture)
4	Ar. Jotirmay Chari	M Arch (PhD)	Professor
5	Prof. Prasad G	M.LArch	Professor (Tenure Faculty)
6	Dr. Rashmi Niranjan	PhD , MFA (Fine arts)	Associate Professor
7	Dr. Monalisa	M Arch , PhD	Associate Professor
8	Ar. Surekha R	M.L Arch	Associate Professor
9	Ar. Lavanya Vikram	M.L Arch, (PhD)	Associate Professor
10	Ar. Sudha Kumari	M.Arch, (PhD)	Associate Professor
11	Ar. Meghana K Raj	M L Arch	Associate Professor
12	Ar. Tejaswini H	M. L.Arch	Associate Professor
13	Ar.Sudhir Chougule	M L Arch	Associate Professor (Tenure Faculty)
14	Ar. Mallika P V	P G – Urban Design	Associate Professor (Tenure Faculty)
15	Ar. Nikhil V Wodeyar	M L.Arch	Associate Professor(Tenure Faculty)
16	Er. Vijayanand M	M Tech (PhD)	Assistant Professor
17	Er. Aruna Gopal	BE	System Analyst
18	Ar. Shivdeepthi Reddy	M.Arch	Assistant Professor
19	Ar. Kriti Bhalla	B.Arch	Assistant Professor

20	Ar. Kanika Bansal	M.Arch(Environmental Planning)	Assistant Professor
21	Ar. Apoorva Lakshmi R	B.Arch	Assistant Professor
22	Ar. Aishwarya Yoganand	M.Sc(Sustainable Building Systems)	Assistant Professor
23	Ar. Divya Susanna Ebin	M Arch (Urban Design)	Assistant Professor
24	Ar. Yashas Hegde	M Arch (Urban Design)	Assistant Professor
25	Ar. Arpita Sarkar	M L.Arch	Assistant Professor
26	Ar. Jyotsna Rao J	M LArch	Assistant Professor
27	Ar. Ranjitha Govindaraj	M L.Arch	Assistant Professor
28	Ar. Reema Harish Gupta	M.Arch (Urban Design)	Assistant Professor
29	Ar. Trisha Sinha	M.Tech (Infrastructure systems)	Assistant Professor
30	Ar. Theju V Gowda	M Sc. Architecture	Assistant Professor
31	Ar. Akshata Shagoti	M.Arch	Assistant Professor
32	Ar. Amala Anna Jacob	M.Arch (Urban Design)	Assistant Professor
33	Ar. Meghana M	M.Arch (World Heritage Studies)	Assistant Professor
34	Ar. Sheethal B S	M.Arch (Regional Planning)	Assistant Professor

ADMINISTRATIVE STAFF

1	Mrs. Padmavathy. B	MBA	FDA
2	Mrs. Ambika	M Tech	Assistant Instructor
3	Mr. Nagesh B.L	Dip. in Mech.Engg.	Assistant Instructor

SUPPORT STAFF

1	Mr. Ramachandra Chari	Attender
2	Mr. Penchaliah	Attender

SCHEME OF TEACHING & EXAMINATION OF I SEMESTER B. ARCH

ACADEMIC YEAR 2019-2020

2019 Batch			Teaching scheme per week			Examination scheme		CIE Marks	SEE Marks
Sl. No	Code	Subject	Lecture/ Studio	Tutorial	Practical(Study Tour/ Case study)	Total Credits	Exam		
1	AR101	Basic Design	6	0	1	7	SEE (TW)	50	50
2	AR102	Building Materials & Construction Technology I	3	0	1	4	SEE (TW)	50	50
3	AR103	Architectural Graphics I	2	0	1	3	SEE (TW)	50	50
4	AR104	History of Architecture I	3	0	0	3	SEE	50	50
5	AR105	Architectural Structures I	3	0	0	3	SEE	50	50
6	AR106	Art in Architecture	3	0	0	3	CIE	100	
7	AR107	Communication Skills	0	0	1	1	SEE	50	50
8	AR108	Measured Drawing	0	0	2	2	CIE	100	
9	AR109	Kannada	0	0	0	-	SEE	50	50
		TOTAL	20	0	6	26			

TW = TERM WORK CIE = CONTINUOUS INTERNAL EVALUATION

SEE = SEMESTER END EXAMINATION

Evaluation Pattern : Marks allocation for SEE

Subject Code	Subject Name	Design	Drawing	Elective / Book review
AR101	Basic Design	20	20	10

Subject Code	Subject Name	Portfolio	Materials portfolio
AR102	Building Materials and Construction Technology I	35	15

Subject Code	Subject Name	Portfolio	Assignment
AR103	Architectural Graphics I	30	20

Subject Code	Subject Name	Portfolio	Assignment
AR106	Art in Architecture	40	60

Subject Code	Subject Name	Portfolio	Assignment
AR108	Measured Drawing	40	60

Note:-

- Electives and Book reviews are a part of Basic/Architectural Design
- Literature survey will be a requirement for Architectural design study. Periodical review by an external jury for subjects going for viva voce.
- National/International tours may be arranged during vacation to students, to study examples of good Architecture. The tour details will be announced in the semester I-VI.
- For all viva voce examinations one internal faculty and one external faculty will conduct the exam.
- Portfolios have to be submitted on prescribed date for all the subjects on the date announced by the department for one year.
- All students have to register on the first day at the beginning of the **Viva voce exam**.
- All students have to register on the first day of Term work exams.

**SCHEME OF TEACHING & EXAMINATION OF II SEMESTER B. ARCH
ACADEMIC YEAR 2019-2020**

2019 Batch			Teaching scheme per week			Examination scheme			
Sl. No	Code	Subject	Lecture / Studio	Tutorial	Practical	Total Credits	Exam	CIE Marks	SEE Marks
1	AR201	Architectural Design I	6	0	1	7	SEE (Viva voce)	50	50
2	AR202	Building Materials & Construction Technology II	3	0	1	4	SEE (Viva voce)	50	50
3	AR203	Architectural Graphics II	3	0	0	3	SEE	50	50
4	AR204	History of Architecture II	3	0	0	3	SEE	50	50
5	AR205	Architectural Structures II	3	0	0	3	SEE	50	50
6	AR206	Surveying & leveling	1	0	1	2	SEE	50	50
7	AR207	Computers in Architecture I	0	0	2	2	CIE	100	
8	AR208	Art Appreciation	2	0	0	2	SEE	50	50
		TOTAL	21	0	5	26			

TW = TERM WORK CIE = CONTINUOUS INTERNAL EVALUATION

SEE = SEMESTER END EXAMINATION

Evaluation Pattern : Marks allocation for SEE

Subject Code	Subject Name	Design	Drawing	Elective /Book review
AR201	Architectural Design I	20	20	10

Subject Code	Subject Name	Portfolio	Viva
AR202	Building Materials & Construction Technology II	40	10

Subject Code	Subject Name	Assignment	Project
AR207	Computers in Architecture I	50	50

- Note:-**
- Electives and Book reviews are a part of Basic/Architectural Design
 - Literature survey will be a requirement for Architectural design study. Periodical review by an external jury for subjects going for Viva voce.
 - National/International tours may be arranged during vacation to students, to study examples of good Architecture. The tour details will be announced in the semester I-VI.
 - For all viva voce examinations one internal faculty and one external faculty will conduct the exam.
 - Portfolios have to be submitted on prescribed date for all the subjects on the date announced by the department for one year.
 - All students have to register on the first day at the beginning of the **Viva voce exam**.
 - All students have to register on the first day of **Term work exams**.

SEMESTER – I
BASIC DESIGN

Course Code: AR 101

Pre requisite: Nil

Course Coordinator: Prof. Pushpa Devanathan

Credits: 6: 0: 1

Contact Hours: 112 hours

Course Objectives:

- Expose the Students to the meaning and purpose of design.
- Train the students in visual composition using 2D and 3D objects.
- Train the students in architectural perception and visualization.

Course Contents:

UNIT I

Principles and elements of composition with 2D & 3D exercises using single and multiple elements, colors textures and different materials.

UNIT II

To translate, connect and bring out the relationship of aesthetic principles with architecture.

UNIT III

Emphasis on transformation of conceptual drawings to 2D drawing. Basics of preparation of plans, elevations, sections and views.

UNIT IV

Focus on Drafting and rendering using different media, views and sketches. Enable the students towards presentation techniques and understanding the form by 3D manual study models and Anthropometry study.

UNIT V

Preparation of final sheets with all the requirements and final models.

References:

1. “How Designers Think” by Bryan Lawson
2. Time savers standards for architectural design data by John Hancock
3. Neufert’s standards
4. Form, Space & Order by Francis DK Ching

Course Outcome (COs):

The students will be able to

- Make compositions using basic principles of design, elements of design & materials. (PO - a, b, c)
- Apply anthropometry in designs.(PO - a, b, d, k)
- Establish relationship between space making & form generation & application of different materials. (PO - a, b, c, h)
- Render with manual presentation techniques. (PO - a, g, k)

SEMESTER – I

BUILDING MATERIALS & CONSTRUCTION TECHNOLOGY –I

Course Code: AR102

Prerequisite: Nil

Course Coordinator: Prof. Viswas Hittalmani

Course Credits: 3:0:1

Contact hours: 70 hours

Course Objectives

- To introduce to the students, the fundamental principles of architectural construction drawings.
- To introduce to the students, the fundamental principles of load bearing construction and its major components in building.
- To develop an understanding in students, of the basic building materials.

Course Contents:

UNIT I

Introduction to drafting and drafting equipments: Lines, Hatches, Lettering, Scales and proportion, Composition.

UNIT II

Brick masonry: Basic components of masonry, Stretcher and Header bond, English Bond, Flemish Bond.

Material: Clay bricks, aggregate, stone.

Stone Masonry: Ashlar masonry, Rubble masonry.

Material study: Stone, Brick, Mud mortar.

UNIT III

Arches: Typical arch and its basic components, Ogee arch, semi circular arch, four centered arch

Lintels: R.C.C lintel, Brick lintel, stone lintel.

Material Study: Sand, Fly ash, cement, lime, aggregate.

UNIT IV

Typical Section through a building and foundations.

Material study: P.C.C, Concrete blocks.

References:

1. “Construction Technology” By Chudley
2. “Construction Of Buildings” By Barry
3. “Building Construction, Principles, Practice And Materials” By Hardie Glen
4. “Text Book Of Building Construction” By Arora & Bhindra
5. “Building Construction Illustrated” By Francis D K Ching

Course Outcome (COs):

The students by the end of the course will be able to

- Draft and read architectural drawings using architectural conventions. (PO - g, k)
- Identify the basic building components of a building such as brick, mortar, masonry construction, lintels and arches and their construction methods. (PO - c, k)
- Use appropriate building materials based on the properties, behavior and applications and identifying the particular materials for usage of load bearing buildings. (PO - c, k)
- Observe and understand innovative details in construction.(PO - k)

SEMESTER – I

ARCHITECTURAL GRAPHICS – I

Course Code: AR103

**Prerequisite: Nil
hours**

Course Coordinator: Associate Prof. Dr. Rashmi N

Course Credits: 2:0:1

Contact hours: 42

Course Objectives

- To enhance the drawing skills and visual skills of students in understanding the two dimensional representations of simple three dimensional objects.
- To allow students to explore and understand the relation of objects interpenetrating and the orthographic projections of objects and relate to buildings.
- The students should express the combined effect of the above two with various presentation techniques.

Course Contents:

UNIT I

Introduction to fundamental techniques of architectural drawings, drafting and lettering.

UNIT II

Introduction of plane geometry and polyhedral structures.

UNIT III

Orthographic projection of solids and sections of solids.

UNIT IV

Developments and interpenetrations of objects.

UNIT -V

Three dimensional representations of solid forms (isometric and axonometric) and model making in different materials.

References:

1. Rendering with pen & ink” by Robert Gill.
2. Drawing and Perceiving by Douglas Cooper
3. “Architectural Graphics” by C.Leslie Martin
4. “Geometrical Drawing for Art Students” by I .H.Morris.
5. “Perspective” by S.H.Mullik

Course Outcome (COs):

The students will be able to demonstrate

- The techniques of orthographic projection in drawings. (PO - g, i)
- The importance and representation of three dimensional forms in design projects. (PO - g)
- Graphical presentation skills for effective communication in design. (PO - g, a, k)

SEMESTER – I

HISTORY OF ARCHITECTURE –I

Course Code: AR104

Prerequisite: Nil

Course Coordinator: Asst. Prof. Reema H Gupta

Course Credits: 3:0:0

Contact hours: 42 hrs

Course objectives:

The students will be exposed to

- Introduction to critical appreciation of buildings.
- Synoptic study of influences of culture and climate.
- Construction techniques and architectural characteristics

Course Contents:

UNIT I

Egypt - Influences, Architectural character; Development of Mastaba, Pyramids, Evolution of pyramids; Rock hewn tombs; Egyptian cult temple, Mortuary temple - & Mamisi temple; Pylon, Obelisk, Hieroglyphics, Sphinx etc

UNIT II

Architecture of West Asia - Architectural character, influences; Ziggurats - Urnammu, Tchoga Zanbil, Assyrian Ziggurat; Palaces – Khorsabad; Persia – Influences, Architectural character, columns, capitals etc; Palace at Persepolis & Firuzaba.

UNIT III

Indus valley civilization - Town planning and construction principles, Great bath, salient features of Indus valley civilization, Granary, House plan, toilet, privy etc
Vedic period – Vedic village, huts, gateway, influence of Vedic elements over Buddhist

Mouryan period – Architectural character, Ashok Stambha. Buddhist period – Stupas; Hinayana & Mahayana Buddhism – Chaitya halls and Viharas; stupa development, Chaitya window, torana, Vedika and other ornamental features.

UNIT-IV

Greece – Brief study of Mycenaean architecture as an introduction to Greek architecture

Influences, Architectural characters like Optical corrections, Visual effects, orders (Doric, Ionic, Corinthian) and their evolution, moldings, ornamental features etc; Salient features of Greek temples, Agora, Acropolis, Parthenon (Doric order), Erechtheon (Ionic order), Theatre Epidaurus, Tower of winds (Corinthian order).

UNIT – V

Rome – Brief study of Etruscan architecture as an introduction to Roman architecture Influences, architectural character – orders, types of constructions etc; Circular & rectangular temples; Monuments – Forum, Colosseum, Triumphal Arches, Thermae, Basilica, Victory column, Aqueduct

References:

1. “History of Architecture” by Bannister Fletcher
2. “Architecture of the world” by Henry Stierlin, Benedict taschen Publication, Germany
3. “Hindu Architecture” Percy Brown

Course outcome (COs):

The students will be able to

- Carry out critical appreciation of historical buildings. (PO - a,g,h,i)
- Analyze Influences of culture and climate of the period on buildings. (PO - c)
- Analyse construction techniques and architectural characteristics of the period. (PO - k)

SEMESTER – I

Architectural Structures-I

Course Code: AR105

Prerequisite: Nil

Course Coordinator: Asst. Prof. M.Vijayanand

Credits: 3: 0: 0

Contact Hours: 42 hrs

Course Objectives:

The students would be introduced to

- Basic Structural Elements and understanding of their behavior. To Learn the properties & usage of structural Materials.
- Study the Force system, Resolution of forces, Parallelogram law & conditions of Equilibrium. Analyze the problems on resolution of forces
- Learn types of Loads & Supports systems. Analyze the problems related to the different conditions of loads & supports, Support reactions of Beams & Trusses.
- Find Centroid of Geometrical sections and solve problems related to it.
- Understand the concepts of finding Moment of Inertia & solve problems relating to it.

Course Contents:

UNIT I

Basic Structural Elements & Materials: Introduction to basic structural systems, beam, Arch, Truss, frames, , vault, dome, slab, shells.

Materials: Basic mechanical properties of Structural steel, Bricks, Stones, Concrete & Timber.

UNIT II

Forces: Definition of force and classification of system of force.

Concurrent coplanar forces, triangle law of forces, parallelogram law of forces, rectangular components, resolution of forces , Problems on resolution of forces.

Theorem of transmissibility & composition of forces, Static of equilibrium conditions, resultant and equilibrant of force system, Problems on the above to determine the equilibrant and static equilibrium.

Problems on calculation of resultant.

Moment of a force & condition of equilibrium, Non concurrent non parallel forces, Lever arm , couple.

Varignon's theorem of moments – derivation & simple problems, Problems on Non concurrent non parallel forces.

UNIT III

Types of loads - Concentrated load, UDL, UVL

Types of supports, Problems on support reactions for the beams, trusses.

UNIT IV

Properties of the section & the definition – C/s area, centroid, second moment of area, Section modulus & radius of gyration of standard areas, Derivation of centroid – Square, rectangular, circular & flanged sections.

Problems on the above geometrical figures for centroid – Square, rectangular, circular, Tee & I-sections.

UNIT V

Derivation of MI of Square, rectangular, circular about its centroidal axis, Parallel axis theorem & explanation

Problems on MI - Square, rectangular, circular, Hollow circular, hollow rectangular, square sections, Tee section, Symmetrical I section and unsymmetrical I section

References:

1. Structures, by D L Schodeck – Published by Prentice Hall, USA
2. Engineering Mechanics – Ferdinand L Singer, Harper Collins Publications, Third Edition.
3. Engineering Mechanics by S.P. Timoshenko and D.H.Young.
4. Elements of Civil Engineering by mimi-das saikia, bhargab mohan das, madan mohan das
5. Elements of Civil Engineering by Shakeeb ul Rehman
6. Elements of Civil Engineering & Engineering Mechanics by R V Raikar
7. Elements of Civil Engineering & Engineering Mechanics by MN Seshaparakash & Ganesh B

Course Outcome (COs):

The students will be able to

- Adopt the different Structural systems & the materials used for structural construction. (PO - a, e)
- Analyze the various force systems, work on problems relating to the resultant, equilibrium, equilibrant etc. (PO - a, e)
- Analyze the Beams & Trusses with different types of load conditions & different types of support conditions. (PO - a, e)
- Find the centroid of geometrical sections. (PO - a, e)
- Find the Moment of Inertia of the geometrical sections. (PO - a, e)

SEMESTER – I

ART IN ARCHITECTURE

Course Code: AR106

Pre requisite: Nil

Course Coordinator: Associate Prof. Dr. Rashmi N

Credits: 3:0:0

Contact Hours: 42 hrs

Course Objectives

The students are exposed to

- Develop basic artistic skills in sketching, free-hand drawing, calligraphy etc,
- Understand and apply different techniques and media of rendering for design presentation.
- Effective visualization of design projects.

Course Content:

UNIT I

Role and meaning of Art in Architecture, basics of sketching, free-hand perspective sketching.

Introduction of basic medians, tools and techniques of rendering.

Free-hand sketching of interior views of built forms.

UNIT II

Introduction of colour scheme. How to use water colours, acrylic paints, poster colour, oil-paints, pastels, colour pencils, markers, sketch pens, stumping powder, photo colours. Rendering architectural elements and materials using different rendering techniques.

UNIT III

Rendering of plans, sections and elevations of architectural buildings. Rendering the views of built forms, using different mediums, mixed media etc.

UNIT IV

Understanding plasticity of model making materials such as clay, balsa wood, mill boards, mount boards, thermocol, paper etc. Executing views of built forms using various model making materials, origami, kirigami, mixed media etc.

UNIT V

Introduction to workshop. Sheet metal and soldering. Introduction to carpentry joints etc. Architectural model making.

References:

- Rendering with pen and ink by Robert Gill.
- Introduction to Drawing by James Morton.
- Art of Architectural model by Akto Busch.
- Unfold paper in Design, Art, Architecture and Industry by Petra Schmidt & Nicola Stattman.

Course Outcome (COs):

The students will be able to

- Appreciate architectural drawings. (PO-a,k)
- Exhibit profeciency in rendering and architectural presentation.(PO-a,i)
- Explore use different types of materials and its feasibility in model making.(PO-d,f)
- Visualize the basic relations of form and space in architecture.(PO- i,d)

SEMESTER – I
COMMUNICATION SKILLS

Subject code: AR107

Prerequisites: Nil

Course Coordinator: Humanities Dept

Credits 0:0:1

Contact Hours: 14 hrs

Course Objectives

The students are introduced to the basics of communication in English through written and spoken activities and help the learner to use the language in a proficient way. The general purpose is to develop the learner's communicative competence in English.

Course Content:

UNIT I

Understanding Communication Process

Introduction to communication and its process, Forms of communication, Levels of communication, Barriers to communication, Nonverbal communication.

UNIT II

Effective Presentation and Group discussion skills, Importance of body language.

UNIT III

Grammar

Parts of speech, usage of tenses, Identifying errors in sentences, words commonly confused and misused, Usage of Phrasal verbs and Idioms.

Using right choice of words in a given context.

UNIT IV

Writing skills.

Paragraph writing, Expansion of ideas.

UNIT V

Technical writing.

Basics of letter writing, Job application letter, preparing a resume / curriculum vitae.

E-mail letters.

References:

1. Technical communication – Principles and Practice- Meenakshi Raman & Sangeetha Sharma, Oxford University Press – 2007
2. A Practical English Grammar – A.J. Thomson & A. V. Martinet, Oxford University Press – 1987
1. Working in English: Teachers Book – Jones Leo
3. Communicative English for Professional Courses – Mudambadithaya G S
4. English Conversation Practice – Taylor G

Course Outcome (COs):

- The student would be able to exhibit proficiency in the English language, communicate effectively and thereby enhance their employability. (PO - g)

SEMESTER – I

MEASURED DRAWING

Course Code: AR 108

Pre requisite: Nil

Course Coordinator: Associate Prof. Dr. Rashmi N

Credits: 0: 0: 2

Contact Hours: 42 hour

Course Objectives:

- The students should know the value of drafting and documentation in architecture.
- The students should be able to understand the application of scale and proportion in architecture.
- The students should understand the importance of survey, need to measure, represent, analyse and appreciate the detailing involved in architectural buildings and historic monuments.

Course Content:

UNIT I

Introduction to basic drafting and understanding the use of scale in architectural documentation. Introduction to basics of sketching on site. Measurement and documentation of street furniture involving ergonomics.

UNIT II

Introduction to basic mediums, tools and techniques of documentation. Measurement and documentation of kitchen, toilet etc involving anthropometry, scale and proportion in architecture.

UNIT III

Introduction to techniques of observation, understanding, analyzing, measuring and documenting of small building structures/ built forms/ permanent/ temporary structures like kiosks.

UNIT -IV

Measurement and documentation of a unit of vernacular architecture.

UNIT -V

Measurement and documentation of a unit of heritage buildings/ temples.

References:

- **Measured Drawing for Architects by Robert Chitram**

Course Outcome (COs):

The students will be able to

- Draft and read architectural drawings. (PO-a)
- Identify and appreciate basic building components. (PO-i)
- Appreciate architectural characteristics of the time. (PO-f)
- Understand the importance of team work in architectural documentation. (PO-d)

SEMESTER – I

KANNADA MANASU

Course Code: AR 109

Pre requisite: Nil

Course Coordinators: Humanities Dept.

Credits: NIL

Contact Hours: 28 hrs

Course Objectives

- Students will be introduced to kannada language, literature, state and culture etc.,
- Analysis of various literary forms and stages.
- Comparing and criticizing the literary forms.

Course Contents:

UNIT I

Vyakthi chithra, pravasa kathana, vignana lekhana, vinoda, parichaya lekhana, khathe etc.,

UNIT II

Prabandha lekhana (essay):-“Annappana reshme khaailey”-Kuvempu
Ithara prabandhagala parichaya.

UNIT III

Kavana (poem):-“Belchiya haadu”-Dr.Siddalingaiah
Dalitha sahitya kurithu vivarane.

UNIT IV

Thantragnana baraha (Technology related article):-“Vritthi shikshanadalli kannada madhyama
Lekhanagalannu kurithu parichaya.

UNIT V

Janapada kavya (folklore):-konavegowda
Vignana lekhana:-“Aane halladalli hudugiyaru”-BGL Swamy.

References:

1. Kannada sahitya Charithre-M.K. Krishnaiah (edition 2003)
2. Kannada sahitya Kosha-Rajappa Dalavayi (edition)
3. Kannada Manasu:Kannada Vishwavidyalaya, Hampi (Lingadevaru halemane)
Edition-2007

Course outcome (COs):

The students will be able to

- Use the language at ease in daily life situations.(PO - g, i)

SEMESTER – I

KANNADA KALI

Course code: AR109K
Course coordinator: Humanities Dept

Credits: NIL
Contact hours: 28 hrs

UNIT I

Lesson 1: Introducing each other- personal pronouns, interrogative words
Lesson 2: Introducing each other -possessive forms, Noun and verb.

UNIT II

Lesson 3: About Ramayana . Adjectives, usage of tenses, formation of words and sentences.
Lesson 4: Enquiring about college. Qualitative and quantitative adjectives.

UNIT III

Lesson 5: Enquiring about room. Preposition (locative case) locative case.
Lesson 6: Vegetable Market- Dative case, Kannada alphabets and basic numerals.

UNIT IV

Lesson 7: About medical college - Ordinal numerals, plural markers.
Lesson 8: In a cloth shop - Color adjectives, Tens, vocabulary, Translation

UNIT V

Lesson 9: Plan to go for picnic- Names of the days, Kannada script and passage to write.
Lesson 10: Enquiring about friends and family- dialogue and paragraph writing.

Text Book :

Lingadevaru Halemane - Kannada Kali, 3rd Edition. 2015

Reference Book:

Kannada kali, prasaranga kannada University, Hampi. 2007

Course Outcomes (COs):

- Develop vocabulary.(Po-j)
- Enrich their language skill for various purposes. (P)

SEMESTER – II

ARCHITECTURAL DESIGN - I

Course Code: AR201

Pre requisite: Nil

Course Coordinators: Prof. Pushpa Devanathan

Credits: 6: 0: 1

Contact Hours:112 hours

Course Objectives:

- Expose the students to the relationship between human feelings and architectural form.
- Train them in space and form making.
- Train the students in architectural perception and visualization.

Course Contents:

UNIT I

To create space and form and exhibit through models made of different materials to express the look and feel.

UNIT II

Undertake transformation of solids, coordination of form and function.

UNIT III

Explore the relationship between human feelings and architectural form – observe aspects of design like aesthetics, light, circulation, structures – study activity flow, interview users – analyse and interpret data – form guidelines for design.

UNIT IV

Concept development, site studies, visualize space and activity, concepts, single line plans and 3D forms, organize space, volumes, massing and frame aesthetics; make a study model.

UNIT V

Basics of preparation of floor plans, elevations and sections, reviews and revisions
Drafting, rendering, reviews, discussions, revisions of drawings, Preparation of a physical model of the completed design and portfolio of semester work.

References:

- 1."Form space and Order" by Francis D.K Ching
2. "Design fundamentals in architecture" by VS Parmar
3. "How Designers Think" by Bryan Lawson
4. "Design Thinking" by Peter G Rowe

5. “Art of Thinking” by Vincent ryan Ruggiero
6. “How Building works: The Natural Order of Architecture” by Edward allen
7. “Architectural Drafting and Design” by Ernest R weidhaas
8. “Design of Enclosed Spaces” by Piera Scuri

Course Outcome (COs):

The students will be able to

- Visualize the relationship between human feelings and architectural form. (PO - a, b, k)
- Create space and form. (PO - a, b, c, g)
- Perceive and visualize architectural pursuits. (PO - a, b, g, k)
- Represent design through drawing. (PO - a, k)

SEMESTER – II

BUILDING MATERIALS & CONSTRUCTION TECHNOLOGY –II

Course Code: AR202

Prerequisite: Nil

Course Coordinators: Prof. Vishwas Hittalmani

Course Credits: 3: 0 :1

Contact hours: 70 hrs

Course Objectives

- To provide the students with understanding of load bearing structures.
- Students should be able to identify and analyze the requirements of the building component and communicate the construction details through drawings.
- To understand building materials, properties, application in building.

Course Contents:

UNIT I

Doors: Introduction to doors and frames, detail study of panel doors with glass and mesh, flush doors, batten ledged and braced doors. Materials- Properties and usage of timber.

UNIT II

Windows: Introduction to wooden windows – detail study of fixed and sash windows.

UNIT III

Staircase: Introduction to types of staircase. Detail study of R.C.C waist slab staircase and R.C.C folded plate staircase. Construction of RCC Pre-Cast Staircase, Steel staircase and Composite staircase.

UNIT IV

Materials-Role of Timber in building industry. Study of steel as construction materials including their characteristic properties, application etc.

References:

1. “Construction Technology” By Chudley
2. “Construction Of Buildings” By Barry
3. “Building Construction, Principles, Practice And Materials” By Hardie Glen
4. “Text Book Of Building Construction” By Arora & Bhindra
5. “Building Construction Illustrated” By Francis D K Ching

Course Outcome (COs):

The students will be able to

- Draft and read architectural drawings using architectural conventions. (PO - a, g, k)
- Identify the components of a building such as doors, windows, roofing systems, staircase and their construction methods. (PO - k, c)
- Use appropriate building materials based on the properties, behavior and applications and usage of steel in building. (PO - k, c)

SEMESTER – II

ARCHITECTURAL GRAPHICS - II

Course Code: AR203

Prerequisite: Nil

Course Coordinators: Associate Prof. Dr. Rashmi N

Course Credits: 3: 0: 0

Contact hours: 42 hrs

Course Objectives

- To introduce the fundamental techniques of architectural drawings and enhance the visual skills.

Course Contents:

UNIT I

Perspective: Understanding fundamental techniques of 1- point perspective and 2-point perspective construction to enhance the student's architectural drawing skills and the visual skills, finally assisting them in appreciating built forms in their design presentations.

UNIT II

Sciography: Learning about light, shade and shadow on built forms and applying the knowledge of sciography on the design presentations to understand the undulations, depths, hierarchy of surfaces and built forms.

UNIT III

Rendering: Developing an understanding the importance of color schemes in design presentations as well as its application on built forms to create pleasing environments.

References:

1. "Rendering with pen & ink" by Robert Gill.
2. "An Introduction to Perspective" by Ray Smith (Royal Academy of Arts)
3. "Drawing and Perceiving" by Douglas Cooper
4. "Geometrical Drawing for Art Students" by I.H.Morris.
5. "Perspective" by S.H.Mullik
6. "Architectural Graphics" by C.Leslie Martin

Course Outcome (COs):

The students will be able to

- Carry out perspective drawings. (PO - a)
- Identify the importance & need of presentation skills. (PO - g, a)
- Develop skills in graphical presentations. (PO - g, k)

SEMESTER – II

HISTORY OF ARCHITECTURE -II

Course Code: AR204

Prerequisite: Nil

Course Coordinator: Assnt Prof. Reema H Gupta

Course Credits: 3:0:0

Contact hours: 42 hrs

Course objectives :

- Introduction to critical appreciation of buildings.
- Synoptic study of influences of culture and climate.
- Construction techniques and architectural characteristics.

Course Contents:

UNIT I

Introduction, Early Christian Architecture – Influences & Arch. Character.
Early Christian Architecture – Basilican church with examples.
Early Christian Architecture – Baptistery & tombs.
Byzantine Architecture – Influences & Arch. Character, Santa Sophia.
Byzantine Architecture – S. Vitale and S. Marks, Venice.

UNIT II

Romanesque - Italy- Influences & Arch. Character.
Romanesque - Italy- Pisa Cathedral and S. Michele.
Romanesque - France- Influences & Arch. Character.
Romanesque - France- Angouleme Cathedral & Abbey –aux- Hommes.

UNIT III

Romanesque - Britain- Influences & Arch. Character.
Romanesque - Peterborough Cathedral.
Gothic Architecture in Britain- Influences & Arch. Character.
Gothic Architecture in Britain- Salisbury Cathedral and West Minister Abbey.

UNIT IV

Gothic Architecture in France- Influences & Arch. Character.
Gothic Architecture in France- Notre Dame Cathedral, Amiens Cathedral.
Late Medieval Architecture in Italy- Influences & Arch. Character.
Late Medieval - Italy- Milan Cathedral, S. Maria del Fiore, Doge's Palace.

UNIT V

Renaissance Architecture in Italy, France, Britain – Introduction, Architectural character, Examples.
Baroque architecture in Italy, France, Britain – Introduction, Architectural character, Examples.

References:

1. History of Architecture by Bannister Fletcher
2. Architecture of the world-Romanesque by Henry Stierling

Course Outcome (COs):

The students will be able to

- Carry out critical appreciation of historical buildings. (PO - a, g, h, i)
- Analyze influences of culture and climate of the period. (PO - c)
- Apply the knowledge of construction techniques and architectural characteristics of the period. (PO – a ,k)

SEMESTER – II

ARCHITECTURAL STRUCTURES – II

Course Code: AR205

Prerequisite: NIL

Course Coordinator: Asst. Prof. M.Vijayanand

Credits: 3:0:0

Contact hours: 42 hrs

Course Objectives:

- The student should be able to develop and understand the properties of materials.
- The student should be able to develop and understand the behavior of materials.

Course Contents:

UNIT I

Simple Stress and Strain: Introduction Properties of materials Stress, Strain, Hooke's law, Poisson's ratio, Stress – Strain diagram for structural steel & non ferrous materials, Principle of Superposition & Problems.

UNIT II

Elastic constants and Elongation of bars: Total elongation of tapering bar of circular & rectangular sections, Elongation due to self weight, Problems on above, Derivation of expression for volumetric strain, elastic constants & relationships among constants and Problems on elastic constants.

UNIT III

Shear Force and Bending Moment: Relationship between loading, shear force & bending moment, Shear force & bending moment equations - cantilever beams, Simply supported beam and overhanging beams with point load, UDL, Moment and Problems on above.

UNIT IV

Elastic stability of Compression members: Elastic stability of columns – introduction, short & long columns, Euler's theory on columns, Effective length, slenderness ratio, radius of gyration, buckling load.

UNIT V

Buckling loads of columns: Assumption & derivation of Euler's buckling load for different end conditions, Limitations of Euler's Theory, Rankine's formula, Problems on above.

References:

1. Popov P: Engineering Mechanics of Solids, Prentice Hall India Ltd.
2. B.S. Basavarajaiah and P.Mahadevappa: Strength of Materials, Khanna Publishers
3. Rajput: Strength of Materials, S.Chand publishers, 4th Edition, New Delhi, 2007.
4. Bansal R.K.: A Textbook of strength of materials, Laxmi Publishers, New Delhi, 4th Edition, 2007.

Course Outcome (COs):

The students will be able to

- Analyze the properties of materials and determine the relationship between elastic constants. (PO - a, e)
- Demonstrate and understand the behavior of materials by representing the type of supports and reactions of a statically determinate structure. (PO - a, e)
- Demonstrate the maximum shear force and bending moment of a statically determinate structure. (PO -a, e)
- Demonstrate the design of axial load carrying capacity of the column. (PO - a, e)

SEMESTER – II

SURVEYING AND LEVELING

Course Code: AR206

Prerequisite: Nil

Course Coordinator: Civil Dept

Credits: 1:0:1

Contact Hours: 42 hrs

Course Objectives:

Introduction to surveying and leveling principles and practices

Course Contents:

UNIT I

Importance of surveying to engineers. Types and classification of survey. Principles of surveying. Definition of maps and understanding topographical maps of survey of India. Shrunken scale problems.

UNIT II

Chain surveying- instruments for chain surveying, direct and indirect ranging, principles and uses of cross staff, optical square. Concept of field book, types of chains and tapes, finding out area of irregular figures by chain, tape, cross staff, construction of pentagon and hexagon using chain surveying.

UNIT III

Plane table and accessories, Advantages and disadvantages of plane table survey, basic definitions, principles of plane tabling, setting up and orientation, methods of plane tabling: radiation and intersection, plane table traversing.

UNIT –IV

Leveling – basic definitions, classification of leveling methods, types of levels- dumpy level, temporary adjustments of dumpy level, reduction of levels, plane of collimation method, problems, profile leveling- methods and application, fly leveling.

UNIT –V

Theodolite- study of transit theodolite and function of parts- temporary adjustments, measurement of horizontal angles- repetition and reiteration, measurement of vertical angles, contouring- definition, uses of contours, characteristics of contours, GIS and its application, total station and its uses.

References:

1. A.M. Chandra, Plane Surveying, new age International.
2. Alok, Plane Surveying- S Chand and Company Ltd.
3. Punmia B.C “Surveying” Vol. 1 & 2. Laxmi Publications Pvt. Ltd., New Delhi.
4. S.K.Roy, Fundamental of Surveying- Prentice Hall of India, New Delhi.

Course Outcome (COs):

The students will be able to

- Practically carry out marking of geometrical form on ground. (PO - a, e)
- Analyze principle of surveying and leveling. (PO - a, e)
- Use instruments for applications. (PO - a, e)

SEMESTER – II

COMPUTERS IN ARCHITECTURE -I

Course Code: AR207

Prerequisite: Nil

Course Coordinator: Asst. Prof. Aruna Gopal

Credits: 0: 0: 2

Contact Hours: 42 hrs

Course Objectives:

- To develop skills required in using computers as a tool for architectural design representation
- To develop skills with 3D visualization & animation using Google Sketch-Up.
- To learn Presentation techniques using Google Sketch-Up

Course Contents:

UNIT I

User Interface essentials: View settings, navigations, orbit, save.

Draw Tools: Basic shapes using draw tools, Unit setup, push-pull, follow me

UNIT II

Modify: Scale, rotate, Copy, Mirror

Measurements: Protractor, tape, Divide, array.

UNIT III

Views: Camera views, Scenes, Walkthrough.

Styles: Preset styles, face & edge styles.

UNIT IV

Material: Applying colors & Textures, creating new materials.

Shadows: Shadow & fog settings.

UNIT V

Presentation: Section planes, orthogonal views, background styles.

Output: Save as images, Walkthrough as Video file.

References:

1. Sketch-Up Knowledge bank online help
2. Sketch-up 8 for Dummies by Aidan Chopra
3. Video Tutorials online & reference guides

Course Outcome (COs):

The students will be able to

- Use sketch-up to create 3D models of Buildings. (PO - k)
- Use Materials & View Styles to enhance the view of the building model. (PO - k)
- Use presentation techniques in sketch-up to communicate design. (PO - k)

SEMESTER – II

ART APPRECIATION

Course Code: AR208

Pre requisite: Nil

Course Coordinator: Associate Prof. Dr. Rashmi N

Credits: 2:0:0

Contact Hours: 28 hrs

Course Objectives:

The students will be exposed to

- The meaning of art and its role.
- Evaluate a work of art by appreciation and differentiate clearly from non-art.
- identify the nature and characteristics of various types of art
- The importance of understanding and appreciating/criticizing works of art, their meaning and role. Study of various forms of art like, fine arts, commercial arts, spatial arts, temporal arts etc. Examples / projects expressing the application of the above have to be carried out.

Course Content:

UNIT I

Role of Art: Introduction, Art and Architecture, Role and Meaning- artist, Architect and Craftsman, Art in Architecture.

UNIT II

Types of Art: Fine arts, performing arts, visual art, spatial arts, folk arts, commercial arts, industrial arts abstract art, temporal art, pop art, abstract art, digital art, Types of Architecture.

UNIT III

Art Criticism: Types of Criticism, Criticism of works of art, movements and isms in art, impressionism, expressionism, etc

UNIT IV

Art Forms- Visual Arts: Painting, Photography and Architecture, Sculpture and Architecture.

UNIT V

Art Forms- Performing Arts: Film and Architecture, Music and Architecture, Drama and Architecture, Literature and Architecture, Advertising and Architecture.

References:

1. “Humanities through the arts” by F. David Martin and Lee A. Jacobus.
2. “Art in the western world” by David Robb and J J Garrison
3. “Principles of Design in Architecture” by K W Smithies
4. Aesthetics a text book- Yuri Borev
5. Art in History, History in Art- David Freedberg and Jan de Vries
6. Principles of two dimensional Design – Wucios Wong

Course Outcome (COs):

The students will be able to

- Visualize the role of art, to distinguish between art, craft and architecture. (PO - a)
- Differentiate the different types of art and understand their relevance. (PO - a)
- Develop a sense of criticism. (PO - g)
- Exhibit the historical development of art. (PO – g, i)
- Relate architecture to the allied fields of art. (PO – I, k)