I Semester

ARCHITECTURAL DESIGN - I			
Course Code	**21ARC11**	CIE Marks	100
Teaching Hours/Week (L:T:P: S)	0:0:0:7	SEE Marks (VIVA)	100
Total Hours of Pedagogy		Total Marks	200
Credits	07	Exam Hours	

Course objectives:

1) To develop the ability to generate solutions to spatial constructs, which integrate principles of design with functional requirements
2) To develop an understanding of the holistic role of an Architect and Architecture in society.

Teaching-Learning Process (General Instructions)

These are sample Strategies; which teachers can use to accelerate the attainment of the various course outcomes.

1) The contents of the courses shall be taught in an application-oriented manner on a scientific and design basis. The course contents shall be taught and learned in lectures, seminars, labs or workshops, studio exercises and design projects, etc.
2) In-studioexercises the teachers shall take the lead to provide tasks and offer guidance for solutions finding. The students shall work either individually or in groups.
3) In design studios, the students contribute to the processing, analysis and solving of problems of direct professional practice, attended by faculty(s) entitled to conduct the studio and examine. The results shall be defended through drawings; models and reports and evaluated through periodic assessment and finally by a jury or panel, and finally, evaluated through periodic assessment and an end semester examination or viva voce.

We inhabit and function in space, both the manmade and the natural i.e., “a life spent within an enclosure”. These enclosures have functional and cultural meanings, are symbols of abstract ideas of that period in time.

"Architecture is the art we all encounter most often, most intimately, yet precisely because it is functional and necessary to life, it's hard to be clear about where the "art" in a building begins." - Jonathan Jones

"Architecture is a discipline directly engaged with shaping enclosure, of erecting and toppling barriers or—more explicitly—of extending and limiting ‘freedoms’." - E. Sean Bailey &Erandi de Silva

Module-1

Introduction to Architecture:

- Importance of Architectural Design in architectural education.
- Architect’s role in Society and Architectural Design.
- Understanding of Architecture’s connection with other disciplines of knowledge: Science & Technology, Mathematics, Philosophy, Religion, Sociology, Psychology, Ecology, Climate change etc.

Teaching-Learning Process	• Documentation of local stories on architecture, important local buildings and other favourite buildings or places. • To observe and understand different elements, those comprise architecture like

<table>
<tr><td></td><td>doors, windows, staircase, roof, enclosures etc.
• Observing and documenting the built environmental condition around and experiencing enclosures (field trips) to learn basics of architectural representation.</td></tr>
<tr><td colspan="2">Module-2</td></tr>
<tr><td colspan="2"><u>Introduction to Design:</u>
• Universality of Design in various fields.
• Introduction to different fields in Design such as Basic design, Architectural design, Graphic design, Automobile design, Interior design, Fashion design, Product design, sustainable design, and so on.</td></tr>
<tr><td>Teaching-Learning Process</td><td>Objects Analysis – Understanding of objects that are in everyday use around us. Look and feel of them to know the purpose and function, with material, texture, size and shape.
• Representation through points and lines, various textures in nature and man-made elements.
• To learn basic design principles such as balance, symmetry, rhythm, repetition, hierarchy, unity, proportion, emphasis, contrast</td></tr>
<tr><td colspan="2">Module-3</td></tr>
<tr><td colspan="2"><u>Introduction to the Design Process:</u>
To understand the Qualitative and Quantitative aspects of Design Process
Qualitative design process
• What is an Idea or Concept in Design? Understanding the relationship between idea, context, space (form & structure), and functional requirements.
• Introduction to the various methods of idea / concept generation - use of form, patterns in nature and in geometry, music, text, and other allied fields.
• Understanding the ambience of space using – Form, Colour, Texture, Light, Space and Scale
Quantitative design process
• Anthropometry - Understanding the functional and spatial requirements with respect to the human body and its postures along with furniture.
• Study of Standard measurements, minimum and optimum areas for mono functions.
• User’s data, movement and circulation diagrams.
• Case study of famous architect’s work or local architecture with respect to spatial analysis, area requirement and program.</td></tr>
<tr><td>Teaching-Learning Process</td><td>• Understanding the difference and similarity while design of a non-enclosed space, a semi-enclosed space, an enclosed space.
• Analysis of spaces using – Form, colour, texture, light, ventilation, space and scale along with circulation.
• Submission will include Idea generation, Study models, Sketches and drawings to achieve the desired results.
• Drawings of the human body in various postures with required measurements with respect to different functions, spaces and furniture.
• Design of functional furniture layout with requisite circulation, lighting and ventilation for a specific function.
Study models and sketches to explore the design principles. Drawings of study models - plans and sections (suitable scale).</td></tr>
<tr><td colspan="2">Module-4</td></tr>
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Introduction to Abstraction:

- Elements of form from abstract concepts like point, line, plane, mass and / or volume, 2D forms - circle, square and triangle, 3D forms – cube, sphere and pyramid, therefore, development of more complex forms by the method of addition and / or subtraction.
- Concepts of volume and scale, width to height ratio.
- Additive and subtractive

Teaching-Learning Process	Method of learning: Observation & Study • Exercises to introduce 2D concepts to 3D forms without functional constraints and Human scale. • Declaring the conceptional theme of any composition at the beginning, before the exploring the volume using Horizontal and vertical elements or planes. • Study of patterns and use the pattern, both physical and material patterns as well as patterns of transformation and Integration. Appreciation of the difference between architecture and the chosen pattern.

Module-5

Form Development with function

- Design of Spaces such as a pavilion, gazebo, kiosk, bus stop, stage, (outdoor spaces) living/dining, bedrooms, (indoor spaces) Architect's office, Doctor's clinic, etc. (Utilitarian Spaces) (anyone in each category)
- Design of functional furniture layout with requisite circulation, lighting, and ventilation for a specific function.
- Understanding the difference and similarities while the design of a non-enclosed space, a semi-enclosed space, an enclosed space.
- Submission will include Idea generation, Study models, Sketches, and drawings to achieve the desired results.

Teaching-Learning Process	• Discussions, presentations, and case studies will cover three typologies. The portfolio covering all the assignments shall be presented for term work.

Course outcome (Course Skill Set)

the student will be able to:

- Get an introduction into the field of Architectural Design viz. a viz. the duality & the tension that exists between the form and function of a space.
- Make responsible choices for design development
- Get a perspective on design of spaces in formal and informal settlements.

Assessment Details (both CIE and SEE)

(methods of CIE need to be defined topic wise i.e.- Studio discussions, Reviews, Time problems, test, Seminar or micro project)

The Marks of Continuous Internal Evaluation (CIE) is 100 and for Semester End Exam (SEE)(viva) is 100 marks. The student has to obtain a minimum of 50% of the maximum marks of CIE and 40 % of maximum marks of SEE to pass. The passing percentage shall not be less than the 50% in aggregate for a course (i.e. CIE and SEE put together). Based on the marks scored in CIE+SEE grading will be awarded for this course.

Continuous Internal Evaluation:

Methods suggested:

1. Studio discussions, Reviews, Time problems, CIE tests, Seminar or micro project,Quiz, report writing etc.
2. The class teacher has to decide the topic for the Design and Seminars if any, in the beginning only. The teacher has to announce the methods of CIE for the subject in advance in writing.

Semester End Examination:

1. The student needs to submit his/her works done throughout the semester, including rough sheets for the Viva examination, at least one day prior to the Viva work examination to the course teacher/coordinator.
2. The Viva-voce will be evaluated by an external teacher appointed by the University along with Course teacher or an internal examiner.
3. The SEE marks list generated is to be signed by both internal and external examiners and submitted to VTU in the sealed cover through the Principal of the institution.

Suggested Learning Resources:

REFERENCES: (For all semesters of Architectural Design)

1. Alain de Botton, “How Proust Can Change your life", Picador, 1997.
2. Alain de Botton, “The Architecture of Happiness", Sep. 2006, Vintage Books.
3. Alan Fletcher, " The art of looking sideways", Phaidon Press, 2001 and Partis", Van Nostrand Reinhold, 1985
4. Anthony Di Mari and Nora Yoo, " Operative Design: A Catalogue of Spatial Verbs", 2012, BIS Publishers.
5. 5. Anthony Di Mari, " Conditional Design: An Introduction to Elemental Architecture", 2014, 1st Edition, Thames & Hudson.
6. Bruno Munari,"Design as Art", Penguin UK, 25-Sep-2008
7. Charles George Ramsey and Harold Sleeper, " Architectural Graphic Standards", 1992, Wiley
8. Christopher Alexander, "Notes on the Synthesis of Form", 1964, Harvard University Press.
9. Debkumar Chakrabarti, “Indian Anthropometric Dimensions for Ergonomic Design Practice", 1997.
10. François Blanciak, " Siteless: 1001 Building Forms", 2008, MIT Press
11. Frank Ching, James F. Eckler, "Introduction to Architecture", 2012, John Wiley & Sons, US
12. Frank D.K. Ching, " Architecture: Form, Space, and Order", 4th Edition, Sep. 2014, John Wiley & Sons
13. Herman Hertzberger, "Lessons for Students in Architecture", 2005, 010 Publishers
14. Italo Calvino, " Invisible Cities", Harcourt Brace Jovanovich (May 3, 1978)
15. John Berger, " Way of Seeing", 1972, Penguin, UK
16. John Hancock Callender, " Time-Saver Standards for Architectural Design Data", 1982, McGraw-Hill
17. Michael Pause and Roger H. Clark, " Precedents in Architecture: Analytic Diagrams, Formative Ideas, National Institute of Design.
18. Paul Jacques Grillo, " Form, Function and Design", 1975 , Dover Publications, New York
19. Paul Jacques Grillo, " What is Design?", 1960, P. Theobald
20. Paul Lewis, Marc Tsurumaki, David J. Lewis, "Manual of Section", Princeton Architectural Press, 2016
21. Peter H. Reynolds, " The Dot", 2013, Candlewick Press
22. Philip Jodidio, "Tree houses. Fairy tale castles in the air", 2012, Taschen
23. Robert W. Gill, "Rendering with Pen and Ink", Van Nostrand Reinhold (1 June 1984)
24. Tom Alphin, "The LEGO Architect", 2015, No Starch Press

Web-links and Video Lectures (e-Resources):

- https://ndl.iitkgp.ac.in

Activity-Based Learning (Suggested Activities in Class)/ Practical Based learning:

- Site visit the historical and contemporary buildings in the nearby area and documenting**.**
- Spatial analysis of area requirements, movement and circulation diagrams for informal settlement houses.
- Understand and appreciate various elements of Architecture such as Doors, Windows, Balconies, Otlas, Verandas, etc and document them for CIE.
- Examine the use of natural light, ventilation and comfort conditions in built environments.

MATERIALS AND METHODS IN BUILDING CONSTRUCTION-I			
Course Code	**21ARC12**	CIE Marks	50
Teaching Hours/Week (L:T:P: S)	1:0:0:3	SEE Marks (VIVA)	50
Total Hours of Pedagogy	4	Total Marks	100
Credits	04	Exam Hours	

Course objectives:

- To introduce students to primary building materials and simple construction techniques as applicable to a low-rise building- three to four-storied contemporary building.
- To develop an understanding of brick bonding, foundation details, external wall section with flat roof and parapet.

Teaching-Learning Process (General Instructions)

These are sample Strategies; which teachers can use to accelerate the attainment of the various course outcomes.

1. The students need to do the construction assignments in the studios.
2. The assignments to be submitted to the teacher as continuous internal evaluation on weekly basis.
3. Material assignments to be submitted in the portfolio form.

Module-1

1. Overview of simple masonry building, its various components and materials used for construction.
2. Various conventions used for drawing plan, section and elevation.
3. Brick: Types, properties, uses and manufacturing methods.
4. Brick Walls: Types of brick walls and bonds, mortar types, plasters, buttresses, arches and lintels.

Module-2

5. Stone: Types, properties, quarrying and finishing.
6. Stone Walls: Bonds, arches and lintels.

Module-3

7. Concrete Masonry Unit: Hollow and solid concrete Blocks: Manufacture, uses and properties, CMU Wall construction and detailing.
8. Alternative materials for Wall construction: Clay Hollow Blocks, Fly Ash Blocks, Aerated Concrete Blocks, Autoclaved Cellular Concrete (Aerocon) walls, Stabilized Mud Blocks and Glass Blocks: Manufacture, uses and properties, wall construction and Detailing.

Module-4

9. Masonry Foundation: Simple load bearing foundations in brick and stone.
10. Wood: Natural, hard and soft wood; quality, properties; joints in wood. Timber: Quality of Timber used in buildings External and Internal, defects, seasoning and preservation.

Module-5

11. Wooden doors: Types of wooden Doors - Doors with Frames, Doors on Pivot, Single & Double shutters, Wood with Glass shutters, Design an Innovative Solid Wooden Door for Public scale buildings with Low cost type and High-tech type. Types of Wood details Types of wooden windows & ventilator; Casement, Top Hung & Fixed types, Details of joinery.

Teaching-Learning Process	• Studio works by students, lecture by faculty on materials using teaching aids • Visits to construction yard/site to understand materials and methods of construction. • Seminar by students on their learning.
Note:	• Discussions, presentations, and case studies will cover three typologies. • The portfolio covering all the assignments shall be presented for term work.

Course outcome (Course Skill Set)

- The student will be able to understand the properties and uses of various materials and methods used in buildingconstruction
- The student will be able to design and draw various details used in a typical construction of a low rise

building.

- The student will be able to design and detail various basic components used in a typical building construction, such as Doors, Windows, Ventilators etc.

Assessment Details (both CIE and SEE)

(methods of CIE need to be define topic wise i.e.- Submission of construction drawing sheets, Journal of materials, Multiple Choice Question, Quizzes, Open book test, Seminar or micro project)

The Marks of Continuous Internal Evaluation (CIE) is 50 and for Semester End Exam (SEE)(viva) is 50 marks. The student has to obtain a minimum of 50% of the maximum marks of CIE and 40 % of maximum marks of SEE to pass. The passing percentage shall not be less than the 50% in aggregate for a course (i.e. CIE and SEE put together). Based on the marks scored in CIE+SEE grading will be awarded for this course.

Continuous Internal Evaluation:

1. Methods suggested: Submission of Construction sheets, Journal of Materials, Test, Written Quiz, Seminar, report writing etc.
2. The class teacher has to decide the topics for the test, Written Quiz, and Seminar. In the beginning, only the teacher has to announce the methods of CIE for the subject.

Semester End Examination:

1. The student need to submit his/her works done throughout the semester, including rough sheets for Term work examination, atleast one day prior to Viva work examination to the course teacher/coordinator.
2. The work will be evaluated by an external teacher appointed by the University along with Course teacher or an internal examiner.
3. The SEE mark list generated is to be signed by both internal and external examiners and submitted to VTU in sealed cover through the Principal of the institution.

Suggested Learning Resources:

REFERENCES:

1. Francis K. Ching‘Buildingconstruction’,Wiley;5edition(February17,2014)
2. R. Barry,“ConstructionofBuildings”Vol1.,1999byWiley-Blackwell
3. RoyChudley,"ConstructionTechnology”,3rdEdition, Longman,1999
4. W.B.Mckay,"BuildingConstruction”,Donhead,2005
5. Building Construction by Rangwala ,33rd Edition 2019
6. Building Construction by Sushil Kumar

Web links and Video Lectures (e-Resources):

- https://ndl.iitkgp.ac.in
- https://www.civilengineeringforum.me/structural-design-procedure/
- https://civiljungle.com/
- http://fairconditioning.org/knowledge-resources/#204-heat-transfer

Activity Based Learning (Suggested Activities in Class)/ Practical Based learning:

- Visit to construction site for observation of materials used and methods adopted in building construction.
- Study of vernacular materials used in different climatic zones and their thermal properties.
- Visit to material testing labs to understand various properties of building materials, and observe the testing methods.
- Discuss with the faculty/experts on life cycle and environmental impact of construction materials

ARCHITECTURAL GRAPHICS-I			
Course Code	**21ARC13**	CIE Marks	50
Teaching Hours/Week (L:T:P: S)	0:0:0:4	SEE Marks (Term Work)	50
Total Hours of Pedagogy		Total Marks	100
Credits	04	Exam Hours	

Course objectives:

- To introduce students to the various concepts and techniques of architectural andgraphic presentations.
- To train the students to work on drawing methods both in freehand and withinstruments.
- Encourage students to work with computer tools.

Teaching-Learning Process (General Instructions)

These are sample Strategies; which teacher can use to accelerate the attainment of the various course outcomes.

1. The students need to do the assignments in the studios.
2. Use of Video animation for easy understanding of various drawings.

Module-1

Ch.1 Introduction to Graphic Representations: Basic principles and methods of drawing,methods of using instruments, and sign conventions.

- Exercises inline-weightage and its application
- Exercises in free-hand drawing.

Ch-2 Exercises of Practice in Lettering: Lettering used in architectural drawings, including different fonts.

Module-2

Ch-3 Introduction to Euclidian Geometry: Exercises in lines and angles. Basic geometrical constructions, construction of triangles, quadrilaterals and regular polygons. Introduction to the development of simple surfaces of basic geometrical shapes and their applications.
Ch-4 Arches: Typical arch shapes and their construction methods.

Module-3

Ch-5 Introduction to plane curves such as ellipse, parabola, hyperbola and ovals and their construction methods.
Ch-6 Introduction to reduced scales and its application to architectural drawings.

Module-4

Ch-7 Introduction to orthographic projection (First angle projection): Principles of orthographicprojection, projections of points, lines and planes in different positions.

Ch-8 Orthographic Projection of Solids, architectural elements and built forms.

Module-5

Ch-9: 3DProjections-I: Isometric and Axonometric views of solids and architectural elements.
Ch 10: 3DProjections-II: Isometric and Axonometric views of built forms

Teaching-Learning Process	1. The students need to do the assignments in the studios. 2. Explore videos in various websites using animation of geometrical drawings
Note:	A consolidated portfolio containing exercises related to each of the above topics are to be submitted for term work examination.

Course outcome (Course Skill Set)

At the end of the semester, the students will be equipped with graphical skills
which shall be useful in translating the graphical ideas into technically appropriate drawingpresentations.

Assessment Details (both CIE and SEE)

(methods of CIE need to be defined topic wise i.e.- Studio discussions, drawings, Time problems, test, etc)
The Marks of Continuous Internal Evaluation (CIE) is 50 and for Semester End Exam (SEE)(Term work) is 50 marks. The student has to obtain a minimum of 50% of the maximum marks of CIE and 40 % of maximum marks of SEE to pass. The passing percentage shall not be less than the 50% in aggregate for a course (i.e. CIE and SEE put together). Based on the marks scored in CIE+SEE grading will be awarded for this course.

Continuous Internal Evaluation:

Methods suggested:

1. Studio discussions, drawings, Time problems, CIE tests,
2. The class teacher has to make a list for the drawings sheets to be done in the studio, in the beginning only. The teacher has to announce the methods of CIE for the subject in advance in writing.

Semester End Examination:

1. The student need to submit his/her works done throughout the semester, including rough sheets for Term work examination, atleast one day prior to Term Work Examination to the course teacher/coordinator.
2. The term work will be evaluated by an external teacher appointed by the University along with Course teacher or an internal examiner.
3. The SEE mark list generated is to be signed by both internal and external examiners and submitted to VTU in sealed cover through the Principal of the institution.

Suggested Learning Resources:

REFERENCES:

1. Francis D.K.Ching,"ArchitecturalGraphics",VanNostrandReinholdCo.,1985
2. I.H. Morris, "Geometrical Drawing for Art Students", Longmans(1902)
3. ShankarMalik,"Perspective&Sciography",1994, Allied Publisher

Web links and Video Lectures (e-Resources):

- https://ndl.iitkgp.ac.in

Activity Based Learning (Suggested Activities in Class)/ Practical Based learning

- Encourage students to work on Computer aided Graphics.

HISTORY OF ARCHITECTURE-I			
Course Code	**21ARC14**	CIE Marks	50
Teaching Hours/Week (L:T:P: S)	3:0:0:0	SEE Marks (Theory)	50
Total Hours of Pedagogy	40 hours	Total Marks	100
Credits	03	Exam Hours	03

Course objectives:

- Introduce the evolution of architecture, alongside the culture of early civilizations.
- To enable students to understand how different architecture solutions were evolved within the prevalent socio-economic and culture environment, demographic, political, regional influences (availability of materials, climate and topography of a region). (The scope limited from Prehistory, Stone Age to civilizations across continents, early Iron Age).
- To evaluate the architecture of river valley civilization and bygone era through the analysis of appropriate examples

Teaching-Learning Process (General Instructions)

These are sample Strategies; which teacher can use to accelerate the attainment of the various course outcomes.

- Critically evaluate the development of architecture and settlements through ages.
- Learner need to appreciate the efforts of various civilizations in development of art and architecture.
- Understand how belief system shaped the architecture of different periods.

MODULE - 1

Introduction to Pre-Historic Civilization (early cultures):

1. **Introduction to Architectural history.** Primitive man - shelters, settlements, ritual centres (religious and burial systems) e.g.: Oval hut, Nice; settlement at Catal huyuk; Megalithic architecture (Dolmen tomb, gallery grave, passage grave); Henge Monuments, Stonehenge.
2. Generic Cross-cultural understanding of factors influencing early settlement and built form.

MODULE - 2

Introduction to architecture and planning of river valley civilizations of ancient Indus, Egypt, Mesopotamia.

3. **Indus Valley Civilization (Indus and Ghaggar Hakra):** Forces shaping settlements and habitats, E.g.: Mehrgarh, Layout of Mohenjo-Daro, dwellings and monumental architecture (House plan, Community well, Great Bath, Granary).
4. **Mesopotamia (Tigris and Euphrates):** Forces shaping settlements and habitats E.g.: Ziggurats at Warka, Ur and Tchoga Zanbil, Palace of Sargon.
5. **Egyptian Civilization (Nile):** Forces shaping settlements and habitats (funerary and sacred spaces), e.g.: Mastabas, Pyramid complex, Temple of Khons, Karnak.

MODULE - 3

6. **Introduction to Chinese Architecture:** Forces shaping settlements and habitats. Study of civic architecture, Domestic architecture, like palaces, tombs, temples and houses.
7. **Introduction to Mayan and Japanese Architecture**: Forces shaping settlements and habitats.

MODULE - 4

8. **Introduction to Pre-Classical Civilization:** Mycenaean, Etruscan, Persian (Achaemenid) E.g.: Lion Gate and Treasury of Atreus, Mycenae; Palace of Tiryns (Megaron), Etruscan Temples (Juno Sospita, Lanuvium), Tomb of Cyrus, Pasargadae, Palace of Persepolis.
9. **Introduction to Pre-Classical Architecture (Indian sub-continent):** Aryan and early Mauryan E.g.: Vedic village, typologies in Vedic Town and Vedic house. Study of civic architecture, Domestic architecture, like palaces, tombs, temples and houses. e.g.: Palace at Pataliputra.

MODULE - 5

10. **Introduction to Desert and Mountainous Cultures:** Forces shaping settlements and habitats (environmental and cultural influences) e.g.: Include first civilization of America, Andes, Mayans, early societies/cultures in the Sahara, Thar, and North America.
11. **Introduction to Tribal Cultures:** Forces shaping settlements and habitats e.g.: Indigenous Peoples

across the globe (environmental, cultural influences on settlements).	
Teaching-Learning Process	1. Theory classes to evaluate the development through ages 2. Documenting of learning through sketches, notes, assignments.
Note:	Progressive marks to include Submission of a portfolio of sketches, Assignments and study models

Course outcome (Course Skill Set)

- The students will be able to appreciate geographical, geological, social, cultural and political factors that influenced the early society and its architecture.
- They will also understand the use of materials and structural/construction systems explode during that era.
- The students will also understand and focus on local architecture context in addition to understanding the global history of architecture.

Assessment Details (both CIE and SEE)

(methods of CIE need to be define topic wise i.e.- MCQ, Quizzes, Open book test, Seminar or micro project)

The Marks of Continuous Internal Evaluation (CIE) is 50 and for Semester End Exam (SEE) is 50 marks. The student has to obtain a minimum of 50% of the maximum marks of CIE and 40 % of maximum marks of SEE to pass. The passing percentage shall not be less than the 50% in aggregate for a course (i.e. CIE and SEE put together). Based on the marks scored in CIE+SEE grading will be awarded for this course.

Continuous Internal Evaluation:

Three Unit Tests each of **20 Marks (duration 01 hour**)

1. First test at the end of 5th week of the semester
2. Second test at the end of the 10th week of the semester
3. Third test at the end of the 15th week of the semester

Two assignments each of **10 Marks**

4. First assignment at the end of 4th week of the semester
5. Second assignment at the end of 9th week of the semester

Group discussion/Seminar/quiz any one of three suitably planned to attain the COs and POs for **20 Marks**(**duration 01 hours**)

6. At the end of the 13th week of the semester

The sum of three tests, two assignments, and quiz/seminar/group discussion will be out of 100 marks and will be **scaled down to 50 marks**

(to have less stressed CIE, the portion of the syllabus should not be common /repeated for any of the methods of the CIE. Each method of CIE should have a different syllabus portion of the course).

CIE methods /question paper is designed to attain the different levels of Bloom's taxonomy as per the outcome defined for the course.

Semester End Examination:

Theory SEE will be conducted by University as per the scheduled timetable, with common question papers for the subject (**duration 03 hours)**

1. The question paper will have ten questions. Each question is set for 20 marks.
2. There will be 2 questions from each module. Each of the two questions under a module (with a maximum of 3 sub-questions), **should have a mix of topics** under that module.

The students have to answer 5 full questions, selecting one full question from each module.

Suggested Learning Resources:

REFERENCES:

1. Francis D K Ching, Mark M. Jarzombek, Vikramaditya Prakash, "A Global History of Architecture" by Wiley and Sons, 2011.
2. Percy Brown , "Indian Architecture B uddhist and Hindu", Read Books, 2010.
3. Sir Banister Fletcher; edited by Dan Cruickshank , "History of Architecture", CBS Publishers and Distributors, 2003
4. Satish Grover, "Buddhist and Hindu Architecture in India", CBS Publishers and Distributors, 2003
5. History of Architecture by James Fergusson
6. The Story of Architecture by Patrick Nuttgens

Web links and Video Lectures (e-Resources):

- https://ndl.iitkgp.ac.in

Activity Based Learning (Suggested Activities in Class)/ Practical Based learning

- Making sketches of various buildings in sketch book
- Seminar by students on selected topics in group or individually.
- Group discussion on a topic.

BASIC DESIGN AND VISUAL ARTS			
Course Code	**21ARC15**	CIE Marks	50
Teaching Hours/Week (L:T:P: S)	2:0:0:3	SEE Marks (Term Work)	50
Total Hours of Pedagogy	60	Total Marks	100
Credits	05	Exam Hours	

Course objectives:
To encourage a critical orientation to design thinking and action.

Teaching-Learning Process (General Instructions)
These are sample Strategies; which teacher can use to accelerate the attainment of the various course outcomes.

- Develop observation skill in students towards design in various fields
- Appreciate art in various forms.
- Develop curiosity as how elements of design manifested in nature.

MODULE - 1

Definition of Art and role of Art in Society: Role and meaning of art, various types of arts-fine arts, performing arts, commercial arts, industrial arts, folk arts, abstract art, visual arts, spatial arts, temporal arts, pop art etc. Relationship of architecture with other arts like Painting and Sculpture.

Study Tools- Any three can be explored

- Observation & Study to develop hand & cognitive skill.
- Colours, Pattern & textures, and function
- Additive and Subtractive of Forms Freehand sketching
- Exercises of rendering techniques

MODULE - 2

Principles of Composition: Elements of Design & Principles of Design. Principles of Aesthetics and Architectural Composition -1 – Unity, Balance, Proportion, Scale in Architectural composition. Illustrations and its application to the practice of design with historical as well as contemporary buildings.

Study Tools- Any three can be explored

- Colours, Pattern & textures, and function
- Additive and Subtractive of Forms
- Freehand sketching
- Exercises of rendering techniques
- Material Study

MODULE - 3

Patterns

1. Study of pattern: Natural, Manmade and Geometric patterns
   - Recognizing patterns, analyzing ideas, synthesizing information, solving problems, and creating things involving the process of abstraction.
   - Appreciation of use of patterns in design
2. Space making through patterns

Structure

3. Understanding gravity, and the different ways we resist it. Study of material & structure in nature, and how design brings them together. Sketch analysis of structure and form in an example taken from Patterns.

Study tools - Any three can be explored

- Deconstruction of natural, manmade pattern to grid and abstract patterns
- Point, line, Plane, Form using Grid Pattern.
- Volumetric Exercises- Solid & Void.
- Freehand sketching
- Study of Material & structure in nature, and expressing through design.

MODULE - 4

Study of Art Forms & Crafts of India and Asia. Difference between art and craft.
Art Styles of India- folk, popular and modern art, Art trends, periods and Isms.

Study tools-

- Explore and learn any one Indian art form and regional craft.
- Structural/Material translation from concept mind mapping.

MODULE - 5

Appreciation of oriental and western performing arts.

Study tools-

- Exploring Performing arts of India,
- Regional Folk Dance and Crafts like, Leather puppets etc.
- To understand the oriental & western styles. Use them in product design.

Teaching-Learning Process	• Studios to conduct hands on work with models, sheets, drawings in Basic Design • Indoor and outdoor sketching in various medium to explore visual arts • Site/field visit to folklores areas • Screening documentaries, videos, films on various arts and crafts India and Asia.
Note:	Progressive marks to include Submission of a portfolio of sketches, sheets and study models, etc

Course outcome (Course Skill Set)

- The students will be able to appreciate critical orientation to design thinking and action.
- The students will be able to appreciate the concept of abstraction by experimenting with different patterns and materials.
- Thestudent will alsodevelop an ability to appreciate various art forms.

Assessment Details (both CIE and SEE)

(methods of CIE need to be define topic wise i.e.- Studio works, model making, Seminar or micro project)

The Marks of Continuous Internal Evaluation (CIE) is 50 and for Semester End Exam (SEE)(term work) is 50 marks. The student has to obtain a minimum of 50% of the maximum marks of CIE and 40 % of maximum marks of SEE to pass. The passing percentage shall not be less than the 50% in aggregate for a course (i.e. CIE and SEE put together). Based on the marks scored in CIE+SEE grading will be awarded for this course.

.**Continuous Internal Evaluation:**

1. Methods suggested: Test, Written Quiz, Seminar, report writing etc.
2. The class teacher has to decide the topic for the test, Written Quiz, and Seminar. In the beginning, only the teacher has to announce the methods of CIE for the subject.

Semester End Examination:

1. The student need to submit his/her works done throughout the semester, including rough sheets for Term work examination, atleast one day prior to Term Work Examination to the course teacher/coordinator.
2. The term work will be evaluated by an external teacher appointed by the University along with Course teacher or an internal examiner.
3. The SEE mark list generated is to be signed by both internal and external examiners and submitted to VTU in sealed cover through the Principal of the institution

Suggested Learning Resources:

REFERENCES:

1. Donald Norman, ‘Design of Everyday Things”, Basic Books; 2 edition (5 November 2013)
2. John Berger, ‘Ways of Seeing’ 1972, Penguin, UK
3. Maitland Graves, ‘The Art of Color and Design’, McGraw-Hill, 1951
4. Robert Gill, “Rendering with Pen and Ink”, Thames & Hudson; Revised, Enlarged edition (2 April 1984)
5. Abid Husain, “National culture of India", National Book Trust, India, 1994

6. Antony Mason, John T. Spike, "A History of Western Art: from prehistory to the 21st Century", McRae Books, 2007.
7. Arthur Llewellyn Basham, 'The Wonder That Was India", Picador; Indian edition, 2004
8. Christopher Alexander, "The Timeless way of Building" , Oxford University Press (1979)
9. Francis D.K. Ching," Architecture: form, space & order", John Wiley & Sons, 2010
10. Fred S. Kleiner, "Art through the Ages", Cengage Learning; 14 edition, 2012

Web links and Video Lectures (e-Resources):

- https://ndl.iitkgp.ac.in
- https://www.researchgate.net/publication/339016810_Pedagogy_for_Basic_Design_Studio_in_Learning_Architecture_A_Qualitative_Exploration.
- https://www.shs-conferences.org/articles/shsconf/pdf/2016/04/shsconf_erpa2016_01053.pdf

Activity Based Learning (Suggested Activities in Class)/ Practical Based learning

-

MODEL MAKING WORKSHOP			
Course Code	**21ARC16**	CIE Marks	100
Teaching Hours/Week (L:T:P: S)	0:0:0:4	SEE Marks	--
Total Hours of Pedagogy	50	Total Marks	100
Credits	04	Exam Hours	

Course objectives:
To train the students to experiment and manipulate materials leading to creative exploration of forms.

Teaching-Learning Process (General Instructions)
These are sample Strategies; which teacher can use to accelerate the attainment of the various course outcomes.

1. Making a student aware of various materials for model making
2. Hands on training for model making in various forms and shapes

COURSE OUTLINE

MODULE - 1

1. Generation of basic forms-cube, cone, dome and arch.
2. Generating of organic and geometrical forms/objects

MODULE - 2

3. Generation of forms &Material exploration: hands on skill by using wood, bamboo, metal wire, thread, balsa wood, clothe, paper board etc

MODULE - 3

4. Composite forms: Experimental form generation by combining various materials and shapes.(rods, pipes, slabs, etc.)
5. Free Forms: Tensile structures, Funicular Shells using wood, fabric, plastic etc.

MODULE - 4

6. Architectural forms: making of windows, wall doors, roofs, trees, shrubs, roads, vehicles etc.

MODULE - 5

7. Introduction to digital modelling like 3D printing and laser cutting. Note: Student may be encouraged to use environment friendly materials. Learning Outcome: At the end of the course the students would be able to use variety of materials to construct architectural models and different geometrical forms

Teaching-Learning Process	• Assign exercises in making different types of models using variety of materials available in the market.
Note:	Progressive marks to include Submission of models as part of CIE

Course outcome (Course Skill Set)

At the end of the course, the students will be able to experiment and manipulate materials leading to creative exploration of forms.

Assessment Details (both CIE and SEE)

(methods of CIE need to be define topic wise i.e.- Studio work, model making, sketching , Seminar or micro project)

The weightage of Continuous Internal Evaluation (CIE) is 100% and there is no Semester End Exam (SEE.) The student has to obtain a minimum of 50% in CIE to pass. Based on the CIE marks grading will be awarded.

Continuous Internal Evaluation:

1. Methods suggested: Submission of the studio work on weekly basis in the form of drawings, models, reports of site/field trips etc.
2. The class teacher has to decide the topic for the studio work and other assignments. In the beginning, only the teacher has to announce the methods of CIE for the subject.
3. The class teacher has to continuously assess the work of students on weekly basis from assignments and tests. CIE marks to be awarded at the end of semester and to be uploaded to VTU portal.

Semester End Examination:

1. The CIE Marks to be submitted to VTU Portal.
2. There is no SEE marks

Suggested Learning Resources:

REFERENCES:

1. Arjan Karssen & Bernard Otte, "Model Making: Conceive, Create and Convince", Frame Publishers (November 11, 2014)
2. David Neat , "Model-Making: Materials and Methods", CroWood Press, 2008
3. JocquiAtkin, "250 tips, techniques, and trade secrets for potters", Barron's Educational Series, 2009
4. Matt Driscoll, "Model Making for Architects", The Crowood Press Ltd, 2013
5. Megan Werner," Model making", Princeton Archit.Press,2010
6. Nick Dunn, "Architectural Model Making", Laurence King Publishing, 2014
7. Roark T. Congdon, "Architectural Model Building", Fairchild Books; 1 edition, 2010

Web links and Video Lectures (e-Resources):

- https://ndl.iitkgp.ac.in
- https://www.youtube.com/watch?v=Kfj2-A5rJoQ
- https://www.youtube.com/watch?v=kMil6ETrmj0

Activity Based Learning (Suggested Activities in Class)/ Practical Based learning

- Group work on model making such as geodesic dome.

INNOVATION and DESIGN THINKING			
Course Code	**21IDT19/29**	CIE Marks	50
Teaching Hours/Week (L:T:P: S)	1:0:0	SEE Marks	50
Total Hours of Pedagogy	25	Total Marks	100
Credits	01	Exam Hours	02

CourseCategory: Foundation
Preamble: Thiscourseprovidesanintroductiontothebasicconceptsandtechniques of engineering and reverses engineering, the process of design, analyticalthinking and ideas, basics and development of engineering drawing, application ofengineeringdrawingwith computeraide.
Course objectives:

- To explain the concept of design thinking for product and service development
- To explain the fundamental concept of innovation and design thinking
- To discuss the methods of implementing design thinking in the real world.

Teaching-Learning Process (General Instructions)
These are sample Strategies; which teachers can use to accelerate the attainment of the various course outcomes.

1. Lecturer method (L) does not mean only the traditional lecture method, but a different type of teaching method may be adopted to develop the outcomes.
2. Show Video/animation films to explain concepts
3. Encourage collaborative (Group Learning) Learning in the class
4. Ask at least three HOTS (Higher-order Thinking) questions in the class, which promotes critical thinking
5. Adopt Problem Based Learning (PBL), which fosters students' Analytical skills, develops thinking skills such as the ability to evaluate, generalize, and analyze information rather than simply recall it.
6. Topics will be introduced in multiple representations.
7. Show the different ways to solve the same problem and encourage the students to come up with their own creative ways to solve them.
8. Discuss how every concept can be applied to the real world - and when that's possible, it helps improve the students' understanding.

Module-1	
PROCESS OFDESIGN **Understanding Design thinking** Shared model in team-based design – Theory and practice in Design thinking – Explore presentation signers across globe – MVP or Prototyping	
Teaching-Learning Process	Introduction about the design thinking: Chalk and Talk method Theory and practice through presentation MVP and Prototyping through live examples and videos
Module-2	
Tools for Design Thinking Real-Time design interaction capture and analysis – Enabling efficient collaboration in digital space – Empathy for design – Collaboration in distributed Design	
Teaching-Learning Process	Case studies on design thinking for real-time interaction and analysis Simulation exercises for collaborated enabled design thinking

	Live examples on the success of collaborated design thinking

Module-3

Design Thinking in IT

Design Thinking to Business Process modelling – Agile in Virtual collaboration environment – Scenario based Prototyping

Teaching-Learning Process	Case studies on design thinking and business acceptance of the design Simulation on the role of virtual eco-system for collaborated prototyping

Module-4

DT For strategic innovations

Growth – Story telling representation – Strategic Foresight - Change – Sense Making - Maintenance Relevance – Value redefinition - Extreme Competition – experience design - Standardization – Humanization - Creative Culture – Rapid prototyping, Strategy and Organization – Business Model design.

Teaching-Learning Process	Business model examples of successful designs Presentation by the students on the success of design Live project on design thinking in a group of 4 students

Module-5

Design thinking workshop

Design Thinking Work shop Empathize, Design, Ideate, Prototype and Test

Teaching-Learning Process	8 hours design thinking workshop from the expect and then presentation by the students on the learning from the workshop

CourseOutcomes:

Uponthesuccessfulcompletion ofthecourse,studentswillbeableto:

CO Nos.	**CourseOutcomes**	**KnowledgeLevel(BasedonrevisedBloom'sTaxonomy)**
CO1	Appreciatevariousdesignprocessprocedure	K2
CO2	Generateanddevelopdesignideasthroughdifferent technique	K2
CO3	IdentifythesignificanceofreverseEngineeringtoUnderstandproducts	K2
CO4	Drawtechnicaldrawingfordesignideas	K3

Assessment Details (both CIE and SEE)

methods of CIE need to be defined topic wise i.e.- Tests, MCQ, Quizzes, Seminar or micro project/Course Project, Term Paper)

The weightage for Continuous Internal Evaluation (CIE) is 50% and that for Semester End Exam (SEE) is 50%. The student has to obtain a minimum of 50% of the maximum marks of CIE and 40 % of maximum marks of SEE to pass a course. The average marks of CIE and SEE put together shall not be less than 50% of the marks of course. Based on the marks scored in CIE+SEE, grades for the course will be included in the grade card.

Continuous Internal Evaluation:

Three Unit Tests each of **20 Marks (duration 01 hour**)

1. First test at the end of 5th week of the semester
2. Second test at the end of the 10th week of the semester
3. Third test at the end of the 15th week of the semester

(Preferred pattern of the all test are similar to the SEE pattern, however; teacher may follow the CIE test pattern of other engineering courses)

Two assignments each of **10 Marks**

4. First assignment at the end of 4th week of the semester
5. Second assignment at the end of 9th week of the semester

Report writing /Group discussion/Seminar any one of three suitably planned to attain the COs and POs for **20 Marks**(**duration 01 hours**)

6. At the end of the 13th week of the semester

The sum of three tests, two assignments, and quiz/seminar/group discussion will be out of 100 marks and will be **scaled down to 50 marks**

CIE methods /question paper is designed to attain the different levels of Bloom's taxonomy as per the outcome defined for the course.

Semester End Examination:

Theory SEE will be conducted by University as per the scheduled timetable, with common question papers for subject

SEE paper will be set for 50 questions of each of 01 marks. The pattern of the question paper is MCQ. The time allotted for SEE is **01 hours**

Suggested Learning Resources:

Text Books:

1. John.R.Karsnitz,StephenO'BrienandJohnP.Hutchinson,"EngineeringDesign",Cengagelearning(International edition)SecondEdition,2013.
2. Roger Martin, "The Design of Business: Why Design Thinking is the Next Competitive Advantage", Harvard Business Press , 2009.
3. Hasso Plattner, Christoph Meinel and Larry Leifer (eds), "Design Thinking: Understand – Improve – Apply", Springer, 2011
4. Idris Mootee, "Design Thinking for Strategic Innovation: What They Can't Teach You at Business or Design School", John Wiley & Sons 2013.

References:

5. YousefHaikandTamerM.Shahin,"EngineeringDesignProcess",CengageLearning,SecondEdition, 2011.
6. Book - Solving Problems with Design Thinking - Ten Stories of What Works (Columbia Business School Publishing) Hardcover – 20 Sep 2013 by Jeanne Liedtka (Author), Andrew King (Author), Kevin Bennett (Author).

Web links and Video Lectures (e-Resources):

1. www.tutor2u.net/business/presentations/./**productlifecycle**/default.html
2. https://docs.oracle.com/cd/E11108_02/otn/pdf/./E11087_01.pdf
3. www.bizfilings.com›Home›Marketing›ProductDevelopmen
4. https://www.mindtools.com/brainstm.html
5. https://www.quicksprout.com/./how-to-**reverse**-**engineer**-your-competit
6. www.vertabelo.com/blog/documentation/**reverse**-**engineering**https://support.microsoft.com/en-us/kb/273814
7. https://support.google.com/docs/answer/179740?hl=en
8. https://www.youtube.com/watch?v=2mjSDIBaUlMthevirtualinstruc tor.com/foreshortening.html

https://dschool.stanford.edu/.../designresources/.../ModeGuideBOOTCAMP2010L.pdf https://dschool.stanford.edu/use-our-methods/ 6. https://www.interaction-design.org/literature/article/5-stages-in-the-design-thinking-process 7. http://www.creativityatwork.com/design-thinking-strategy-for-innovation/ 49 8. https://www.nngroup.com/articles/design-thinking/ 9. https://designthinkingforeducators.com/design-thinking/ 10. www.designthinkingformobility.org/wp-content/.../10/NapkinPitch_Worksheet.pdf

Activity Based Learning (Suggested Activities in Class)/ Practical Based learning

- http://dschool.stanford.edu/dgift/

Communicative English

Course Code	**21EGH18**	CIE Marks	50
Teaching Hours/Week (L:T:P: S)	2:0:0 Hours	SEE Marks	50
Total Hours of Pedagogy	02 Hours/Week	Total Marks	100
Credits	02	Exam Hours	02 hours

Course objectives:

The course (21EGH18) will enable the students,

- To know about Fundamentals of Communicative English and Communication Skills in general.
- To train to identify the nuances of phonetics, intonation and enhance pronunciation skills for better communication skills.
- To impart basic English grammar and essentials ofimportant language skills.
- To enhance English vocabulary and language proficiency for better communication skills.
- To learn about Techniques of Information Transfer through presentation.

Language Lab : To augment LSRW, grammar, and Vocabulary skills (Listening, Speaking, Reading, Writing and Grammar, Vocabulary) through tests, activities, exercises etc., comprehensive web-based learning and assessment systems can be referred as per the AICTE /VTU guidelines.

Teaching-Learning Process (General Instructions)

These are sample Strategies, which teacher can use to accelerate the attainment of the various course outcomes.

1. Teachers shall adopt suitable pedagogy for effective teaching - learning process. The pedagogy shall involve the combination of different methodologies which suit modern technological tools and software's to meet the present requirements of the Global employment market.
   (i) Direct instructional method (Low /Old Technology),
   (ii) Flipped classrooms (High/advanced Technological tools),
   (iii) Blended learning (combination of both),
   (iv) Enquiry and evaluation based learning,
   (v) Personalized learning,
   (vi) Problems based learning through discussion,
   (vii) Following the method of expeditionary learning Tools and techniques,
   (viii) Use of audio visual methods through language Labs in teaching of of LSRW skills.
2. Apart from conventional lecture methods, various types of innovative teaching techniques through videos, animation films may be adapted so that the delivered lesson can progress the students In theoretical applied and practical skills in teaching of communicative skills in general.

Module-1

Introduction to Communicative English:

Introduction, Language as a Tool, Fundamentals of Communicative English, Process of Communication, Barriers to Effective Communicative English, Different styles and levels in Communicative English (Communication Channels). Interpersonal and Intrapersonal Communication Skills, How to improve and Develop Interpersonal and Intrapersonal Communication Skills.

Teaching-Learning Process	Chalk and talk method, Videos, PowerPoint presentation to teach Communication skills (LSRW Skills), Creating real time stations in classroom discussions, Giving activities and assignments (Connecting Campus & community with companies real time situations).

Module-2

Introduction to Phonetics :

Introduction, Phonetic Transcription, English Pronunciation, Pronunciation Guidelines Related to consonants and vowels, Sounds Mispronounced, Silent and Non-silentLetters, Syllables and Structure, Word Accent and Stress Shift, – Rules for Word Accent, Intonation – purposes of intonation, Spelling Rules and Words often Misspelt – Exercises on it.Common Errors in Pronunciation.

Teaching-Learning Process	Chalk and talk method, Videos, PowerPoint presentation and Animation videos to teach phonetics in Practical method, creating real time stations in classroom discussions, Giving activities and assignments (Connecting Campus & communitywith companies real time situations).

Module-3

Basic English Communicative Grammar and Vocabulary PART - I :

Grammar: Basic English Grammar and Parts of Speech - Nouns, Pronouns, Adjectives, Verbs, Adverbs, Conjunctions, Articles and Preposition. Preposition, kinds of Preposition and Prepositions often Confused. Articles: Use of Articles – Indefinite and Definite Articles, Pronunciation of '*The*', wordsending *'age'*, some plural forms. Introduction to Vocabulary, All Types of Vocabulary –Exercises on it.

Teaching-Learning Process	Chalk and talk method, Videos, PowerPoint presentation to teach Grammar, Animation videos on communication and language skills, creating real-time stations in classroom discussions, Giving activities and assignments (Connecting Campus & communitywith companies real time situations).

Module-4

Basic English Communicative Grammar and Vocabulary PART - II:

Question Tags, Question Tags for Assertive Sentences (Statements) – Some Exceptions in Question Tags and Exercises, One Word Substitutes and Exercises. Strong and Weak forms of words, Words formation - Prefixes and Suffixes (Vocabulary), Contractions and Abbreviations. Word Pairs (Minimal Pairs) – Exercises, Tense and Types of tenses, The Sequence of Tenses (Rules in use of Tenses) and Exercises on it.

Teaching-Learning Process	Chalk and talk method, PowerPoint presentation to teach Grammar and phonetics, Animation videos on communication and language skills, creating real time stations in classroom discussions, Giving activities and assignments (Connecting Campus & community with companies real time situations).

Module-5

Communication Skills for Employment:

Information Transfer: Oral Presentation - Examples and Practice. Extempore / Public Speaking, Difference between Extempore / Public Speaking, Communication Guidelines for Practice.Mother Tongue Influence (MTI) – South Indian Speakers, Various Techniques for Neutralization of Mother Tongue Influence – Exercises.Reading and Listening Comprehensions – Exercises.

Teaching-Learning Process	Chalk and talk method, Videos, PowerPoint presentation to teach Grammar and phonetics, Animation videos on communication and language skills, creating real time stations in classroom discussions, Giving activities and assignments (Connecting Campus & community with companies real time situations).

Course outcome (Course Skill Set)

At the end of the course(21EGH18) the student will be able to :

1. Understand and apply the Fundamentals of Communication Skills in their communication skills.
2. Identify the nuances of phonetics, intonation and enhance pronunciation skills.
3. To impart basic English grammar and essentials of language skills as per present requirement.
4. Understand and useall types of English vocabulary and language proficiency.
5. AdopttheTechniques of Information Transfer through presentation.

Assessment Details (both CIE and SEE)

(methods of CIE need to be defined topic wise i.e.- MCQ, Quizzes, written test, Reports writing, Seminar and activities).

The weightage for Continuous Internal Evaluation (CIE) is 50% and that for Semester End Exam (SEE) is 50%. The student has to obtain a minimum of 50% of the maximum marks of CIE and 40 % of maximum marks of SEE to pass a course. The average marks of CIE and SEE put together shall not be less than 50% of the marks of course. Based on the marks scored in CIE+SEE, grades for the course will be included in the grade card.

Continuous Internal Evaluation (CIE) :

Three Unit Tests each of **20 Marks (duration 01 hour**)

7. First test at the end of 5th week of the semester
8. Second test at the end of the 10th week of the semester
9. Third test at the end of the 15th week of the semester

All the tests are preferred similar to SEE pattern; however, teacher may follow test pattern similar to other theory courses of Engineering

Two assignments each of **10 Marks**

10. First assignment at the end of 4th week of the semester
11. Second assignment at the end of 9th week of the semester

Report writing /Group discussion/Seminar any one of three suitably planned to attain the COs and POs for **20 Marks** (**duration 01 hours**)

12. At the end of the 13th week of the semester

The sum of three tests, two assignments, and quiz/seminar/group discussion will be out of 100 marks and will be **scaled down to 50 marks**

CIE methods /question paper is designed to attain the different levels of Bloom's taxonomy as per the outcome defined for the course.

Semester End Examination (SEE) :

SEE paper will be set for 100 questions of each of 01 marks. The pattern of the question paper is MCQ. The time allotted for SEE is 120 minutes**.** Marks scored are scaled down to 50 Marks. *(Time duration may be made 90 minutes to train the students for engineering / non-engineering competitive examination)*

1. Communicative English has become a very important component in all engineering and non-engineering competitive examinations. In exams like GRE, TOEFL, IELTS and GATE exam, all state and Central Government recruitment examinations, placement tests and other Examinations, so the pattern of question paper, in general, will be in a multiple-choice question (MCQ) Pattern. So, to meet the relevance of the recruitment requirement of our Engineering students "Communicative English" Semester end examination (SEE) will be conducted in a multiple choice question (MCQ) pattern.
2. MCQ Pattern (Multiple Choice Questions) Semester End Exam (SEE) is conducted for 50 marks (120 minutes duration).

Suggested Learning Resources:

1) **Communication Skills** by Sanjay Kumar and Pushp Lata, Oxford University Press - 2019.
2) **English for Engineers** by N.P.Sudharshana and C.Savitha, Cambridge University Press – 2018.
3) **A Textbook of English Language Communication Skills,** Infinite Learning Solutions–(Revised Edition) 2021.
4) **A Course in Technical English–D Praveen Sam, KN Shoba,** Cambridge University Press – 2020.
5) **Technical Communication** by Gajendra Singh Chauhan and Et al, Cengage learning India Pvt Limited [Latest Revised Edition] - 2019.
6) **English Language Communication Skills – Lab Manual cum Workbook,** Cengage learning India Pvt Limited [Latest Revised Edition] – 2019.
7) **Practical English Usage** by Michael Swan, Oxford University Press – 2016.
8) **Technical Communication** – Principles and Practice, Third Edition by Meenakshi Raman and Sangeetha Sharma, Oxford University Press 2017.

Activity Based Learning (Suggested Activities in Class)/ Practical Based learning

- ✓ Contents related activities (Activity-based discussions)
- ✓ For active participation of students instruct the students to prepare Flowcharts and Handouts
- ✓ Organising Group wise discussions Connecting to placement activities
- ✓ Quizzes and Discussions
- ✓ Seminars and assignments

II Semester

ARCHITECTURAL DESIGN - II			
Course Code	**21ARC21**	CIE Marks	100
Teaching Hours/Week (L:T:P: S)	0:0:0:7	SEE Marks(VIVA)	100
Total Hours of Pedagogy	84	Total Marks	200
Credits	07	Exam Hours	-

Course objectives:

To develop the ability to generate solutions to spatial constructs, i.e., space and form *which integrate principles of design with functional requirements by emphasizingthe study of variables like light, movement, transformation, scale, structure & skin., physical constraints and cultural context, either urban or rural. formal and informal housing.*

To develop the ability to translate abstract principles of design into architectural solutions for simple problems.

Teaching-Learning Process (General Instructions)

These are sample Strategies, which teacher can use to accelerate the attainment of the various course outcomes.

1) The contents of the courses shall be taught in an application-oriented manner on a scientific and design basis. The course contents shall be taught and learned in lectures, seminars, labs or workshops, studio exercises and design projects, etc.
2) In-studio exercises the teachers shall take the lead to provide tasks and offer guidance for solutions finding. The students shall work either individually or in groups.
3) In design studios, the students contribute to the processing, analysis and solving of problems of direct professional practice, attended by faculty(s) entitled to conduct the studio and examine. The results shall be defended through drawings; models and reports and evaluated through periodic assessment and finally by a jury or panel, and finally, evaluated through periodic assessment and an end semester examination or viva voce.

We inhabit and function in space, both the manmade and the natural i.e., “a life spent within an enclosure”. These enclosures have functional and cultural meanings, are symbols of abstract ideas of that period in time.

"Architecture is about giving form to the places where people live. It is not more complicated than that but also not simpler than that.” - Alejandro Aravena

"Architecture is both an art and a practical pursuit, and the profession has always been divided between those who emphasize the art, that is pure design, and those who give priority to the practical." - Paul Goldberger

"Architecture is used by political leaders to seduce, to impress, and to intimidate.” - Deyan Sudjic

Module-1

To relearn the “principles of Design” and anthromopometric requirements of space planning,

Teaching-Learning Process	• Observe daily activities with respect to functional spaces in plan and section • Study of the relationship between human body and the built environment understanding usage, spatial and thermal comfort.

Module-2

Introduction to "Nature of Space":

- Understanding the notions of PLACE: A "boundary", a "center" and a "spirit", PATH: A "way" and a "goal", DOMAIN: A conglomeration of paths and goals that forms a "whole" with its own "identity",
- Understanding the notions of "Enclosure, Ambiguity, and Transparency", "Spatial Contextin formal and informal built environment. - open, closed, transition spaces", "cultural context – inclusion, exclusion, spatial segregation",
- Culture & Design: Understanding social attitudes to Built-form: extroverted/introverted, formal/informal, typical/individual, simple/labyrinthine, contiguous/isolated etc.

Teaching-Learning Process	• . Mapping of one's journey from home to studio/of the campus/of a Neighbourhood. Explore issues of movement, navigation, circulation, direction and discovery. Explore issues of representation, scale, starting point, orientation, landmarks, and imagery.

Module-3

Introduction to "Poetics of Space" :

- light, movement, transformation, scale, structure and skin,
- key tools for learning : text / language as a tool; emotion, cultural, climatic, eg.- contemplative / severe / dramatic / minimalist / natural / organic / contemporary / traditional / etc.,

Teaching-Learning Process	• Observation & study • Presentationof case studies based on literature survey & field visit. • Study models, Sketches and Drawings of study models - plans and sections (suitable scale) using a mono functional space.

Module-4

Understanding the role of Physical Context - terrain, materials, structure, etc.,

Teaching-Learning Process	• Hands-on Design exercise – creation of a simple design in which form is distinct from structure and creation of a simple design in which form is integral with structure. • Presentationof case studies based on literature survey & field visit. • Study models, Sketches and Drawings of study models - plans and sections (suitable scale) using a mono functional space.

Module-5

Design process to test the learning of the semester using a multifunctional program to incorporate "nature of space", "poetics of space" and "physical constraints",

- Generation of a design brief for a multifunctional program, generation of areas based on human activity and anthropometric data,
- Selection a of suitable site,
- Idea generation, design development, & design drawings,
- Eg. - A House for self, Guest House, Farm house, Villa, Container house, Courtyard house, Tree house,house in an informal settlement etc.

Teaching-Learning Process	• Presentation *of case studies based on literature survey & field visit*. • *A comparative analysis of a formal design house and an informal (self-help) houseon analogy of space, function, modern and vernacular materials used, etc.*

	• Submission will include Idea generation, Study models, Sketches to achieve the desired result, development drawings and a set of plans, sections and elevations & model to suitable scale.

Course outcome (Course Skill Set)

At the end of the course the student will be equipped to understand the requirements of a multifunctional programs with respect to aspects of locating the design program on site viz a vie light, movement, etc.. The student will also be equipped to understand how to start a settlement study.

Assessment Details (both CIE and SEE)

(methods of CIE need to be defined topic wise i.e.- Studio discussions, Reviews, Time problems, test, Seminar or micro project)

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The student has to obtain a minimum of 50% marks individually both in CIE and 40 % marks in SEE to pass. Semester End Exam (SEE) is conducted for 100 marks (Viva-voce). Based on this grading will be awarded. The student shall secure the 50% maximum marks for the course (CIE+SEE) for passing in the course.

Continuous Internal Evaluation:

Methods suggested:

1. Studio discussions, Reviews, Time problems, CIE tests, Seminar or micro project, Quiz, report writing etc.
2. The class teacher has to decide the topic for the Design and Seminars if any, in the beginning only. The teacher has to announce the methods of CIE for the subject in advance in writing.

Semester End Examination:

1. The student needs to submit his/her works done throughout the semester, including rough sheets for the Viva examination, at least one day prior to the Viva work examination to the course teacher/coordinator.
2. The Viva-voce will be evaluated by an external teacher appointed by the University along with Course teacher or an internal examiner.

The SEE marks list generated is to be signed by both internal and external examiners and submitted to VTU in the sealed cover through the Principal of the institution.

Suggested Learning Resources:

Books

1. Alain de Botton, " How Proust Can Change your life", Picador, 1997.
2. Alain de Botton, " The Architecture of Happiness", Sep. 2006, Vintage Books.
3. Alan Fletcher, " The art of looking sideways", Phaidon Press, 2001
4. Anthony Di Mari and Nora Yoo, " Operative Design: A Catalogue of Spatial Verbs", 2012, BIS Publishers.
5. Anthony Di Mari, " Conditional Design: An Introduction to Elemental Architecture", 2014, 1st Edition, Thames & Hudson.
6. Bruno Munari,"Design as Art", Penguin UK, 25-Sep-2008
7. Charles George Ramsey and Harold Sleeper, " Architectural Graphic Standards", 1992, Wiley
8. Christopher Alexander, "Notes on the Synthesis of Form", 1964, Harvard University Press.
9. Debkumar Chakrabarti, " Indian Anthropometric DimensionsFor Ergonomic Design Practice", 1997, National Institute of Design.
10. François Blanciak, " Siteless: 1001 Building Forms", 2008, MIT Press
11. Frank Ching, James F. Eckler, "Introduction to Architecture", 2012, John Wiley & Sons, US

12. Frank D.K. Ching, " Architecture: Form, Space, and Order", 4th Edition, Sep. 2014, John Wiley & Sons
13. Herman Hertzberger, "Lessons for Students in Architecture", 2005, 010 Publishers
14. Italo Calvino, " Invisible Cities", Harcourt Brace Jovanovich (May 3, 1978)
15. John Berger, " Way of Seeing", 1972, Penguin, UK
16. John Hancock Callender, " Time-Saver Standards for Architectural Design Data", 1982, McGraw-Hill
17. Michael Pause and Roger H. Clark, " Precedents in Architecture: Analytic Diagrams, Formative Ideas, and Partis", Van Nostrand Reinhold, 1985
18. Paul Jacques Grillo, " Form, Function and Design", 1975 , Dover Publications, New York
19. Paul Jacques Grillo, " What is Design ?", 1960, P. Theobald
20. Paul Lewis,Marc Tsurumaki, David J. Lewis, "Manual of Section", Princeton Architectural Press, 2016
21. Peter H. Reynolds, " The Dot", 2013, Candlewick Press
22. Philip Jodidio, "Tree houses. Fairy tale castles in the air", 2012, Taschen
23. Robert W. Gill, "Rendering with Pen and Ink", Van Nostrand Reinhold (1 June 1984)
24. Tom Alphin, "The LEGO Architect", 2015, No Starch Press

Web links and Video Lectures (e-Resources):

- https://ndl.iitkgp.ac.in
-

Activity Based Learning (Suggested Activities in Class)/ Practical Based learning

- Seminar by students on their field trips to dwellings in formal and vernacular settlements.

II Semester

Materials and Methods in Building Construction-II			
Course Code	**21ARC22**	CIE Marks	50
Teaching Hours/Week (L:T:P: S)	1:0:0:3	SEE Marks(VIVA)	50
Total Hours of Pedagogy	48	Total Marks	100
Credits	4	Exam Hours	-

Course objectives:

- *To understand Roofing systems using Timber, Steel Truss and Concrete. Cement, Steel and Reinforced Concrete.*

Teaching-Learning Process (General Instructions)

These are sample Strategies, which teacher can use to accelerate the attainment of the various course outcomes.

1. Studio works by students, lecture by faculty on materials using teaching aids
2. Visits to construction yard/site to understand materials and methods of construction.
3. Seminar by students on their learning.

Module-1

1) Timber Roof – Lean to roof, Collared Roof, King post roof, Queen Post Roof; details of joinery.
2) Steel Roof – Types of Steel Truss Roofs and method of construction.

Teaching-Learning Process	1. Studio work on different types and shapes of trusses used in timber and Steel. 2. Details of sections and sizes ofprinciple rafters, struts, perlins, etc., used in steel and timber trusses for different spans. 3. Site visit, documentation, studio presentation by students on their learning.

Module-2

3) Cement: Types, applications, Tests - laboratory and field.
4) Steel: Properties and uses of reinforced steel.
5) Concrete: Ingredients, grades, admixtures, properties, production, mix, proportioning and placing of concrete.

Teaching-Learning Process	1. Understanding how cement, steel and concrete are tested in field and in laboratory. 2. Exploring the properties, uses and application of cement, steel and concrete in a typical building and in special applications. 3. Field visit to understand different materials used in concrete and quality parameters of concrete before and after concrete casting.

Module-3

6) Reinforced Cement Concrete: Form work, placing, and compaction, curing of concrete, sampling and testing of concrete. Construction joints, expansion joints, finish in concrete, chemical admixtures. Advantages and disadvantages with respect to thermal properties and impact on life cycle of a building.
7) RCC Foundations (Isolated footing) and Columns (Square and Round). Raft foundations, Grillage foundations and combined footing.

Teaching-Learning Process	1. Basics of form work with conventional and modern materials used in all R C C works. 2. Understanding different grades of Concrete in R C C (M-15, M-20, M- 25) 3. PPT/videos /field visits on different types of foundation.

Module-4

8) Staircase: Anthropometry of stairs, types of Staircases.
9) Timber Stairs: Single and Double Stringer stairs: construction methods and joinery.
10) RCC Stairs: Waist slab, folded plate, stringer beam stairs, precast stairs: construction methods and

joinery.

Teaching-Learning Process	1. Studio work on different types and shapes of staircases built in Timber, Steel and Concrete. 2. Analysing details in joinery and techniques of construction of staircase

Module-5

11) Steel Stairs: Stringer stairs, Folded Type, Spiral stairs, Fire escape stairs: construction methods and joinery.

12) Composite Stairs: Brick/stone, Steel/Timber, Concrete/wood, steel/ glass: construction methods and joinery.

Teaching-Learning Process	1. Understanding the purpose and uses of steel and composite staircases. 2. Analysing construction methods and joinery details. 3. PPT/videos presentation on different types of steel and composite stairs.

Course outcome (Course Skill Set)

At the end of the course, the students would be able to:

1. Appreciate the procedure involved and various materials that can be used in construction of roofs, foundations and staircases with greater understanding of details involved in joinery.
2. Compare various materials and their inherent properties

Assessment Details (both CIE and SEE)

(methods of CIE need to be define topic wise i.e.- Submission of construction drawing sheets, Journal of materials, Multiple Choice Question, Quizzes, Open book test, Seminar or micro project)

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The student has to obtain a minimum of 50% marks individually both in CIE and 40% marks in SEE to pass. The average score of CIE + SEE shall be not less than 50% maximum marks of the course. Semester End Exam (SEE) is conducted for 50 marks (Viva-voce). Based on this grading will be awarded.

Continuous Internal Evaluation:

1. Methods suggested: Submission of Construction sheets, Journal of Materials, Test, Written Quiz, Seminar, report writing etc.
2. The class teacher has to decide the topics for the test, Written Quiz, and Seminar. In the beginning, only the teacher has to announce the methods of CIE for the subject.

Semester End Examination:

1. The student need to submit his/her works done throughout the semester, including rough sheets for Term work examination, atleast one day prior to Viva work examination to the course teacher/coordinator.
2. The work will be evaluated by an external teacher appointed by the University along with Course teacher or an internal examiner.
3. The SEE mark list generated is to be signed by both internal and external examiners and submitted to VTU in sealed cover through the Principal of the institution.

Suggested Learning Resources:

Books

1) Francis K Ching 'Building construction', Wiley; 5 edition (February 17, 2014)
2) R. Barry, "Construction of Buildings" Vol 1., 1999 by Wiley-Blackwell
3) Roy Chudley, "Construction Technology", 3rd Edition, Longman, 1999
4) W.B. Mckay, "Building Construction", Donhead, 2005

Web links and Video Lectures (e-Resources):

- . https://ndl.iitkgp.ac.in
- https://www.civilengineeringforum.me/structural-design-procedure/
- https://civiljungle.com/
- http://fairconditioning.org/knowledge-resources/#204-heat-transfer
- https://www.youtube.com/watch?v=e7DXW4DNJJo
- https://www.youtube.com/watch?v=dWSmgwPuyE4
- https://www.youtube.com/watch?v=rY2kHbUxZbs

Activity Based Learning (Suggested Activities in Class)/ Practical Based learning

- Visit to construction site for observation of materials used and methods adopted in building construction.
- Study of vernacular materials used in different climatic zones and their thermal properties.
- Visit to material testing labs to understand various properties of building materials, and observe the testing methods.
- Discuss with the faculty/experts on life cycle and environmental impact of construction materials

II Semester

Architectural Graphics-II			
Course Code	**21ARC23**	CIE Marks	50
Teaching Hours/Week (L:T:P: S)	0:0:0:4	SEE Marks(Term Work)	50
Total Hours of Pedagogy	48	Total Marks`	100
Credits	4	Exam Hours	-

Course objectives:
To develop visual communication and representation skills and methods of presentation of spatial design through 3D drawing techniques.

Teaching-Learning Process (General Instructions)
These are sample Strategies, which teacher can use to accelerate the attainment of the various course outcomes.

1. The students need to do the assignments in the studios.
1. Use of Video animation for easy understanding of various drawings

Module-1

1. 3D-Projections: exercises in 3D representation of exploded isometric and axonometric views of objects, furniture and built forms.

2. Development of surfaces for architectural roof forms, built enclosures and envelopes such as tents, upholstery and exercises of application to develop the paper and cardboard models.

Teaching-Learning Process	1. The students need to do the discussions on assignments in the studios. 2. Explore videos in various websites using animation of geometrical drawings. 3. A consolidated portfolio containing exercises related to each of the above topics are to be submitted for term work examination.

Module-2

3. Section of geometrical solids and construction of true shapes.

4. Interpenetration of geometric solids, combination of different forms in architectural compositions.
   Ex: Projecting towers of vertical circulation on building facades, chimney over sloping roofs and projecting canopies and balconies on facades and dormer windows.

Teaching-Learning Process	**1.** The students need to do the discussions on assignments in the studios. 2. Explore videos in various websites using animation of geometrical drawings. 3. A consolidated portfolio containing exercises related to each of the above topics are to be submitted for term work examination.

Module-3

5. Introduction to perspective drawing: Its importance in architectural drawings, principles of perspective drawing, visual perceptions and its limitations. Exercises of observation, recording and representing the visual effects of depth, diminution and vanishing of built forms and understanding the methods of perspective projection.

6. Studies in perspective drawing: Understanding the importance and purpose of picture plane, station point, vanishing point, ground level, eye level, cone of vision and central line of vision - their variations and resultant effects.

Teaching-Learning Process	1. The students need to do the discussions on assignments in the studios. 2. Explore videos in various websites using animation of geometrical drawings. A consolidated portfolio containing exercises related to each of the above topics are to be

	submitted for term work examination.
Module-4	
7. One - point perspective drawings: Exercises of perspective drawings of simple built forms, interior views of a room with furniture. Exercise of perspective by changing the variables, their positions of PP, CV, SP and eye level etc. 8. Two-point perspective drawings: exercises of perspective drawings of simple built forms, architectural elements. Interior views of a room with furniture. Exercises of perspective by changing the variables, their positions of PP, CV, SP and eye-level etc.	
Teaching-Learning Process	1. The students need to do the discussions on assignments in the studios. 2. Explore videos in various websites using animation of geometrical drawings. A consolidated portfolio containing exercises related to each of the above topics are to be submitted for term work examination.
Module-5	
9. Free-hand perspective drawings of architectural elements, built forms. Exercises of rendering techniques showing light, shade and shadow on built forms. Rendering of plants, trees, water, landscape, human figures, vehicles, furniture and buildings with suitable elements of foreground and background. 10. Introduction to Sciography: Principles of shade and shadow constructions for geometrical solids, architectural elements and built forms. Construction of shadows on floor plans, elevations, sectional elevations and roof-top views.	
Teaching-Learning Process	1. The students need to do the discussions on assignments in the studios. 2. Explore videos in various websites using animation of geometrical drawings. A consolidated portfolio containing exercises related to each of the above topics are to be submitted for term work examination.
Course outcome (Course Skill Set) At the end of the course, the students will be equipped with a skills to use 3D techniques in architectural presentations. They would also attain skills to make architectural presentation using rendering and sciographic techniques.	

Assessment Details (both CIE and SEE)

(methods of CIE need to be define topic wise i.e.- Submission of construction drawing sheets, Journal of materials, Multiple Choice Question, Quizzes, Open book test, Seminar or micro project)

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The student has to obtain a minimum of 50% marks individually both in CIE and 40% marks in SEE to pass. The average score of CIE + SEE shall be not less than 50% maximum marks of the course. Semester End Exam (SEE) is conducted for 50 marks (Term work). Based on this grading will be awarded.

Continuous Internal Evaluation:

3. Methods suggested: Submission of drawings done in studio, assignment sheets, etc., to be evaluated on weekly basis.
4. The class teacher has to decide the topics for the test. In the beginning only the teacher has to announce the methods of CIE for the subject.

Semester End Examination:

4. The student need to submit his/her works done throughout the semester, including rough sheets for Term work examination, atleast one day prior to Term work examination to the course teacher/coordinator.
5. The work will be evaluated by an external teacher appointed by the University along with Course teacher or an internal examiner.
6. The SEE mark list generated is to be signed by both internal and external examiners and submitted to VTU in sealed cover through the Principal of the institution.

Suggested Learning Resources:

Books

1) Francis D.K.Ching, "Architectural Graphics", Van Nostrand Reinhold Co., 1985
2) I.H.Morris, " Geometrical Drawing for Art Students", Longmans (1902)
3) Robert.W.Gill, "Rendering with pen and ink".
4) Shankar Malik, " Perspective & Sciography", 1994, Allied Publisher

Web links and Video Lectures (e-Resources):

- ` https://ndl.iitkgp.ac.in

Activity Based Learning (Suggested Activities in Class)/ Practical Based learning

- Encourage students to work on Computer aided Graphics.
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II Semester

History of Architecture-II			
Course Code	**21ARC24**	CIE Marks	50
Teaching Hours/Week (L:T:P: S)	3:0:0:0	SEE Marks	50
Total Hours of Pedagogy	36	Total Marks	100
Credits	3	Exam Hours	3

Course objectives:

To study the evolution of Greek, Roman, Byzantine, Medieval and Gothic Architecture through critical analysis of appropriate examples.

To facilitate the study of contextual architecturein the bygone era.

Teaching-Learning Process (General Instructions)

These are sample Strategies, which teacher can use to accelerate the attainment of the various course outcomes.

Module-1

1. Classical Greek Architecture 1: Critical appreciation of works and synoptic study of architectural characteristic features from the Greek early periods.

2. Classical Greek Architecture 2: Critical appreciation of works and synoptic study of architectural characteristic features from the Greek later periods, Doric, ionic and Corinthian orders and optical correction.

3. Greek architecture Typologies: Study of principles of design of Greek buildings through study of three kinds of Architecture: a) Monumental (Built to impress and Last) ex. Parthenon, Theatre at Epidauros. b) Domestic (Built to inhabit): House of Colline, House of Masks, etc. and c) Civic space: The Agora and Acropolis.

Teaching-Learning Process	1. Theory classes to evaluate the development through different periods. 2. Highlight the relationship of Greek architecture with climatic conditions prevalent during the time/region, and the techniques used to integrating passive design in these buildings. 3. Documenting of learning through sketches, notes, assignments.

Module-2

4. Introduction to Roman Architecture: Critical appreciation of works and synoptic study of architectural characteristic features from the Roman periods. Study of Tuscan and composite orders.

5. Roman architecture Typologies 1: Study of principles of design of Roman buildings through study of proportion, composition, visual effects etc. in Monumental (Built to impress and last) Pantheon, Colosseum, Thermae of Caracalla, Pont du Gard, Nimes, Basilica of Trajan.

Teaching-Learning Process	1. Theory classes to evaluate the development through different periods. 2. Documenting of learning through sketches, notes, assignments.

Module-3

6. Roman architecture Typologies 2: Study of principles of design of Roman buildings through study of Domestic (Built to inhabit)-House, villa and apartments.

7. Roman architecture Typologies 3: Study of principles of design of Roman buildings through study of Civic space with elements like triumphal arch, Column of Trajan(Septimius Severus), Roman Forum.

8. Early Christian: Evolution of architecture parallel to the evolution of religious practices. Study of principles of design of buildings through study of three kinds of Architecture: a) Monumental b) Domestic (Built to inhabit) and c) Civic space.

Teaching-Learning Process	1. Theory classes to evaluate the development through different periods. 2. Documenting of learning through sketches, notes, assignments.

Module-4

9. Byzantine: Study of principles of design of buildings through study of its Architecture: a) Monumental; Hagia Sophia b) Domestic (Built to inhabit) and c) Civic space-St.Marks Venice.

10. Medieval: Study of principles of design of buildings through study of its Architecture: a) Monumental; Pisa Cathedral, the Campanile and Baptistery, Angouleme Cathedral b) Domestic (Built to inhabit) and c) Civic space; Pisa.

Teaching-Learning Process	1. Theory classes to evaluate the development through different periods. 2. Documenting of learning through sketches, notes, assignments.

Module-5

11. Gothic: Study of principles of design of buildings through study of its Architecture:
a) Monumental; Notre Dame, Paris. b) Domestic (Built to inhabit) and c) Civic space;

12. Gothic: Study of Gothic Architecture, typical characteristics including the pointed arch, the ribbed vault and the flying buttress, aesthetic elements with examples like Chartres Cathedral: French High Gothic style

Teaching-Learning Process	1. Theory classes to evaluate the development through different periods. 2. Highlight the relationship of Gothic architecture with climatic conditions, structural possibilities prevalent during the era, and the techniques used to integrate the design in these buildings. 3. Documenting of learning through sketches, notes, assignments.

Course outcome (Course Skill Set)

At the end of the course the student will be able to develop appropriate skills of reading, writing and understanding the physical and aesthetic experience of buildings.

Assessment Details (both CIE and SEE)

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 50% of the maximum marks (50 marks). A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 40% (20 Marks out of 50)in the semester-end examination(SEE), and a minimum of 50% (50 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together

Continuous Internal Evaluation:

Three Unit Tests each of **20 Marks (duration 01 hour**)

1. First test at the end of 5th week of the semester
2. Second test at the end of the 10th week of the semester
3. Third test at the end of the 15th week of the semester

Two assignments each of **10 Marks**

4. First assignment at the end of 4th week of the semester
5. Second assignment at the end of 9th week of the semester

Group discussion/Seminar/quiz any one of three suitably planned to attain the COs and POs for **20 Marks** (**duration 01 hours**)

6. At the end of the 13th week of the semester

The sum of three tests, two assignments, and quiz/seminar/group discussion will be out of 100 marks and will be **scaled down to 50 marks**

(to have less stressed CIE, the portion of the syllabus should not be common /repeated for any of the methods of the CIE. Each method of CIE should have a different syllabus portion of the course).

CIE methods /question paper is designed to attain the different levels of Bloom's taxonomy as per the outcome defined for the course.

Semester End Examination:

Theory SEE will be conducted by University as per the scheduled timetable, with common question papers for the subject (**duration 03 hours)**

1. The question paper will have ten questions. Each question is set for 20 marks.
2. There will be 2 questions from each module. Each of the two questions under a module (with a maximum of 3 sub-questions), **should have a mix of topics** under that module.

The students have to answer 5 full questions, selecting one full question from each module

Suggested Learning Resources:

Books

1. Bannister Fletcher , "History of Architecture", CBS Publishers, 1992
2. Henri Stierlin, "Architecture of the world - Greece", Herron Books 1994
3. Henri Stierlin, "Architecture of the world - The Roman Empire", Taschen Pub., 1997 .
4. Henri Stierlin , "Architecture of the world - Romanesque", Taschen Pub., 2008.
5.James Stevens Curl," Classical Architecture", W. W. Norton & Company; Reissue edition, 2003.
Robert Adam, " Classical Architecture", Harry N. Abrams; 1st edition, 1991

Web links and Video Lectures (e-Resources):

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4. https://ndl.iitkgp.ac.in

Activity Based Learning (Suggested Activities in Class)/ Practical Based learning

- Making sketches of various buildings in sketch book
- Seminar by students on selected topics in group or individually.
- Group discussion on a topic.

II Semester

BASIC DESIGN AND THEORY OF DESIGN			
Course Code	**21ARC15**	CIE Marks	50
Teaching Hours/Week (L:T:S: P)	05	SEE Marks(viva)	50
Exam Hours	Internals	Total Marks	100
Credits	05		

Course objectives:

.OBJECTIVE: To encourage Visual creative thinking and critical orientation to design thinking and action.

Teaching-Learning Process (General Instructions)

These are sample Stress-free exercises which teachers can use to accelerate the attainment of the various course outcomes.

1. Show Video/Power point presentation to explain concepts
2. Encourage hands on practical experimentation of different ways of composition.
3. Creative Visual thinking exercise by using Elements and Principles of design.
4. Adopt multidisciplinary collaboration to understand the fundaments of all art forms.
5. Concepts will be introduced in multiple representations to abstraction.
6. Show different ways of dealing with same exercise by exposing them to various mediums.
7. Expose students to different exhibitions and performing art .

Study to develop hand & cognitive skill.

Module-1MODULE-1:

Definition of Art and role of Art in Society: Role and meaning of art, various types of arts-fine arts, performing arts, commercial arts, industrial arts, folk arts, abstract art, visual arts, spatial arts, temporal arts, pop art etc., relationship of architecture with other arts like Painting and Sculpture.

Study Tools- Any three in all the above art forms can be explored by students under the following heads:

- Observation & Study to develop hand & cognitive skill.
- Colours, Pattern & textures, and function
- Additive and Subtractive of Forms
- Freehand sketching
- Exercises of rendering techniques

Introduction to Different forms of Art

- What is art and its role in society?
- Which are the different forms of art?
- What is a work of art and how it's related to other forms of art?

Teaching-Learning Process	• Documentation any one art form from India • To observe and understand different elements and principled involved in making that art form. • Observing and documenting various skill set needed to execute that art form or the craftsmanship required to make that work of art. • Understand the creative process and use the understanding in a composition.

Module-2

1. Principles of Aesthetics and Architectural Composition 2. Contrast, harmony, accentuation, restraint in Architectural composition. Illustrations and its application to the practice of design in historical as well as contemporary building. 3. Repose, vitality, strength in Architectural composition. 4. Principles of Aesthetics and Architectural Composition	
Teaching-Learning Process	• Intangible to tangible analysis by taking our classical music composition to 3d composition using the grammar of music which are present in Principles of art and design. • Understanding the commonalities between the performing art ,Visual art and their compositions. • To learn basic design principles such as balance, symmetry, rhythm, repetition, hierarchy, unity, proportion, emphasis, contrast
Module-3	
Spatial organizations of Masses in Architecture 1: linear, radial, grid organization. Illustrations of linear, radial, grid organization in spatial organizations of masses in Architecture and its application to the practice of design with both historical as well as contemporary buildings. Study Tools- Process of Representation of natural pattern to abstraction using pure geometrical/dimensional form using various visual media. Eg. Charcoal/ pencil/crayons/oils etc. Use of 2D & 3D hands on working models to synthesize and create form to appreciate the difference between architecture and spatial organizations.	
Teaching-Learning Process	• Understanding the difference and similarity while design of a non-enclosed space, a semi-enclosed space, an enclosed space. • Analysis of spaces using – Form, colour, texture, light, ventilation, space and scale along with circulation. • Submission will include Idea generation, Study models, Sketches and drawings to achieve the desired results. • Drawings of the human body in various postures with required measurements • Study Tools- Any three can be explored • • : Observation & Study to develop hand & cognitive skill. • : Colours, Pattern & textures, and function • : Additive and Subtractive of Forms • : Freehand sketching • : Exercises of rendering techniques
Module-4	
Introduction to Abstraction: 2. Ornamentation in Architecture: Historical perspective of the use of ornament in buildings and use of ornament as a decoration to embellish parts of a building. Use and need of ornament in architectural design – different types of ornamentation in buildings. 3. Ornamentation in Architecture Criticism–Argument against ornamentation. Ideas of architect Adolf Loos (Ornament and Crime); Ornaments as economically inefficient and morally degenerate, reduction of ornament or lack of decoration as the sign of an advanced society. **Study Tools-** Structural/Material translation from concept and architectural form.	
Teaching-Learning Process	• Exercises to introduce 2D concepts to 3D forms without functional constraints and Human scale. • Declaring the conceptual theme of any composition at the beginning, before the exploring the volume using Horizontal and vertical elements or planes. • Study of patterns and use the pattern, both physical and material patterns as well

	as patterns of transformation and Integration. Appreciation of the difference between architecture and the chosen pattern.

Module-5

Style in art & Architecture: Basis for classification of styles including chronology of styles arrangement according to order that changes over time.

Evolution of styles; reflecting the emergence of new ideas as reaction to earlier styles as a result of changing of fashions, beliefs, technology etc. Popular and modern art, Art trends, periods and Isms.

Study Tools-

- : Material Study
- : Experience of architecture in basic psychological and physiological terms

Teaching-Learning Process	• Understanding the difference and similarities while the design of a non-enclosed space, a semi-enclosed space, an enclosed space. • Submission will include Idea generation, Study models, Sketches, and drawings to achieve the desired results.

Course outcome (Course Skill Set)

At the end of the course the student will be able to:

- Differentiate between Art and craft and how these are related to Architecture
- Study to develop hand & cognitive skill.

Note	• Discussions, presentations, Study models, case studies & Activities will be part of the studio work. • The portfolio covering all the progressive and final works shall be presented for Viva.

Assessment Details (both CIE and SEE)

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The student has to obtain a minimum of 50% marks individually both in CIE and 40% marks in SEE to pass. Viva Semester End Exam (SEE) is conducted for 50 marks. Based on this grading will be awarded.

Continuous Internal Evaluation:

3. Methods suggested: Presentation, Progressive Portfolio submissions & Discussions etc.
4. In the beginning only, the teacher has to announce the methods of CIE for the subject.

Semester End Examination:

3. Viva SEE will be conducted by University as per the scheduled timetable, with External examiners.
4. Assessment will be based on Portfolio works submission, communication skills, understanding of the subject, Creative ability and overall Presentation.

Suggested Learning Resources:

REFERENCES:

1. Form, Space and Order" by Francis DK Ching
2. Design Fundamentals in Architecture" by Parmar VS
3. Theory of Architecture by Paul Alan Johnson

4. Creating Architectural Theory by John Lang

Web links and Video Lectures (e-Resources):

1. https://ndl.iitkgp.ac.in

Activity Based Learning (Suggested Activities in Class)/ Practical Based learning

- Documenting/ sketches of various arts & crafts in the region
- Seminar by students on selected topics in group or individually.
- Group discussion on a topic.

II Semester

Building Structure -I			
Course Code	**21ENG26**	CIE Marks	50
Teaching Hours/Week (L:T:P: S)	3:0:0:0	SEE Marks	50
Total Hours of Pedagogy	40	Total Marks	100
Credits	3	Exam Hours	3

Course objectives:
Introduction to principles of mechanics, structural material & different force system & on structural properties.

Teaching-Learning Process (General Instructions)
These are sample Strategies, which teachers can use to accelerate the attainment of the various course outcomes.

Module-1

Different construction materials with emphasis on structural properties viz. steel , concrete, wood, glass, aluminium. Different types of loads, the structure is being subjected to as per IS 875 Part I & II.

Teaching-Learning Process	1. Theory classes to evaluate the structural properties of materials. 2. Specifications and applications as per IS Codes. 3. Documenting of learning through sketches, notes, assignments.

Module-2

Mechanics - Classification of mechanics, force, characteristics of force, classification of force system, Resultant of force, Composition of force, Axioms in mechanics, Principles of transmissibility, Moment of force, Resultant of coplanar concurrent force system, and Free body diagrams.

Teaching-Learning Process	1. Theory classes to evaluate the Basics of Mechanics. 2. Documenting of learning through sketches, notes, assignments.

Module-3

Resultant of coplanar noncurrent force system, couple & characteristics of couple, different types of loads, different types of beams, statically determinate & statically indeterminate, different types of supports, problems on support reactions, Equilibrium of Co-planar Concurrent and Non-Concurrent forces.
Note: In the numerical pertaining to support reactions, loading on the beam shall be restricted to only **point load & uniformly distributed load**].

Teaching-Learning Process	1. Theory classes to evaluate the forces of structural systems in Buildings. 2. Documenting of learning through sketches, notes, assignments.

Module-4

Center of gravity, centroid, to locate the centroid of composite section from the 1st principles. Moment of inertia, radius of gyration, parallel axis theorem, perpendicular axis theorem. Numericals on determination of moment of inertia of composite section about any defined axis.

Teaching-Learning Process	1. Theory classes to evaluate the moments Building System. 2. Documenting of learning through sketches, notes, assignments.

Module-5

Truss - Triangulation concept, different types of trusses, assumption made in the analysis of truss. Analysis of the truss by the **"Method of Joints" (Simple problems)** to calculate the dead weight of the truss from given data.

Teaching-Learning Process	1. Theory classes to evaluate the forces of structural systems in a typical truss. 2. Documenting of learning through sketches, notes, assignments.

Course outcome (Course Skill Set)

At the end of the course the students will have the ability to understand the mechanics of forces acting on rigid bodies and the structural properties.

Assessment Details (both CIE and SEE)

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 50% of the maximum marks (50 marks). A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 40% (20 Marks out of 50)in the semester-end examination(SEE), and a minimum of 50% (50 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together

Continuous Internal Evaluation:

Three Unit Tests each of **20 Marks (duration 01 hour**)

7. First test at the end of 5th week of the semester
8. Second test at the end of the 10th week of the semester
9. Third test at the end of the 15th week of the semester

Two assignments each of **10 Marks**

10. First assignment at the end of 4th week of the semester
11. Second assignment at the end of 9th week of the semester

Group discussion/Seminar/quiz any one of three suitably planned to attain the COs and POs for **20 Marks** (**duration 01 hours**)

12. At the end of the 13th week of the semester

The sum of three tests, two assignments, and quiz/seminar/group discussion will be out of 100 marks and will be **scaled down to 50 marks**

(to have less stressed CIE, the portion of the syllabus should not be common /repeated for any of the methods of the CIE. Each method of CIE should have a different syllabus portion of the course).

CIE methods /question paper is designed to attain the different levels of Bloom's taxonomy as per the outcome defined for the course.

Semester End Examination:

Theory SEE will be conducted by University as per the scheduled timetable, with common question papers for the subject (**duration 03 hours)**

3. The question paper will have ten questions. Each question is set for 20 marks.
4. There will be 2 questions from each module. Each of the two questions under a module (with a maximum of 3 sub-questions), **should have a mix of topics** under that module.

The students have to answer 5 full questions, selecting one full question from each module

Suggested Learning Resources:

Books

1) R.K.Bansal, " A Textbook of Engineering Mechanics", Laxmi Publications, 2008
2) S.S. Bhavikatti, " Engineering Mechanics", New Age International, 1994.
3) S. Ramamrutham, "Engineering Mechanics ", Dhanpat Rai Publishing, New Delhi, 2016.

Web links and Video Lectures (e-Resources):

1. https://ndl.iitkgp.ac.in
2. https://www.youtube.com/watch?v=CcHPzDPYkho
3. https://www.youtube.com/watch?v=Hn_iozUo9m4
4. https://www.youtube.com/channel/UCXAS_Ekkq0iFJ9dSUIkcAkw

Activity Based Learning (Suggested Activities in Class)/ Practical Based learning

- Visit to Construction yard/site to understand uses of building materials in a structure.
- Hands on experience in testing of various building materials
- Visit to large span truss buildings to understand the details of a truss.
- Watching animated videos on structural systems

II Semester

Site Surveying and Analysis			
Course Code	**21ENG27**	CIE Marks	50
Teaching Hours/Week (L:T:P: S)	0:0:2:0	SEE Marks(Term Work)	50
Total Hours of Pedagogy	25	Total Marks	100
Credits	2	Exam Hours	-

Course objectives:
To develop the knowledge and skills related to surveying and levelling principles and practice and carrying out surveys of land of medium complexity and preparation of survey plans.

Teaching-Learning Process (General Instructions)
These are sample Strategies, which teacher can use to accelerate the attainment of the various course outcomes.

Module-1

1) **Introduction to Surveying** – Definition, classification, principles of surveying, character of work, shrunk scale.
2) **Introduction to Chain Surveying Instruments –** Chain and its types, Ranging Rod, Tapes, pegs.

Teaching-Learning Process	1. Practical classes to evaluate the principles of surveying. 2. Documenting of learning through sketches, notes, assignments.

Module-2

3) **Chain Surveying 1 –** Ranging and Types of Ranging.
4) **Chain Surveying 2 –** Setting out angles, erecting perpendicular, Obstacles in chain surveying, calculation of area by offsets.
Plane Table Surveying – Accessories used advantages and disadvantages, Methods of plane table surveying (radiation and intersection).

Teaching-Learning Process	1. Practicals to demonstrate the using of survey equipments and methods of surveying. 2. Students to document learning through exercises, notes, assignments.

Module-3

5) **Levelling –** Definition, Classification, booking and reduction of levels (HI Method, Rise and Fall Method).
6) **Levelling –** Profile levelling – Calculation of depth of cutting and filling

Teaching-Learning Process	1. Practicals to demonstrate the using of survey equipments and methods of surveying. 2. Students to document learning through exercises, notes, assignments.

Module-4	
7) **Contouring**: Characteristics of contours, direct and indirect methods of contours, interpolation and uses of contours. 8) **Introduction to Contemporary Survey Instruments** – Theodolite, Total Station, GPS Theodolite – Basic Concepts, Measuring horizontal and vertical angles Total Station – Accessories used, uses of total station and applications, Introduction to GPS	
Teaching-Learning Process	1. Practicals to demonstrate the using of survey equipments and methods of surveying. 2. Students to document learning through exercises, notes, assignments.
Module-5	
9) **Observation and Analysis of a Site –** Survey without instruments using geometry and anthropometric measures. To learn a terrain on site factors like topography, hydrology, soils, landforms, vegetation, climate and micro climate and influence of water bodies. 10) **Studying Survey Drawing –** Learning to read a land survey drawing, types of land survey drawing, scale and north, legends and symbols.	
Teaching-Learning Process	1. Students to document field learning through notes, sketches,and assignments.

Course outcome (Course Skill Set)

At the end of the course the students will have ability to understand measure and analyze the topographical characteristics of a given site for its effective use in site planning.

Assessment Details (both CIE and SEE)

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 50% of the maximum marks (50 marks). A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 40% (20 Marks out of 50)in the semester-end examination(SEE), and a minimum of 50% (50 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together

Continuous Internal Evaluation:

1. Methods suggested: Submission of drawings done in field survey, assignment sheets, journal writing, etc., to be evaluated on weekly basis.
2. The class teacher has to decide the topics for the test. In the beginning only the teacher has to announce the methods of CIE for the subject.

Semester End Examination:

1. The student need to submit his/her works done throughout the semester, including rough sheets for Term work examination, atleast one day prior to Term work examination to the course teacher/coordinator.
2. The work will be evaluated by an external teacher appointed by the University along with Course teacher or an internal examiner.
3. The SEE mark list generated is to be signed by both internal and external examiners and submitted to VTU in sealed cover through the Principal of the institution.

Suggested Learning Resources:

Books

1) B C Punmia, " Surveying Volume I", Firewall Media, 2005
2) K R Arora,"Surveying " Standard Book House,7th edition.
3) R. Subramanian, " Fundamentals of Surveying and Levelling", Oxford Uni. Press., 2014.
4) S K Duggal," Surveying", Vol 1, 14th Edition, McGraw Hill Education, 2013.
5) TP Kanetkar, SV Kulkarni, "Surveying and Levelling(Part-1)", PuneVidyarthi Griha Prakashan, 2014.

Web links and Video Lectures (e-Resources):

1. https://ndl.iitkgp.ac.in
2. https://www.faro.com/en/Industries/Architecture-Engineering-and-Construction

Activity Based Learning (Suggested Activities in Class)/ Practical Based learning

- Use of modern tools and technology in surveying to be encouraged.

II Semester

Professional Writing Skills in English

Course Code	**21EGH28**	CIE Marks	50
Teaching Hours/Week (L:T:P: S)	1:1:1	SEE Marks	50
Total Hours of Pedagogy	03 Hours/Week	Total Marks	100
Credits	02	Exam Hours	2 hour

Course objectives:

The course (21EGH28) will enable the students ,

- To Identify the Common Errors in Writing and Speaking of English.
- To Achieve better Technical writing and Presentation skillsfor employment.
- To read Technical proposals properly and make them to Write good technical reports.
- Acquire Employment and Workplace communication skills.
- To learn about Tequniqes of Information Transfer through presentation in different level.

Language Lab : To augment LSRW, grammar and Vocabulary skills (Listening, Speaking, Reading, Writing and Grammar, Vocabulary) through tests, activities, exercises etc., comprehensive web-based learning and assessment systems can be referred as per the AICTE /VTU guidelines.

Teaching-Learning Process (General Instructions)

These are sample Strategies, which teacher can use to accelerate the attainment of the various course outcomes.

- ✓ Teachers shall adopt suitable pedagogy for effective teaching - learning process. The pedagogy shall involve the combination of different methodologies which suit modern technological tools and software's to meet the present requirements of the Global employment market.
  (i) Direct instructional method (Low /Old Technology),
  (ii) Flipped classrooms (High/advanced Technological tools),
  (iii) Blended learning (combination of both),
  (iv) Enquiry and evaluation based learning,
  (v) Personalized learning,
  (vi) Problems based learning through discussion,
  (vii) Following the method of expeditionary learning Tools and techniques,
  (viii) Use of audio visual methods through language Labs in teaching of of LSRW skills.
- ✓ Apart from conventional lecture methods, various types of innovative teaching techniques through videos, animation films may be adapted so that the delivered lesson can progress the students In theoretical applied and practical skills in teaching of communicative skills in general.

Module-1

Identifying Common Errors in Writing and Speaking English :

- Advanced English Grammar for Professionals with exercises, Common errors identification in parts of speech, Use of verbs and phrasal verbs, Auxiliary verbs and their forms,Subject Verb Agreement (Concord Rules with Exercises).
- Common errors in Subject-verb agreement, Noun-pronoun agreement, Sequence of Tenses and errors identification in Tenses.Advanced English Vocabulary and its types with exercises – Verbal Analogies, Words Confused/Misused.

Teaching-Learning Process	Chalk and talk method, PowerPoint presentation to teach Communication skills (LSRW Skills), Creating real time stations in classroom discussions, Giving activities and assignments (Connecting Campus & community with companies real time situations).

Module-2

Nature and Style of sensible writing :

- Organizing Principles of Paragraphs in Documents, Writing Introduction and Conclusion, Importance of Proper Punctuation, The Art of Condensation (Precise writing) and Techniques in Essay writing, Common Errors due to Indianism in English Communication, Creating Coherence and Cohesion, Sentence arrangements exercises, Practice of Sentence Corrections activities.Importance of Summarising and Paraphrasing.
- Misplaced modifiers, Contractions, Collocations, Word Order, Errors due to the Confusion of words, Common errors in the use of Idioms and phrases, Gender, Singular & Plural. Redundancies & Clichés.

Teaching-Learning Process	Chalk and talk method, PowerPoint presentation and Animation videos to teach phonetics in Practical method, creating real time stations in classroom discussions, Giving activities and assignments (Connecting Campus & community with companies real time situations).

Module-3

Technical Reading and Writing Practices :

- Reading Process and Reading Strategies, Introduction to Technical writing process, Understanding of writing process, Effective Technical Reading and Writing Practices, Introduction to Technical Reports writing, Significance of Reports, Types of Reports.
- Introduction to Technical Proposals Writing, Types of Technical Proposals, Characteristics of Technical Proposals. Scientific Writing Process.
- Grammar – Voice and Speech (Active and Passive Voices) and Reported Speech, Spotting Error Exercises, Sentence Improvement Exercises, Cloze Test and Theme Detection Exercises.

Teaching-Learning Process	Chalk and talk method, PowerPoint presentation to teach Grammar, Animation videos on communication and language skills, creating real time stations in classroom discussions, Giving activities and assignments (Connecting Campus & community with companies real time situations).

Module-4

Professional Communication for Employment :

- The Listening Comprehension, Importance of Listening Comprehension, Types of Listening, Understanding and Interpreting, Listening Barriers, Improving Listening Skills. Attributes of a good and poor listener.
- Reading Skills and Reading Comprehension, Active and Passive Reading, Tips for effective reading.
- Preparing for Job Application, Components of a Formal Letter, Formats and Types of official, employment, Business Letters, Resume vs Bio Data, Profile, CV and others, Types of resume, Writing effective resume for employment, Model Letter of Application (Cover Letter) with Resume, Emails, Blog Writing, Memos (Types of Memos) and other recent communication types.

Teaching-Learning Process	Chalk and talk method, PowerPoint presentation to teach Grammar and phonetics, Animation videos on communication and language skills, creating real time stations in classroom discussions, Giving activities and assignments (Connecting Campus & community with companies real time situations).

Module-5

Professional Communication at Workplace:

- Group Discussions – Importance, Characteristics, Strategies of a Group Discussions. Group Discussions is a Tool for Selection. Employment/ Job Interviews - Importance, Characteristics, Strategies of aEmployment/ Job Interviews. Intra and Interpersonal Communication Skills - Importance, Characteristics, Strategies of aIntra and Interpersonal Communication Skills. Non-Verbal Communication Skills (Body Language) and its importance in GD and PI/JI/EI.
- Presentation skills and Formal Presentations by Students - Importance, Characteristics, Strategies of Presentation Skills. Dialogues in Various Situations (Activity based Practical Sessions in class by Students).

Teaching-Learning Process	Chalk and talk method, PowerPoint presentation to teach Grammar and phonetics, Animation videos on communication and language skills, creating real time stations in classroom discussions, Giving activities and assignments (Connecting Campus & community with companies real time situations).

Course outcome (Course Skill Set)

At the end of the course(21EGH28) the student will be able :

1. To understand andidentify the Common Errors in Writing and Speaking.
2. To Achieve better Technical writing and Presentation skills.
3. To read Technical proposals properly and make them to Write good technical reports.
4. Acquire Employment and Workplace communication skills.
5. To learn about Techniques of Information Transfer through presentation in different level.

Assessment Details (both CIE and SEE)

Continuous internal evaluation (CIE) needs to be conducted for 50 marks like Engineering courses. The weight age of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The student has to obtain a minimum of 50% of maximum marks in CIE and 40% of maximum marks in SEE to pass. MCQ Pattern (Multiple Choice Questions) Semester End Exam (SEE) is conducted for 50 marks (120 minutes duration). Based on this grading will be awarded. The student has to secure 50% marks of the course (CIE+SEE).

Continuous Internal Evaluation (CIE) :

Three Unit Tests each of **20 Marks (duration 01 hour**)

1. First test at the end of 5th week of the semester
2. Second test at the end of the 10th week of the semester
3. Third test at the end of the 15th week of the semester

All the tests are preferred similar to SEE pattern; however, the teacher may follow test pattern similar to other theory courses of Engineering

Two assignments each of **10 Marks**

1. First assignment at the end of 4th week of the semester
2. Second assignment at the end of 9th week of the semester
3. Report writing /Group discussion/Seminar any one of three suitably planned to attain the COs and POs for **20 Marks**(**duration 01 hours**)
4. At the end of the 13th week of the semester

The sum of three tests, two assignments, and quiz/seminar/group discussion will be out of 100 marks and will be **scaled down to 50 marks**

CIE methods /question paper is designed to attain the different levels of Bloom's taxonomy as per the outcome defined for the course.

Semester End Examination (SEE) :

SEE paper will be set for 100 questions of each of 01 marks. The pattern of the question paper is MCQ. The time allotted for SEE is 120 minutes**.** Marks scored are scaled down to 50 Marks. *(Time duration may be made 90 minutes to train the students for engineering / non-engineering competitive examination)*

1. Professional Writing Skills in English has become a very important component in allengineering and non-engineering competitive examinations. In exams like GRE, TOEFL, IELTS and GATE exam, all state and Central Government recruitment examinations, placement tests and other Examinations, so the pattern of question paper, in general, will be in multiple-choice question (MCQ) Pattern. So, to meet the relevance of the recruitment requirement of our Engineering students "Professional writing skill in English" Semester end examination (SEE) will be conducted in a multiple choice question (MCQ) pattern.
2. MCQ Pattern (Multiple Choice Questions) Semester End Exam (SEE) is conducted for 50 marks (120 minutes duration).

Suggested Learning Resources:

1. **A Course in Technical English,** Cambridge University Press – 2020.
2. **Functional English** (**As per AICTE 2018 Model Curriculam**) Cengage learning India Pvt Limited [Latest Revised Edition] - 2020.
3. **Communication Skills** by Sanjay Kumar and Pushp Lata, Oxford University Press - 2018. **Refer it's workbook** for activities and exercises –"Communication Skills – I (A Workbook)" published by Oxford University Press – 2018.
4. **Professional Writing Skills in English,** Infinite Learning Solutions – (Revised Edition) 2021.
5. **Technical Communication** – Principles and Practice, Third Edition by Meenakshi Raman and Sangeetha Sharma, Oxford University Press 2017.
6. **High School English Grammar & Composition** by Wren and Martin, S Chandh & Company Ltd – 2015.
7. **Effective Technical Communication** – Second Edition by M Ashraf Rizvi, McGraw Hill Education (India) Private Limited – 2018.
8. **Intermediate Grammar, Usage and Composition** by M.L.Tichoo, A.L.Subramanian, P.R.Subramanian, Orient Black Swan – 2016.

Activity Based Learning (Suggested Activities in Class)/ Practical Based learning

- ✓ Contents related activities (Activity-based discussions)
- ✓ For active participation of students instruct the students to prepare Flowcharts and Handouts
- ✓ Organising Group wise discussions Connecting to placement activities
- ✓ Quizzes and Discussions, Seminars and assignments

II Semester

Scientific Foundations of Health			
Course Code	**21SFH19/29**	CIE Marks	50
Teaching Hours/Week (L:T:P: S)	1:0:0	SEE Marks	50
Total Hours of Pedagogy	02 Hours/Week	Total Marks	100
Credits	01	Exam Hours	60 Minutes / 01 Hour

Course objectives:

The course 21**SFH29** will enable the students:

- To know about Health and wellness (and its Beliefs)
- To acquire Good Health & It's balance for positive mind-set
- To Build the healthy lifestyles for good health for their better future
- To Create of Healthy and caring relationships to meet the requirements of MNC and LPG world
- To learn about Avoiding risks and harmful habits in their campus and outside the campus for their bright future
- To Prevent and fight against harmful diseases for good health through positive mindset

Teaching-Learning Process (General Instructions)

These are sample Strategies, which teacher can use to accelerate the attainment of the various course outcomes.

- ✓ Teachers shall adopt suitable pedagogy for effective teaching - learning process. The pedagogy shall involve the combination of different methodologies which suit modern technological tools and software's to meet the present requirements of the Global employment market.
  (i) Direct instructional method (Low /Old Technology),
  (ii) Flipped classrooms (High/advanced Technological tools),
  (iii) Blended learning (combination of both),
  (iv) Enquiry and evaluation based learning,
  (v) Personalized learning,
  (vi) Problems based learning through discussion,
  (vii) Following the method of expeditionary learning Tools and techniques,
- ✓ Apart from conventional lecture methods, various types of innovative teaching techniques through videos, animation films may be adapted so that the delivered lesson can progress the students In theoretical applied and practical skills in teaching of the concepts of Health and Wellness in general.

Module-1

Good Health and It's balance for positive mindset:

What is Health, Why Health is very important Now? – What influences your Health?, Health and Behaviour, Health beliefs and advertisements, Advantages of good health (Short term and long term benefits), Health and Society, Health and family, Health and Personality - Profession. Health and behaviour, Disparities of health in different vulnerable groups. Health and psychology, Methods to improve good psychological health. Psychological disorders (Stress and Health - Stress management), how to maintain good health, Mindfulness for Spiritual and Intellectual health, Changing health habits for good health. Health and personality.

Teaching-Learning Process	Chalk and talk method, Power Point presentation and YouTube videos, Animation videos methods. creating real time stations in classroom discussions. Giving activities &assignments.

Module-2

Building of healthy lifestyles for better future: Developing a healthy diet for good health, Food and health, Nutritional guidelines for good health and well beingness, Obesity and overweight disorders and its management, Eating disorders - proper exercises for its maintenance (Physical activities for health), Fitness components for health, Wellness and physical function.	
Teaching-Learning Process	Chalk and talk method, PowerPoint presentation and YouTube videos, Animation videos methods. creating real time stations in classroom discussions. Giving activities &assignments.
Module-3	
Creation of Healthy and caring relationships : Building communication skills (Listening and speaking), Friends and friendship - education, the value of relationships and communication, Relationships for Better or worsening of life, understanding of basic instincts of life (more than a biology), Changing health behaviours through social engineering,	
Teaching-Learning Process	Chalk and talk method, PowerPoint presentation and Animation videos methods. creating real time stations in classroom discussions. Giving activities and assignments.
Module-4	
Avoiding risks and harmful habits : Characteristics of health compromising behaviors, Recognizing and avoiding of addictions, How addiction develops and addictive behaviors, Types of addictions, influencing factors for addictions, Differences between addictive people and non addictive people and their behavior with society, Effects and health hazards from addictions Such as..., how to recovery from addictions.	
Teaching-Learning Process	Chalk and talk method, PowerPoint presentation and Animation videos methods. creating real time stations in classroom discussions. Giving activities and assignments.
Module-5	
Preventing and fighting against diseases for good health : Process of infections and reasons for it, How to protect from different types of transmitted infections such as….., Current trends of socio economic impact of reducing your risk of disease, How to reduce risks for good health, Reducing risks and coping with chronic conditions, Management of chronic illness for Quality of life, Health and Wellness of youth: a challenge for the upcoming future Measuring of health and wealth status.	
Teaching-Learning Process	Chalk and talk method, PowerPoint presentation and YouTube videos, Animation videos methods. Creating real time stations in classroom discussions. Giving activities & assignments.

Course outcome (Course Skill Set)

At the end of the course the student will be able :

CO 1: To understand Health and wellness (and its Beliefs)

CO 2: To acquire Good Health & It's balance for positive mindset

CO 3: To inculcate and develop the healthy lifestyle habits for good health.

CO 4: To Create of Healthy and caring relationships to meet the requirements of MNC and LPG world

CO 5: To adopt the innovative & positive methods to avoid risks from harmful habits in their campus & outside the
campus.

CO 6: To positively fight against harmful diseases for good health through positive mindset.

Assessment Details (both CIE and SEE)

methods of CIE need to be defined topic wise i.e.- Tests, MCQ, Quizzes, Seminar or micro project/Course Project, Term Paper)

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The student has to obtain a minimum of 40% of maximum marks in SEE and a minimum of 50% of maximum marks in CIE. Semester End Exam (SEE) is conducted for 50 marks (hours' duration). Based on this grading will be awarded.

The student has to score a minimum of 50% (50 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

Continuous Internal Evaluation:

Three Unit Tests each of **20 Marks (duration 01 hour**)

4. First test at the end of 5th week of the semester
5. Second test at the end of the 10th week of the semester
6. Third test at the end of the 15th week of the semester

(All tests are similar to the SEE pattern i.e question paper pattern is MCQ)

Two assignments each of **10 Marks**

7. First assignment at the end of 4th week of the semester
8. Second assignment at the end of 9th week of the semester

Report writing /Group discussion/Seminar any one of three suitably planned to attain the COs and POs for **20 Marks**(**duration 01 hours**)

9. At the end of the 13th week of the semester

The sum of three tests, two assignments, and quiz/seminar/group discussion will be out of 100 marks and will be **scaled down to 50 marks**

CIE methods /question paper is designed to attain the different levels of Bloom's taxonomy as per the outcome defined for the course.

Semester End Examination:

Theory SEE will be conducted by University as per the scheduled timetable, with common question papers for subject

SEE paper will be set for 50 questions of each of 01 marks. The pattern of the question paper is MCQ. The time allotted for SEE is **01 hours**

Suggested Learning Resources:

1. **Health Psychology** (Second edition) by Charles Abraham, Mark Conner, Fiona Jones and Daryl O'Connor – Published by Routledge 711 Third Avenue, New York, NY 10017.
2. **Health Psychology - A Textbook,** FOURTH EDITION by Jane Ogden McGraw Hill Education (India) Private Limited - Open University Press
3. **HEALTH PSYCHOLOGY (Ninth Edition)** by SHELLEY E. TAYLOR - University of California, Los Angeles, McGraw Hill Education (India) Private Limited - Open University Press
4. **Scientific Foundations of Health (Health & Welness) - General Books** published for university and colleges references by popular authors and published by the reputed publisher.

1) **SWAYAM / NPTL/ MOOCS/ We blinks/ Internet sources/ YouTube videos** and other materials / notes

Activity Based Learning (Suggested Activities in Class)/ Practical Based learning

- ✓ Contents related activities (Activity-based discussions)
- ✓ For active participation of students, instruct the students to prepare Flowcharts and Handouts
- ✓ Organizing Group wise discussions and Health issues based activities
- ✓ Quizzes and Discussions
- ✓ Seminars and assignments