

SHIVAJI UNIVERSITY, KOLHAPUR

**SYLLABUS FOR NINTH SEM-
ARCHITECTURE DEGREE COURSE**

SHIVAJI UNIVERSITY, KOLHAPUR

SYLLABUS FOR NINTH SEM-ARCHITECTURE DEGREE COURSE

(PC-901**)

SUBJECT:-ADVANCED ARCHITECTURAL DESIGN-II**

Course Code : PC-901	Semester : IX
Teaching Scheme : L : 01 S : 06 Total : 07	Credits : 10
Examination Scheme : Term Work - 100 Marks Viva-Voce - 100 Marks Theory paper – 100 marks	Total marks: 300

Note:

1. (**) Means combine passing for internal Term work &Theory paper &External oral as applicable.

COURSE DESCRIPTION:

It includes design and planning of a campus for large scale projects in Urban Areas such as public amenities, civic areas, merchant buildings, transportation and sports facilities.

COURSE OBJECTIVE:

During the course following objectives shall be considered to process the design of large scale urban projects:

- To review and do comparative analyses required to formulate design program with understanding of a wide range of related issues in urban context.
- To understand design of complex buildings and planning of campuses involving analytical study of building spaces with consideration of sociological, economic, cultural and climatic factors.
- To be exposed to appropriate material and construction technology to deal with large scale public projects.
- To understand socio economic demands, parameters like role of population density, user satisfaction, participative architecture, pedestrian safety and vehicular movement, easy evacuation in panic situation etc.
- To take design decisions in a comprehensive manner, understanding their implications in the overall planning.
- To be aware of prevailing rules and regulations along with standards and technical aspects required for better planning of assembly buildings and special type of campuses. Also to know norms related to provisions made for differently abled ('Divyang') persons in designing public buildings and campus planning.

COURSE OUTCOMES (COs):

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

- Understand campus planning for large scale project in Urban Areas along with contemporary architectural practices.
- Understand Bye-laws and planning guidelines with respect design typology.
- Understand and implement in design assignments, structural aspects for large scale building

- Understand and implement in design assignments, various architectural services such as Electrical, Plumbing, Drainage, HVAC, Waste disposal, Firefighting, Acoustics, CCTV surveillance etc.
- Understand and implement in design assignments Interior design and Landscape planning.
- Understand technical aspects and standards required for special projects such as projects related to transportation and sports etc.

COURSE CONTENT:

<p>Unit no. 1-(5%)</p> <ul style="list-style-type: none"> • Understanding analysis of design requirements. • Analysis of site proximities • Understanding the local building byelaws
<p>Unit no. 2-(5%)</p> <ul style="list-style-type: none"> • Case study, literature reviews, internet reviews, site visits of similar design project • Comparative analysis and presentation of case studies
<p>Unit no. 3-(5%)</p> <ul style="list-style-type: none"> • Data collection of the proposed design project • Site visit and site analysis i.e. topography, vegetation, surrounding, contour levels, accessibility etc. • Implication of local bye-laws, standards, rules regulations if any.
<p>Unit no. 4-(30%)</p> <ul style="list-style-type: none"> • Design development process from concept to final solution, campus planning considering aspects for building services, structural aspects, climatic factors, firefighting provisions, parking requirement, internal road network, provisions for differently abled ('Divyang') persons, landscape considerations etc. • Application of advance material and construction technology.
<p>Unit no. 5-(25%)</p> <ul style="list-style-type: none"> • Final design presentation with supporting details, sketches, 3D views, models etc.
<p>Unit no. 6-(30%)</p> <ul style="list-style-type: none"> • Detail design of related area of Major project with interior design, fire safety layouts, services and landscape layouts etc.

SESSIONAL WORK:

1. Major Project (First): Projects involving Architectural design solutions in Urban areas, Development/ redevelopment of markets, plazas, city square, transport and public areas, Railway station, Interstate Bus Terminus, Airport, Sports Stadium etc. It shall have minimum built up area in the range of 7000 Sqm to 8000 Sqm. This project will have 70% weightage of Marks. Sessional work includes Architectural drawings portfolio including 3D Views, models and supporting details etc.
2. Minor Project (Second): Detail design of related area of Major project with interior design, fire safety layouts, services and landscape layouts etc. This project will have 30% weightage of Marks. Sessional work includes detailed Architectural drawings portfolio including 3D Views, models etc.

EXPECTED PRESENTATION OUTPUTS:

Design Portfolio must include 1) graphical presentations for pre stage design work like concept formation work, site analysis, zoning and other planning strategies etc. 2) Architectural drawings for post stage design with required details and services layouts as mentioned above supported with 3D Views and Models etc. to explain complete scheme of design project.

REFERENCES:

1. Achyut Kanvinde & H. James Miller, 'Campus Design in India- Experience of Developing Nation'.
2. National Building Code of India, Relevant Local Building Bye-Laws (Development control regulations), Master or Development Plans.
3. Technical manuals, standards and Planning norms for special projects under transportation and sports category issued by Government.
4. Monologues of eminent architects
5. Books on Building Services, Interior and Landscape design and large span structures
6. Neufert Architects Data and Time Saver Standards for building types and landscape architecture

SHIVAJI UNIVERSITY, KOLHAPUR

SYLLABUS FOR NINTH SEM-ARCHITECTURE DEGREE COURSE

(PC-902)

SUBJECT:-

Architectural Project 1 + 2 (Synopsis, Literature Review, Data Collection, case study analysis and conclusions)

Course Code: PC -902	Semester: IX
Teaching Scheme: L : 02 St: 06 Total:8	Credits: 5
Examination Scheme: Term work: 50 External: 100	Total marks: 150

Course Description:

Students of Architecture pursue their undergraduate Architectural project thesis as Design through research. The whole course is divided into two semesters of final year B.Arch. in (Sem 9 & Sem 10)

Architectural Project 1+2 gives the core idea about the topic of how the research will lead to the design. The whole course is divided into three parts.

1. Synopsis, literature review, framing project, and research methodology.
2. Case study analysis and conclusions
3. Data collection

Course Objectives :

- To prepare a student to independently handle all aspects of Architectural design from its evolution to the final outcome.
- To understand the evolutionary stages of design, process, importance etc. through rigorous literature review.
- To justify the whole project from topic selection to design outcome by practical and research approach.
- To deal the project through analysis, investigation and thoughtful synthesis of whole study.

Course Outcomes(COs):

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

- To prepare a proposal which include introduction, need of the study, scope and limitations, Aim and objectives and project methodology.
- To Study, analyze, compile the data, information which is already available in the realm of Architecture.
- To enrich the knowledge through thoughtful synthetization of literature review, case study conclusion and data collection in the form of design program.

Course Content
<p>Unit No. 1 – literature review (14)</p> <ul style="list-style-type: none"> • Area of interest • Topic selection • Evolutionary journey/timeframe about topic • Relevant examples, cases • Identify the gap in contemporary • Any other relevant literature useful for progress of project
<p>Unit No. 2 – Writing proposal (Synopsis) (14)</p> <ul style="list-style-type: none"> • Introduction • Need/relevance of the project • Literature review • Scope and limitations • Aim • Objectives • Project methodology • Bibliography/ references
<p>Unit No. 3 – Data Collection (10) Primary, secondary or by Tertiary sources (Survey, interviews, government norms, rules, regulations, etc.)</p>
<p>Unit No. 4 – Case study analysis and comparative conclusion (12)</p> <ul style="list-style-type: none"> • One live case study • Two net/book case studies • Comparative analysis of the all-case studies with overall conclusion
<p>Unit No. 5 – Design program Prepare design program based on Synthetization of literature review, case study conclusions and data collection (Matrix of all heads)</p>

Sessional work:

Synopsis (A4 Size)

Sheets –

- Graphical presentation of literature review, project methodology, aim, objectives, etc.
- Case study analysis and comparative conclusions

Report in spiral bound format includes chapters –

- Introduction
- Literature review
- Project methodology
- Case study analysis and conclusions
- Bibliography

References

Thesis manual for Bachelor of Architecture – A handbook of requirements and suggestions, Navneet Mounoth, Mahafuzuar Rahman Barbhuiya

SHIVAJI UNIVERSITY, KOLHAPUR

SYLLABUS FOR NINTH SEM-ARCHITECTURE DEGREE COURSE

(BS &AE-903)

SUBJECT:-

Advanced Structure- II

Course Code : BS & AE-903	Semester : IX
Teaching Scheme : L-3Hr per Week	Credits : 3
Examination Scheme: Theory - 100 Marks(3Hrs) Term Work - 50 Marks	Total Marks: 150

Course Description:

The course **Advanced Structures - II**, Aim and object of this subject is to make the studentsto learn conceptual structural design aspects of advanced structural systems and components,their structural behavior and structural detailing for Industrial Buildings, Various types of Girders, Earthquake Resistant Structures , Portal frames, Composite structures, Shells, Geodesic domes, Space frames, Pneumatic & Tensile structures, Introduction to application of computers in structural analysis & design.

The course Advanced Structures–II, at Semester -IX, aims to give an idea to the students to understand concepts behind modern structural systems and economics in structural design systems. The intent of the syllabus is to explore the Students to investigate the structural behavior of various structural systems and elements through design exercises, case studies, and site visits etc.

Course Objectives:

To make the students to understand structural behavior of advanced structural systems. To become familiar with conceptual designs of various structural systems & components.To create ability to visualize structural shapes, forms, approximate structural sizes etc.
To detail reinforcement in RCC structural members based on their structural behavior andTo detail steel structures.

Course Outcomes (COs):

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

Students are able to **Understand** structural behavior of advanced structural systems & their components, choice & suitability of different structural systems.

Students are able to **Analyze & Conceptually Design** advanced structural components

Students are able to **Detail** reinforcement in structural members

Students are able to **Prepare** structural layouts of their projects

Prerequisite: Student should have internalized knowledge of the courses –Building Construction andTechnology, Knowledge of Construction Materials and Reading skills of working drawings from their previous semesters syllabi.

Contents

Unit No. 1 – INDUSTRIAL BUILDING:

- Concept & structural behavior of Industrial Buildings
- Planning and designing of bays, ht. of columns etc.
- Different types of trusses for large Span > 15m,
- Pre Engineered Building Systems (PEB),
- Concept of truss less roofing.

Unit No. 2 – GIRDERS:

- Gantry Girder- span, crane girder, cab, various forces acting on gantry girders, different crosssection of gantry girders.
- Concept of plate girder, Different elements and their functions, Curtailment of flange plate.
- Concept of Virendell girder.
- Concept of castellated girder.

Unit No. 3 – EARTHQUAKE RESISTANT STRUCTURES:

- Precautions in planning, different shapes in plan Aspect ratio, Separation Joint.
- Behavior of Buildings for EQ forces.
- Earth quake resistant Detailing of load bearing structures.
- Earth quake resisting Detailing of framed structures.
- Ductile detailing, IS Code 1893 and IS Code 13920.
- Concept of Base isolation techniques.
- Use of dampers in EQ resistant structures.

Unit No. 4 – COMPOSITE STRUCTURE:

- Concept & detailing, Multistoried load bearing and non-load bearing structures.

Unit No. 5 – ADVANCED STRUCTURAL SYSTEMS:

- Fixed and hinged portal frames in RCC & steel structure.
- Shells & Folded plates: Concept of Shells & Folded plate, Hyperboloids, Paraboloids, Geodesic dome.
- Concept of space frames and Pneumatic structures.
- Concept of Tensile structures.

Unit No.6 - APPLICATION OF COMPUTERS IN STRUCTURES:

- Introduction to advanced analysis of building,
- Advantages & Limitations of computer applications.
- Introduction of different software's used in analysis and design of structures.

Sessional works:

- 1) Prepare structural Layout of and Industrial structures with Key elevations.
- 2) Sketches showing Structural behavior, Arrangements & Components of any two Girders.
- 3) Sketches showing detailing for earthquake resistant detailing of Load Bearing & Framed structures.
- 4) Sketches showing Structural behavior, Arrangements & Components of any two Advanced structural systems.
- 5) Short notes (minimum Five) based on above syllabus.

Reference Books:

1. Design of Reinforced Concrete structures by S.Ramamrutham.
2. Advanced Reinforced Concrete Design by N.Krishnaraju.
3. Space Structures by Subramanian Narayanan.
4. Design of Steel structures by Dr.P.Dayaratnam.
5. IS Code 1893 & 13920

SHIVAJI UNIVERSITY, KOLHAPUR

SYLLABUS FOR NINTH SEM-ARCHITECTURE DEGREE COURSE

(PAECC-904)

SUBJECT:-

Professional Practice And Building Bye-Laws

Course Code : PAECC-904	Semester : IX
Teaching Scheme : L: St: Total:	Credits : 3
Examination Scheme : Theory- 100 Marks	Total marks: 150
Term Work - 50 Marks Viva-Voce - -	

Course Description: To familiarize students with architectural practice , its nature , opportunities and scope of Architectural profession. At the end it may raise thinking about the career of students as an architect.

Course Objectives : The purpose of the course is to introduce student toward the professional

Liabilities , duties and behavior. It will also guide them towards opportunities in Architectural profession .

Course Outcomes(COs): At the end of the course the student should be able to

- I) Gain clear aspect towards Architectural practice
- II) Develop their vision towards nature of practice

Prerequisite: Student should have internalized knowledge of the course – Professional duties

, liabilities and sound knowledge of building bye laws for practice.

Course Content
Unit No. 1 – Introduction & Office Administrator – (20%) <ul style="list-style-type: none">• Council of Architecture• Relationship Between Client,Professional Brothers,Community,Employees,Associats & Consultants.• How to Secure Client.• Option on Entering The Profession.• Office & Its Management.• Structure of An Architect's Office.

<ul style="list-style-type: none"> • General Accounting (Balance Sheet, Assets, Liabilities, Profit & Loss Account, Petty Cash Book, Cash Book, Ledger)
<p>Unit No. 2 – Code of Conducts And Fees - (15%)</p> <ul style="list-style-type: none"> • The Code Of Professional Conduct. • Scale of Professional Fees And Charges. • Conditions of Agreement. • Standard Terms. • Architectural Dwg. • Execution of The Assignment. • Schedule of Payment. • Arbitration (Including Arbitrator Act)
<p>Unit No. 3 – Duties And Liabilities In Profession - (20%)</p> <ul style="list-style-type: none"> • Duties And Liabilities As Per The Architect Act.-1972 • What Is The Architect Act 1972 • Use Of Title ‘Architect’ • Architects Registration Council. • Function And Powers Of Council. • Qualification For Registration. • Architect’s Liabilities to the Contractor. • Architect’s Rights And Contractor Duties.
<p>Unit No. 4 – Architectural Competition - (15%)</p> <ul style="list-style-type: none"> • Nature of Competition (Single And Two Stage) • Type of Competition (Open, Limited or Competition by Invitation, Special, Regional) • Requirements And Conditions For Conducting Architectural Competition. • Duties of Assessors in Competitions. • Architectural Copyright. • Essential Characteristics of Copyrights. • Copy Right And Right of Ownership In Competition.
<p>Unit No. 5 – Tender - (15%)</p>

- Invitation Of Tender (Private,Public,Negotiation)
- Nature of Tender.
- Earnest Money.
- Security Deposit.
- Retention Amount.
- Mobilization Fund.
- Tender Documents.
- Tender Notice And Tendering Process.
- Essential Characteristics of A Tender Notice.

Unit No. 6 – Building Bye –Laws - (15%)

- UDCPR – Chapter 01 To 06 (Definitions, Submission Requirements, Land Use And Classification, Dwg.Requirement, Set Back, F.S.I,Type of Buildings.)
- NBC – (Part-I – Definitions (Introductions), (Part-II – Fire Fighting)
- Environmental Clearance (Introduction,Title,Applicable,Preparation or Requirement)

Sessional work:

- i) Notes based on units
- ii) Data collection on Bye laws
- iii) Professional document formats to be studied w.r.t. professional act

References :

- Professional Practice By Roshan Namavati.
- UDCPR
- NBC
- Handbook of Council of Architecture

SHIVAJI UNIVERSITY, KOLHAPUR

SYLLABUS FOR NINTH SEM-ARCHITECTURE DEGREE COURSE

(BS &AE-905)

SUBJECT:-

Advance Services

Course Title : Advanced Services	
Course Code : BS & AE-905	Semester : IX
Teaching Scheme : L: 01, St :03, Total:04	Credits : 02
Examination Scheme : Theory - 100 Marks Term Work - 50 Marks	Total marks: 150

Course Description:

- This course is designed to give architects an overview and introduction to domestic and Industrial water supply and drainage systems; solid waste management system for large area such as city and rural level, Architectural considerations and their coordination with other services in architectural designs should be incorporated at the preliminary stage of planning and design.

Course Objectives :

- | |
|---|
| <ul style="list-style-type: none">To understand the need and importance of building services.To understand the water supply system at urban and rural level.To apply knowledge gained on water supply system in small, medium and large multistorey buildings.To design water supply system in a residential commercial and Industrial building.To understand components of water supply and sewage systems.To understand the sewage water system at urban and rural level.To design sewage system for a multistoried building, a colony and city level.To design rain water disposal system for a residential building. |
|---|

Course Outcomes(COs):

- | |
|---|
| <ul style="list-style-type: none">Discuss the active and passive components of water supply, sewage and refuse disposal system.Develop understanding and design of water supply system at town, city and rural area level.Design rain and waste water system in domestic buildingDesign of water-sewer system in buildings (except hydraulics design calculation parts) and understand refuse disposal system.Develop an understanding of domestic gas and its design parameters. |
|---|

Course Content

Unit No.1- Water Supply at city and township level—20%

<ul style="list-style-type: none"> • Sources of water supply, Water demand, • Quality of water, Standards for hard, soft and potable water; standards for different uses of water • Basic principles of water purification system (Introduction only) • Conveyance of water,
<p>Unit No. 2- Distribution of water --15%</p> <ul style="list-style-type: none"> • Water Purification system and plant, Purification of water • Water Distribution and methods of distribution of water. • Distribution for single and multistoried buildings and Industrial projects, and rural areas • Appurtenances in the distribution system • Water buy principles and implementations.
<p>Unit No. 3- Sewage disposal of large areas (Introductory only)--20%</p> <ul style="list-style-type: none"> • Sewage disposal system for housing colony, small and medium sized project, for smaller, bigger towns and in rural areas. • Methods and pattern of sewage collection, Quantity of sewage collection. • Design of sewers and drains • Sewer Appurtenances-connections of large complexes to Municipal sewers and ventilation of sewers to public sewerage system.
<p>Unit No. 4- Sewage disposal ---15%</p> <ul style="list-style-type: none"> • Sewage disposal methods • Sewage treatment plants and types • Bye products • Drainage systems of multistoried building. • Rural sanitation
<p>Unit No. 5- Refuse Disposal system --20%</p> <ul style="list-style-type: none"> • Refuse disposal system for a small house, colony and town. • Refuse types, collection & transportation system, disposal problems and methods of disposal. • Municipal solid waste • Refuse disposal in multistoried buildings. • Solid waste management rule & regulations, • Composting, bio-methenation, Vermiculture.
<p>Unit No. 6- Gas Plant and Distribution (Introductory only)--10%</p>

References :

- Plumbing Engineering by Dr. Subhash Patil
- International Plumbing Code by Indian Code Council
- Modern Plumbing by E. Keith Blumberger
- Plumbing Basics by Dr. Rick Peters
- Building Construction Illustrated by Dr. F.D.K Ching
- Building Construction by Sushil Kumar
- Building Construction by B.C Punmia
- Building Construction by Rangwala
- Mechanical And Electrical Equipment For Building by Walter T. Gondzik
- Building Construction by P.C Varghese

SHIVAJI UNIVERSITY, KOLHAPUR

SYLLABUS FOR NINTH SEM-ARCHITECTURE DEGREE COURSE

(PE-906A)

SUBJECT:-

Elective –VI Graphics and Product Design

Course Code: PE – 906A	Semester : IX
Teaching Scheme : L : 01 P: 01 Total : 02	Credits : 02
Examination Scheme : Term Work – 50 Marks Viva Voce – 50 Marks	Total Marks : 100

Course Description:

- The course will focus on the principles, techniques, and processes involved in product designing through graphics to create functional and aesthetic appealing designs.
- Students shall undertake a study of current market trends and the factors affecting it. The study shall also encompass the phases of product designing, its graphical presentation techniques and material detailing.

Course Objectives:

- To understand the fundamentals of Graphics and Product Design.
- To understand and apply the elements of design in product design.
- To introduce various digital design tools, techniques and various skills in product design through Computer graphic.
- To learn various materials and manufacturing processes of product design.

Course Outcomes (Cos) :

The students to develop a comprehensive understanding of graphics and product design, enabling them to apply their knowledge effectively in creating innovative and user-friendly product designs.

Course Content
Unit No. 1 Introduction to the fundamentals of Graphics and Product Design <ul style="list-style-type: none">• History of Product Design, Need for product Design,• A brief introduction to product designing and its various elements. History of product design, role of product designers.• Study fundamentals of graphic design, works of prominent product designers & the graphic design process. Study and application design elements in product design.

Unit No. 2 Elements of Design

- To study the application of Basic elements and principles of design in product design.
- Introduction to applied anthropometry, human activities, their nature and application of human factors data. To understand the visual display, Visual codes and symbols.
- Graphically need to understand form, color, symbols, user specific criteria, material, technology, recyclability and packaging.

Unit No. 3 Digital Design Tools

- **Study of tools of graphic expression. Study of styles of expression, developing manual presentation skills and Computer graphics.**
- **Study overview of current packages, their potentials & applications such as 3D Studio Max, adobe series, Corel draw, flash Adobe Photoshop, Adobe Illustrator etc.**

Unit No. 4 Materials and Manufacturing

- **Introduction to different materials used in product design, Sustainable design practices.**
- **Multiple utility oriented approach to product design. Design of household elements kitchen racks, cabinets, furniture like chairs/computer table, etc. To design industrial products- etc**

Reference Books:

1. *The Fundamentals of Product Design by Richard Morris*
2. The Indian Smart Product Design by Sendpoints
3. *The Design of Everyday Things by Don Norman*
4. Basics Product Design 02: Material Thoughts by David Bramston.
5. *Product Design by Alex Milton*
6. Elements of Design by Anderson, Donald M. Holt – Rinehart and Winston, New York (1961)
7. Graphic Design School: A Foundation Course for Graphic, by David Dabner and Sandra Stewart, Thames & Hudson
8. Product Design and Development, by Karl Ulrich and Steven D. Eppinger, McGraw-Hill Education (India) Pvt. Limited.
9. Ergonomics in Product Design, Send points Publishing Company Limited.
10. Kathy Baxter and Catherine courage, Understanding your users: A Practical guide to user requirements methods, tools.
11. How to use graphic design to sell things, explain things, make things look better, make people laugh, make people cry, and (every once in a while) change the world by Michael Bierut, Thames & Hudson.
12. The design of everyday things' by Don Norman, Basic Books; 2nd edition

SHIVAJI UNIVERSITY, KOLHAPUR

SYLLABUS FOR NINTH SEM-ARCHITECTURE DEGREE COURSE

(PE-906B)

SUBJECT:-

Elective VI Architectural Journalism

Course Code : PE – 906B	Semester : IX
Teaching Scheme : L : 01 P : 01 Total : 02	Credits : 2
Examination Scheme : Term Work - 50 Marks Viva-Voce - 50 Marks	Total marks: 100

Course Description:

To develop the writing and journalism skills like writing, editing criticism and research. It will make students understand role of writing and journalism in architecture.

Course Objectives:

- To understand role of writing and journalism in architecture.
- To introduce Techniques and methods of Creative and Analytical Writing
- To make students aware about new age journalism and technology and understand code of ethics, copyright, royalty, publishing rights, citation and plagiarism
- To understand documentation and technical writing.

Course Outcomes(COs):

Throughout the course, students will delve into the various aspects of architectural journalism, including research techniques, critical analysis, writing styles, and multimedia storytelling

Course Content
Unit No. 1-Journalism and types of Architectural Writing – (10%) Typical methods in which architects and critics convey ideas about buildings – are identified as observation, analysis, reflection, critique, manifestos, and storytelling.
Unit No. 2- Creative Writing: – (10%) Introduction of Techniques and methods of expressing an architectural narrative or description through forms of creative writings
Unit No. 3 - Analytical Writing (10%) <ul style="list-style-type: none">• Introduction of Techniques and methods of researching, analysing and critiquing architecture through forms of analytical writing.

Unit No. 4 – Documentation and Technical Writing – (10%)

- Introduction of Techniques and methods of recording, authenticating and examining architecture through documentation and technical writings.

Unit No. 5 – New concepts in journalism and technology – (10%)

- **Introduction to new concepts in journalism and technology such as code of ethics, copyright, royalty, publishing rights ,Citation and plagiarism.**

Sessional work:

- The individual assignments on above topics will be assessed via presentations, writing.
- Students will have a reading and a writing assignment from journals, magazine, articles and newspaper etc.
- The readings, writing assignment and present their ideas on various architectural topic.

References :

- Architecture and the Journalism of Ideas by Bender, Thomas
- Architectural Criticism and Journalism by Mohammad al-Asad w/ Majd Musa
- Niemen Reports: Architectural Criticism: Dead or Alive by Blair Kamin.
- The Failures of Architecture Criticism, by Lance Hosey in the Huffington Post.
- Edward Jay Friedlander and John Lee, 'Feature Writing for Newspapers and Magazines', 4th edition, Longman, 2000.
- James Foust, 'Online Journalism Principles and Practices of News for the Web', Holcomb Hathaway Publishers, Scottsdale, AZ, 2005.
- Wiseman, Carter (2014), "Writing Architecture: A Practical Guide to Clear Communication about the Built Environment", Trinity University Press
- Lange, Alexandra (2012), "Writing About Architecture: Mastering the Language of Buildings and Cities", Princeton Architectural Press
- Schmalz, Bill (2014), "The Architect's Guide to Writing: For Design and Construction Professionals", Images Publishing Dist Ac
- Sykes, A. Krista (2007), "The Architecture Reader: Essential Writings from Vitruvius to the Present", George Braziller Inc

SHIVAJI UNIVERSITY, KOLHAPUR

SYLLABUS FOR NINTH SEM-ARCHITECTURE DEGREE COURSE

(PE-907A)

SUBJECT:-

Elective VII Disaster mitigation management

Course Code : PE – 907 A	Semester : IX
Teaching Scheme : L : 01 S : 02 Total : 03	Credits : 2
Examination Scheme : Term Work - 50 Marks Viva-Voce - 50 Marks	Total marks: 100

COURSE OBJECTIVE

To understand the concept of Disaster and its causes

To understand institutional framework of government for Disaster Mitigation Management

To Learn the Hazard maps of India

To understand the role & Responsibilities of National Disaster Response Force in Disaster Management
CO.5: To understand Importance of training and education in Disaster Mitigation Management

COURSE OUTCOME:

Knowledge of types of Disasters: Students will acquire a comprehensive understanding of various types of disasters and its causes

Students will be able to understand Institutional framework of Government of India as per Disastermanagement act 2005

Knowledge of disaster mitigation and prevention: Students will acquire a comprehensive understanding of Disaster mitigation and prevention, role of training and education

By achieving these program outcomes, students will be equipped with the necessary knowledge, skills, and attitudes to contribute effectively to understanding disaster mitigation management

COURSE CONTENTS

Unit-1

Definition & classification
of Disasters
Natural
Disasters

Manmade Disasters

Unit 2

Disaster Management Act 2005 Institutional Framework under it.

National Disaster Management Authority (NDMA) State Disaster Management Authority (SDMA) District Disaster Management Authority (DDMA) Local Authorities

Function and responsibilities of NDMA, SDMA, DDMA, Local Authorities

Unit 3

Disaster Prevention
and Mitigation Zoning
and mapping
Hazard maps of India

Unit 4

Role of National Disaster Response Force (NDRF) Responsibilities of National Disaster Response Force

Unit 5

Importance Training and Education programs in mitigation strategies of Disaster Management Mock Drills
Simulation of Disasters

ASSIGNMENTS:

Unit-1

Writing in journal – definition and classification of disasters attaching related flow charts and images

Unit-2

Brief report writing on below mentioned topics

1. Disaster management act 2005
2. National disaster management authority – role, responsibilities, jurisdiction
3. State disaster management authority - role, responsibilities, jurisdiction
4. District disaster management authority - role, responsibilities, jurisdiction
5. Role of local authorities in mitigating urban disasters e.g. – urban floods

Unit-3

Collecting hazard maps of india

1. Cyclone occurrence map
2. Earthquake hazard map
3. Flood hazard map
4. Landslide hazard map
5. Thunderstorm incidence map
6. Wind hazard map

Unit-4

Organizational structure of ndrf

location of ndrf
battalions
Community awareness
programs by ndrfschool safety
programs by ndrf

Unit-5

Writing in journal – importance of training and education in disaster mitigation
management writing in journal – role of disaster simulation & mock drills to mitigate
impact of future disasters

REFERENCE BOOKS:

Disaster Management by Kumar N., Alfa Publications, New Delhi

Disaster Management by Ghosh G. K., A.P.H Publishing Corporation, New Delh

Disaster Management by Goel, S.L., Deep & Deep Publication Pvt.

Ltd., New Delhi **Disaster Management** by R Subramanian Vikas

Publishing House Pvt Ltd, New Delhi **Annual Reports** by National

Disaster Management Authority

SHIVAJI UNIVERSITY, KOLHAPUR

SYLLABUS FOR NINTH SEM-ARCHITECTURE DEGREE COURSE

(PE-907B)

SUBJECT:-

Elective VII Services in Tall Building

Course Code : PE – 907 B	Semester : IX
Teaching Scheme : L : 01 S : 02 Total : 03	Credits : 2
Examination Scheme : Term Work - 50 Marks Viva-Voce - 50 Marks	Total marks: 100

Course Objective:

- To understand the concept of tall buildings and their development
- To understand various services related to tall buildings.
- To Learn the various human movement system in tall buildings
- To understand the water requirement and its services in tall buildings
- To understand the Drainage & Sanitation in Tall Building

Course Outcome:

Knowledge of Tall Building Systems: Students will acquire a comprehensive understanding of services required in tall buildings,

Students will develop the skills necessary to conceptualize services effectively in tall buildings. This includes understanding the principles of system design and evaluating the suitability of different systems for specific building services.

Students will gain knowledge of relevant building codes, standards, and regulations governing tall buildings' services.

By achieving these program outcomes, students will be equipped with the necessary knowledge, skills, and attitudes to contribute effectively to understanding services in tall buildings.

Course Content:

Unit-1

- Definition & classification of tall buildings
- Overview of Tall Buildings and their unique architectural & Engineering Challenges.
- Indian on Tall Buildings Evolution of tall buildings

Unit 2

- Site planning
- Introduction to various services, and their significance with regard to tall buildings

Importance of services in tall buildings, planning of service ducts

Unit 3

Vertical transportation systems such as lifts, Escalator & moving walks in tall buildings,

Types of lifts required in the tall building

Planning & Designing -Lift in tall buildings Lift lobby, Fire lobby,
criteria to decide the number & types of lifts in tall buildings,

Relevant NBC recommendation

Unit 4

Water supply in Tall Building

Water Storage & Distribution Gravity b) Pumping c) Hydro-pneumatic)

Water supply sources. (Municipal water supply, UG & OHW tank.

-Alternative water sources such as rainwater harvesting & greywater reuse.

Selection of plumbing fixtures & piping & in a tall building

Sprinkler provision for tall buildings (its water requirement)

Relevant NBC recommendation

Unit 5

Drainage & Sanitation in Tall building

Selection of proper piping systems for wastewater

Sewage collection system & recycling of wastewater

Relevant NBC recommendation

REFERENCE BOOKS:

Services in High-Rise Buildings by M.Y.H. Bangash and A.H. Sheikh

Building Services for High-Rise Buildings in India by S.K. Singh

Tall Building Systems and Concepts: Planning, Design, and Services by S.K. Jain and A.K. Jain

Design of Services in High-Rise Buildings by S.S. Gupta

Development in tall building 1983 CTBUH- by Lynn S. Beedle

Advances in Tall Buildings CTBUH- by Lynn S. Beedle

Highrise manual- by Johann Eisele, Elen Klotz

Skyscraper-By Eric Howeler

Best Tall Buildings- CTBUH International Award-winning projects

Relevant NBC 2016

SHIVAJI UNIVERSITY, KOLHAPUR

**SYLLABUS FOR 10th SEM-
ARCHITECTURE DEGREE COURSE**

SHIVAJI UNIVERSITY, KOLHAPUR

SYLLABUS FOR NINTH SEM-ARCHITECTURE DEGREE COURSE

(PC-1001)

SUBJECT:-

Architectural Project III (Design program/Site/selection /Final Design and Presentation Drawing / Report)

Course Code: PC -1001	Semester: X
Teaching Scheme: L: 02 St: 08 Total:10	Credits: 14
Examination Scheme: Term work: 200 External: 200	Total marks: 400

Course Description:

Students of Architecture pursue their undergraduate Architectural project thesis as Design through research. The whole course is divided into two semesters of final year B.Arch. in (Sem 9 & Sem 10)

Based on Architectural Project 1+2 study outcome the student will proceed for Architectural Project III.

Architectural Project III leads for finalization of design program, site selection and analysis, concept and zoning and whole architectural drawing set with technical and services details as well as in the form of report.

Course Objectives :

- To maintain the correlation of each stage and complete the chain process of whole architectural project.
- To enrich the knowledge through thoughtful synthesis of whole study.
- To develop student's ability to handle specific strategy/aspect which is relevant to the topic.

Course Outcomes(COs):

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

- To reflect the knowledge gained from all the course undertaken by the student in all previous semesters.
- To comprehend the design philosophy, theories, analysis, synthesis of whole study to define final outcome of the project.

Course Content
Unit No. 1 – Design program Prepare design program based on Synthesis of literature review, case study conclusions and data collection (Matrix of all heads)
Unit No. 2 – Site selection and site analysis

<ul style="list-style-type: none"> • Based on design program selection of site • Site analysis <p>Macro level – National, state, Regional, City level analysis to justify the level, need and scale of project</p> <p>Micro level – Area analysis, study of site surroundings, and actual site analysis with geography, geology, climate, etc.</p>
<p>Unit No. 3 – Concept and zoning</p> <p>Based on overall site analysis and the whole journey of project (1,2 &3) define zoning and concept</p> <p>Site and building zoning in correlation with each other in the schematic 3D</p>
<p>Unit No. 4 –</p> <p>Drawing sheets of the whole study includes Architectural project 1 +2</p> <p>Final set of Architectural drawing</p> <ul style="list-style-type: none"> • Types of site plans required as per project • Other drawings required to define design approach • All building plans, elevations and sections • Calculations • All site and building services as per each project requirement • Technical details
<p>Unit No. 5 – Report</p> <p>Technical format of report as per ideal guidelines.</p>

Sessional work:

Synopsis (A4 Size)

Report hard bounds in two copies

Sheets –

Drawing sheets of the whole study includes Architectural project 1 +2

Final set of Architectural drawing

- Types of site plans required as per project
 - Other drawings required to define design approach
 - All building plans, elevations and sections
 - Calculations
 - All site and building services as per each project requirement
- Technical details

References

Thesis manual for Bachelor of Architecture – A handbook of requirements and suggestions,
Navneet Mounoth, Mahafuzuar Rahman Barbhuiya

SHIVAJI UNIVERSITY, KOLHAPUR

SYLLABUS FOR NINTH SEM-ARCHITECTURE DEGREE COURSE

(BS&AE-1002)

SUBJECT:-

Advance Building Construction

Course Code : BS & AE - 1002	Semester : X
Teaching Scheme : L : 01 P : 03 Total : 04	Credits : 3
Examination Scheme : TermWork- 100 Marks Theory - 100 Marks Viva-Voce- 100 Marks	Total marks: 300

Course Description:

To familiarize students with construction methods for large scale construction projects with emphasis on construction methods, reinforcement details, joint details etc.

Course Objectives :

- To introduce potentials of various building materials.
- To introduce special foundations for High rise structures.
- To introduce special structures like cold storage &swimming pool.
- To introduce the structural systems for long span roofs.
- To introduce earthquake resistant structural systems.
- To introduce methods of waterproofing of basements.

Course Outcomes(COs):

At the end of the course the student are able to:

1. **Identify** the potentials and properties of construction materials.
2. **Select** the appropriate type of foundationfor High-rise structures.
3. **Understand** the Structural systems of Long span roofs, Special structures&Earthquake resisting structures.
4. **Prepare** construction details of basement waterproofing.
5. **Design** earthquake resistant buildings.

Course Content
Advance Building Materials (20%)
Unit No. 1 – Paints And Varnishes– (5%)

Unit No. 2 – Sound And Thermal Insulating Materials (5%)
Unit No. 3 – Epoxy Materials – (5%)
Unit No. 4 – Mastic Sealants And Adhesive (5%)
Advance Building Construction (80%)
<p>Unit No. 1- Foundation – (20%)</p> <ul style="list-style-type: none"> • Understanding methods of construction of special types of foundations for Mid-rise and High- rise structures (Piled Raft foundation, Cellular Raft foundation). • Understanding the methods of Underpinning for foundation(Pit method,Pilemethod,Mass concrete stripe foundation,Needle and pile underpinning,Jack Pile underpinning).
<p>Unit No. 2 – Special Structures – (20%)</p> <ul style="list-style-type: none"> • Understanding constructional details of cold storage(Multi-chamber Layout,Detail plan of single chamber with internal details). • Understanding dimensional and constructional details of Olympic size swimming pool.(Wall& floor joint, Deck and skimmer details, water circulation Layout). • Understanding methods of Demolition of structures(Manual demolition ,Wrecking Ball demolition method,Pusher arm demolition method,Controlled demolition,Chemical demolition).
<p>Unit No. 3 – Structural systems for long span roof – (20%)</p> <ul style="list-style-type: none"> • Understanding basic concepts of Portal frames and its types. • Understanding basic concepts of Shell roof and its types. • Understanding basic concepts of Space frame and its types. • Understanding basic concepts of Geodesic dome and Long span vault. • Understanding basic concepts of Pneumatic structure.
<p>Unit No. 4 – Earthquake resisting structure– (10%)</p> <ul style="list-style-type: none"> • Overview of Earthquake resisting structural systems for Load bearing structure, RCC. framed structure. • Overview of Earthquake resisting structural systems for High-rise structures (Moment resisting frames, Cross-braced frames and Shear walls. (Introductory)
<p>Unit No. 5 – Waterproofing– (10%)</p> <ul style="list-style-type: none"> • Understanding methods of basement waterproofing.(Internal tanking, External tanking, &Drained cavity system).

- Types of Lifts and construction details of Passenger lift.

Sessional work:

- Notebook for Advance Building Materials.
- Hand drafted sheets on units 1,2 and 5 to cover all the aspects of course outline with sufficient details; (5-6 sheets)
- Freehand sketches with nomenclature, on units 3 and 4 including notes. (2-3 sheets)
- Market survey for Advance building materials. (Report)

References :

Dr. B.C Punmia (2012) Building Construction (10th edition) Laxmi Publications.

S.C.Rangwala (2013) Engineering materials (Fortieth edition), Charotar Publishing pvt.ltd.

S.K. Duggal (2016) Building materials (4th edition) – New age international publishers.

W.B. McKay (2015) Building construction

National Building Code of India 2016 (Volume 1) and relevant I.S.I. Specifications.

SHIVAJI UNIVERSITY, KOLHAPUR

SYLLABUS FOR NINTH SEM-ARCHITECTURE DEGREE COURSE

(PC-1003A)

SUBJECT:-

Elective- VIII Green Building

Course Code : PE -1003 A	Semester : X
Teaching Scheme : L : 02 St : 02 Total : 4	Credits : 3
Examination Scheme : TermWork- 50 Marks Viva-Voce- 50 Marks	Total marks: 100

Course Description:

This course aims to provide students with a comprehensive understanding of Green building principles and sustainable design practices. Students shall explore the fundamental concepts, technical standards, and certification systems related to green building. Additionally, they will gain knowledge about the environmental, social, and economic aspects of sustainable living. Through theoretical assignments, practical applications, and presentations.

Course Objectives :

- To study introduction of Green Building.
- To discuss the green building materials.
- To understand and Analyse the impact of Global Warming & Climate change on built environment.
- To understand Global Environmental Scenario.
- To study different Phases of Green Building Lifecycle.
- To understand the green technical standards and certification systems.

Course Outcomes(COs):

At the end of the course the student should be able to

- Understand the Concepts of Green Building its principles
- Analyze the Environmental and social challenges caused by Global warming and its relevance to Architecture.
- Demonstrate familiarity with leading Green technical standards and Certification systems (e.g., LEED, BREEAM).
- Apply various concepts in Green Building, including EnergyEfficiency, Water Conservation, Waste Management, and Indoor Environmental Quality, to

Architectural Design.

- Evaluate and select appropriate green building materials based on their sustainability, performance, and lifecycle analysis.

Course Content
Unit No. 1 – Global Warming & Environmental Challenges –(5%) <ul style="list-style-type: none">• Definition, Causes and impacts due to Global Warming.• Carbon footprint and offsets of it – Global efforts to reduce carbon emissions• Global Environmental Scenario
Unit No. 2 – Green Building – (5%) <ul style="list-style-type: none">• Definition, concept & objectives of Green Buildings.• Planning and designing aspects.• Urban environment & Green buildings.
Unit No. 3 – Green Building Materials – (10%) <ul style="list-style-type: none">• Green building Construction Measure• Uses of different types of materials and their availability• Embodied energy & Environmental issues related to quarrying of building materials• Listing of various Green building materials & life cycle analysis.
Unit No. 4 – Concepts of Green Building – (20%) <ul style="list-style-type: none">• Definition, concept & objectives• Various concepts of Green Buildings for Green Infrastructure (Green roof, green façade, Active and Passive design strategies, Energy Efficiency, Water Conservation, Waste Management, and Indoor Environmental Quality)
Unit No. 5 – Green building rating systems –(30%) <ul style="list-style-type: none">• Evolution of Green Building rating systems – its relevance & need• Various rating systems worldwide, LEED, GRIHA, IGBC etc.
Unit No. 6 – Application of Green Building – (30%) <ul style="list-style-type: none">• Green Design – Definition – principles of sustainable development in Building design• Application in Building Design - Studio

Sessional work:

- Theory Assignments: Students will complete theoretical assignments covering definitions related to green building design, sustainable practices, and the integration of environmental principles into architectural projects.
- Application of Rating Systems to Building Design: Students will engage in a project-based exercise where they will apply recognized rating systems (e.g., LEED, BREEAM) to the design of a building. They will incorporate sustainable design strategies and elements to achieve a higher rating. This practical work will enhance

their skills in implementing green building principles.

References :

Text Books:

1. GRIHA Manual Volume -01 ,Verion 2019
2. Green Building Hand Book by Tomwoolley and Samkimings, 2009.

Recommended References:

1. Manual of tropical housing- Otto koenigsberger
2. Complete Guide to Green Buildings by Trish riley
3. Standard for the design for High Performance Green Buildings by Kent Peterson, 2009
4. IGBC new building rating system manual

SHIVAJI UNIVERSITY, KOLHAPUR

SYLLABUS FOR NINTH SEM-ARCHITECTURE DEGREE COURSE

(PE-1003B)

SUBJECT:-

Elective VIII Barrier free Architecture

Course Code : PE -1003B	Semester : X
Teaching Scheme : L : 02 St : 02 Total : 4	Credits : 3
Examination Scheme : Term Work - 50 Marks Viva-Voce - 50 Marks	Total marks: 100

Course Description:

This course enables students to understand the fundamentals of Barrier-Free Environment in Architecture which enables people with disabilities and elderly to move about safely and freely and to use the facilities within the built environment.

Course Objectives :

- To study Barrier-Free Architecture for people with disabilities to move about safely and freely and to use the facilities within the built environment.
- To study the environment that supports the elderly people and people with disabilities with functioning of individuals without assistance, in everyday activities.

Course Outcomes(COs):

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

1. Sensitize towards needs of differently abled people in architectural spaces.
2. Design barrier-free buildings and also carry out building audits from barrier-free architectural point of view.

Course Content
Unit No. 1 - Introduction to Barrier Free Architecture – (5%) <ul style="list-style-type: none">• Definition of barrier free design,• Need for barrier free concepts in architecture,• Concepts of universal design and types of disabilities.• Design principles for barrier free architecture and accessibility for all
Unit No. 2 - Barrier free elements in Interiors and Urban Design – (5%) <ul style="list-style-type: none">• Study of design elements outside the building like curb ramps, pedestrian crossing, public toilets, and parking, signage, flooring and street furniture.

Unit No. 3 - Standards for barrier- free built Environment – (10%)

- Guidelines and space standards for barrier- free built Environment for disabled and elderly persons in various buildings such as institutes, hospitals, public spaces, shopping complexes and office buildings etc.

Unit No. 4 - Case Study, Presentation & Design elements - (20%)

- Barrier free architecture in Public Buildings – dimensions and standards.
- Case Study of Barrier free elements in Public buildings,
- Photographic documentation and Presentation.
- Incorporation of barrier free elements in project being pursued in architectural design.

Unit No. 5 - Design elements within buildings and Site planning-(40%)

Students should design following elements at a conceptual level which will be interpreted in their design project such as-

- Parking, approach to plinth levels, corridors, entrance and exit, windows, stairways, lifts, toilets, signage, guiding and warning systems.
- Floor materials. Design elements outside the buildings - curb at footpath, road crossing, public toilet, bus stop, toilet booth, and signage.
- Provisions for residential buildings and public buildings and places like auditorium, parks, restaurants, railway station.

Unit No. 6- Access audit and implication in building byelaw. (20%)

- Persons with Disabilities Act and bye-laws which would be applicable to all buildings and facilities used by the public.
- Introduction to how the modern day technology can aid in universal design/ built barrier free environment through audio and visuals.

Sessional work:

- Theory Assignments
- Application of graphical presentation to explain the barrier-free architecture.

References :

- Guidelines and Space Standards for Barrier Free Built Environment for Disabled and Elderly Persons – Central Public Works Department, Ministry of Urban Affairs & Employment, India, 1998

- IS – 4963 (1987), Recommendations for buildings and facilities for Physically Handicapped
- Barrier-Free Design: Principles Planning, Examples, by Oliver Heiss, Christine Degenhardt, Johann Ebe (Birkhauser Architecture, 2010)

SHIVAJI UNIVERSITY, KOLHAPUR

SYLLABUS FOR NINTH SEM-ARCHITECTURE DEGREE COURSE

(PE-1004A)

SUBJECT:-

Elective IX A Sustainable Cities And Communities

Course Code : PE-1004 A	Semester : X
Teaching Scheme : L: 01 St :03 Total:04	Credits : 2
Examination Scheme : Term Work - 50 Marks Viva-Voce - 50 Marks	Total marks: 100 Marks

Course Description:

This course aims to provide undergraduate architecture students with a comprehensive understanding of sustainable cities and communities. It focuses on the integration of social, environmental, and economic factors in urban development, with an emphasis on the role of architecture in creating sustainable built environments. It explores the principles, strategies, and design approaches required to create environmentally, socially, and economically sustainable built environments. Students will critically examine the challenges and opportunities associated with urban development and explore innovative solutions to create sustainable cities and communities.

Course Objectives:

- Understand the concept of sustainable cities and communities and its significance in addressing contemporary urban challenges.
- Explore the social, environmental, and economic dimensions of sustainability in urban design and architecture.
- Analyze and evaluate successful examples of sustainable cities and communities worldwide.
- Develop skills to integrate sustainability principles in architectural design projects.
- Gain knowledge of sustainable urban infrastructure systems, transportation, energy, and waste management.
- Recognize the importance of community engagement and participatory design in sustainable urban development.
- Foster critical thinking and problem-solving skills through case studies and design exercises.

Course Outcomes(COs):

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

Understand the principles, concepts, and theories related to sustainable urban development and its significance in contemporary architecture.

Analyze the relationship between architecture, urban design, and sustainability and develop the ability to critically analyze the role of architecture in promoting sustainable cities and communities

Analyze and evaluate the social, economic, and environmental impacts of urban development, considering factors such as energy consumption, transportation, biodiversity, and social equity.

Develop critical thinking and problem-solving skills, enabling them to identify challenges and propose sustainable solutions in the context of urban development and architecture. • Gain knowledge and understanding of current trend and needs through Sustainable Development

Enhance their communication skills through presentations, case-studies, written assignments, and class discussions, effectively articulating concepts, ideas, and design proposals related to sustainable cities and communities.

Study and understand exemplary sustainable architecture projects and best practices from around the world, gaining insights into successful approaches to sustainable urban design and development.

Course Content
<p>Unit No. 1 – Introduction to Sustainable Cities and Communities (20 %)</p> <ul style="list-style-type: none"> • Definition and key concepts of sustainable urban development • Historical perspectives on urban sustainability • Sustainable development goals and their relevance to cities and communities, with a focus on Goal 11
<p>Unit No. 2 – Urban Design and Planning for Sustainability (10 %)</p> <ul style="list-style-type: none"> • Principles of sustainable urban design • Urban planning strategies for sustainable cities • Mixed-use development and compact city concepts
<p>Unit No. 3 – Green Infrastructure, Urban Biodiversity, Sustainable Transportation and Mobility (20 %)</p> <ul style="list-style-type: none"> • Importance of green spaces and urban biodiversity • Sustainable landscaping and urban greening • Stormwater management and sustainable drainage systems • Sustainable transportation planning • Non-motorized transportation and pedestrian-friendly designs • Integration of public transit systems in urban areas
<p>Unit No. 4 – Social Equity and Inclusive Communities (10 %)</p> <ul style="list-style-type: none"> • Social sustainability in urban contexts • Affordable housing and community development • Accessible and inclusive design principles
<p>Unit No. 5 – Resilient Cities and Climate Change Adaptation (10 %)</p> <ul style="list-style-type: none"> • Climate change impacts on cities and communities • Designing resilient infrastructure and buildings • Urban resilience strategies and disaster preparedness

Unit No. 6 – Case Studies and Best Practices (30 %)

- Analysis of sustainable cities and communities around the world
- Examination of exemplary sustainable architecture projects
- Lessons learned and best practices in sustainable urban development

Sessional work

- Written assignments
- Case study with critical analysis and presentations
- Class participation and discussions

References :

- Sustainable Development Goals- Goal 11- Sustainable Cities and Communities
- Sustainable Urbanism: Urban Design with Nature by Douglas Farr
- The Urban Climatic Map: A Methodology for Sustainable Urban Planning by Edward Ng
- Green Cities: Urban Growth and the Environment by Matthew E. Kahn
- Sustainable Urban Development Reader edited by Stephen M. Wheeler and Timothy Beatley
- Designing the Sustainable Site: Integrated Design Strategies for Small-Scale Sites and Residential Landscapes by Heather L. Venhaus
- Urban Design: A Typology of Procedures and Products by Jon Lang
- The Architecture of the City by Aldo Rossi
- Cities for People by Jan Gehl
- The New Carbon Architecture: Building to Cool the Climate by Bruce King
- Ecological Urbanism edited by Mohsen Mostafavi and Gareth Doherty
- Sustainable Cities in India: Challenges and Future Perspectives edited by Poonam Sharma and Sumita Saxena
- From Poverty, Inequality to Smart City- Proceedings of National conference on sustainable built environment edited by Fumihiko Seta, Joy Sen, Arindam Biswas, Ajay Khare
- Urbanism in the Age of Climate Change by Peter Calthorpe and William Fulton
- The Leapfrog Opportunity: India's Pursuit of Sustainable Urban Development by Harshvardhan Bhat and Vinayak Bharne
- Ecocities of Tomorrow: Insights from the Ecocity World Summit 2017 edited by Sujata Govada and Samarth Das
- Indian Cities in Transition edited by Darshini Mahadevia
- Green Buildings and Sustainable Architecture: The Practical Guide by G. B. Reddy and

S. Kumaresh Babu

- Urban Development in India: Global Practices and Lessons edited by Amitabh Kundu and Arindam Jana
- Planning Sustainable Cities: Policy, Practice, and Design edited by Vinayak Bharne and Michael W. MehaF

SHIVAJI UNIVERSITY, KOLHAPUR

SYLLABUS FOR NINTH SEM-ARCHITECTURE DEGREE COURSE

(PE-1004B))

SUBJECT:-

Elective IX Intelligent Building

Course Title : Intelligent Building in Architecture	
Course Code : PE-1004 B	Semester : X
Teaching Scheme : L: 01 St :03 Total:04	Credits : 2
Examination Scheme : Term Work - 50 Marks Viva-Voce - 50 Marks	Total marks: 100 Marks

Course Description:

The course "Intelligent Building in Architecture" explores the integration of technology, automation, and smart systems in the design and operation of buildings. It provides students with an understanding of the principles, technologies, and strategies involved in creating intelligent and responsive built environments. The course emphasizes the role of architecture in leveraging technology to enhance the performance, efficiency, and user experience of buildings. It covers topics such as building automation, sensor networks, energy management, occupant comfort, and data-driven design.

Course Objectives :

- To introduce students to the concept of intelligent buildings and their significance in contemporary architecture.
- To explore the various technologies and systems used in intelligent building design.
- To understand the role of automation and smart systems in improving building performance and user comfort.
- To analyze the social, economic, and environmental impacts of intelligent buildings.
- To develop critical thinking and problem-solving skills related to the integration of technology in architectural design.

Course Outcomes(COs):

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

- Understand the concept of intelligent buildings and their significance in contemporary architecture, including their potential to enhance building performance, energy efficiency, and user comfort.
- Explore and learn about various technologies and systems used in intelligent building design, including building automation systems, sensor networks and data-driven design tools.
- Understand and analyze the role of automation and smart systems in improving building performance and occupant comfort, including the integration of HVAC controls, lighting systems, security systems, and

occupant feedback mechanisms.

- Analyze the social, economic, and environmental impacts of intelligent buildings, including their potential to optimize energy consumption, reduce carbon footprint, enhance occupant well-being, and contribute to sustainable development goals.
- Apply their knowledge of intelligent building technologies to architectural design projects, considering how automation and smart systems can be effectively integrated to enhance building performance, energy efficiency, and user comfort.
- Enhance their communication skills by effectively conveying intelligent building concepts, technologies, and their implications through presentations, reports, and design projects.

Course Content
Unit No. 1 – Introduction to Intelligent Buildings (20 %) <ul style="list-style-type: none">• Definition and key concepts of intelligent buildings• Historical perspectives on smart building design• Benefits and challenges of intelligent buildings
Unit No. 2 – Building Automation Systems (10 %) <ul style="list-style-type: none">• Fundamentals of building automation and control• Integration of HVAC, lighting, and security systems• Building management systems and protocols
Unit No. 3 – Energy Management and Sustainability and Data-Driven Design and Performance Optimization (20 %) <ul style="list-style-type: none">• Energy-efficient building systems and equipment• Smart metering and monitoring for energy optimization• Integration of renewable energy systems in intelligent buildings• Building information modeling (BIM) for intelligent design• Tools for performance simulation and optimization• Post-occupancy evaluation and feedback mechanisms
Unit No. 4 – Indoor Environmental Quality, Occupant Comfort and Integration of Smart Technologies (20 %) <ul style="list-style-type: none">• Intelligent lighting and daylighting systems• HVAC controls for thermal comfort and air quality• Acoustic control and noise reduction strategies• Integration of smart devices and wearable technology in buildings• User interface design for smart building applications• Human-centric design and user experience considerations
Unit No. 5 – Case Studies and Best Practices (30 %) <ul style="list-style-type: none">• Analysis of intelligent building projects around the world• Examination of exemplary smart systems and technologies• Market Survey of the Automation systems available locally

Sessional work

- Written assignments
- Case study with critical analysis and presentations
- Class participation and discussions
- Market Survey of the Automation systems available locally

References :

- "Intelligent Buildings: Design, Management and Operation" by Derek Clements-Croome
 - "Smart Buildings: Advanced Materials and Nanotechnology to Improve Energy-Efficiency and Environmental Performance" by Marco Casini
 - "Intelligent Building Systems" by G. D. Tiwari and S. M. Shiva Nagendra
- "Building Automation: Communication Systems with EIB/KNX, LON and BACnet" by Hermann Merz
- "Smart Buildings Systems for Architects, Owners, and Builders" by James M. Sinopoli
 - "Designing Intelligent Buildings: The ABC of Energy Efficiency and BuildingAutomation Systems" by Gerhard Hausladen and Petra Liedl
 - "Intelligent Buildings and Building Automation" by Shengwei Wang and Zhiqiang Wu
 - "The Intelligent Building Handbook: A Guide for Architects, Engineers, and FacilityManagers" by Derrick A. Denis and Richard D. Palmer
 - "Smart Buildings: Advanced Technologies and Systems" by James R. Linton
 - "Intelligent Buildings in South-East Asia" edited by Bruno Marques
 - "Intelligent Buildings in India: Challenges and Opportunities" edited by Jasbir Singh andSangeeta Bagga
 - "Intelligent Buildings: Technology, Trends and Implementation in India" by DineshKumar Tyagi and M. Ramachandran
 - "Intelligent Buildings: Concepts and Implementation in India" by Amit Gupta and Ar.Rupinder Singh
 - "Smart Buildings: Advanced Technologies and Solutions" by Dr. S. G. Vaiyapuri
 - "Intelligent Buildings: Concepts and Applications in India" by Ar. Aishwarya Tipnis andAnurag Mehta
 - "Designing Intelligent Buildings in India: Strategies and Practices" by Dr. R. SatishKumar
 - "Smart Buildings: Strategies and Technologies for Sustainable Architecture" by ParagRastogi
 - "Intelligent Buildings: Design and Implementation in Indian Context" by Amit Wadwa

SHIVAJI UNIVERSITY, KOLHAPUR

SYLLABUS FOR NINTH SEM-ARCHITECTURE DEGREE COURSE

(SEC-1005)

SUBJECT:-

Entrepreneurship Skills for Architects

Course Code : SEC-1005	Semester : X
Teaching Scheme : L : 02 St : 00 Total :02	Credits : 02
Examination Scheme : TermWork- 50 Marks Viva-Voce- 50 Marks	Total marks: 100

COURSEOBJECTIVE

- To develop a spirit of entrepreneurship amongst budding architects, and empower and encourage students to be “Archipreneurs”
- To develop knowledge of the basics of entrepreneurship, management, and legal aspects related to the creation of new projects
- To equip students with basic skills and competencies needed for enterprise-oriented professional development in architecture.

COURSE OUTCOME:

Unit 1

Developing the mindset of being an entrepreneur

Unit 2

Acquire fundamental knowledge of entrepreneurship and its principles.

Unit 3

Develop Entrepreneurial skills -lateral thinking and problem-solving skills.Enhance oratory skills for effective communication and persuasion. Importance of human resource management and team building, and time management techniques for improved productivity. Develop skills in finance management and office administration. Acquire essential software skills relevant to entrepreneurship.

Unit 4

Explore innovative business models in architectural entrepreneurship. Understand the changing landscape of architectural practice. Identify new opportunities and challenges in the 21st-century business environment. Learn the steps involved in creating a business model. Gain exposure to case studies of successful entrepreneurs in the architectural field.

PROGRAM OUTCOME:

•Unit 1:

Developing the mindset of being an entrepreneur

Understand the meaning and concept of entrepreneurship.

Gain knowledge about the history of entrepreneurship development and its impact on economic development.

Identify the factors that affect entrepreneurship.

Recognize different types of entrepreneurs and understand their characteristics.

Develop leadership skills and shift from an "employee mentality" to an entrepreneurial mindset.

Introduction to the concept of entrepreneurship.

Assignment 01: Essay writing (1500 - 2000 words)

●Unit 2:

Fundamental knowledge of entrepreneurship and its principles

Acquire fundamental knowledge of entrepreneurship, business management, finance, and intellectual property rights (IPR).

Understand the different types of professional organizations in business.

Learn the basics of accountancy and finance management, as well as investment planning.

Gain an understanding of business planning, including market analysis, risk assessment, and managing competition.

Introduction to intellectual property rights and their significance. Entrepreneurship, business management, finance, and IPR(Intellectual Property Rights)

●Unit 3:

Basic Entrepreneurial Skills Development

•Recognize the importance of practice and understand its benefits.

•Explore the changing scenario of architectural practice and the potential for diversification into related activities.

•Develop lateral thinking and problem-solving approaches.

•Understand the basics of human resource management and the importance of team building.

•Learn effective time management techniques.

•Recognize the need for developing software skills.

●Unit 4:

Developing a Business Model:

Explore new opportunities in architectural entrepreneurship in the 21st-century environment.

Understand the importance of teamwork in developing a business model.

Learn the steps involved in creating different types of business models.

Develop a market-ready product based on the business model.

Gain exposure to case studies of successful entrepreneurs and their journeys.

Assignment 1:

Essay Writing (Individual)

Length: 1500 - 2000 words

Topic: The specific topic for the essay is not mentioned, but it should cover the content of Unit 1, which includes the meaning and concept of entrepreneurship, history of entrepreneurship development, the role of entrepreneurship in economic development, factors affecting entrepreneurship, types of entrepreneurs, examples, and barriers to entrepreneurship.

Format: The essay should be written in an A4 report format and include a summary of interactions, class notes, and sessional work prescribed by the faculty.

Guidance and Certification: The essay should be carried out under the guidance of the concerned teacher or expert, who will provide a signed certificate confirming the guidance.

Assignment 2:

Case Studies of Entrepreneurs (Individual)

Requirement: Select two case studies of entrepreneurs, one in the architectural field and the other in an allied field. The case studies should be presented as a seminar to the class.

Format: Prepare an A4 report format of minimum 10 pages, including detailed information about the chosen entrepreneurs, their journeys, challenges faced, strategies employed, and the impact of their ventures. The report should include a summary of interactions, essays, class notes, and sessional work prescribed by the faculty.

Guidance and Certification: The work on the case studies should be carried out individually, under the guidance of the concerned teacher or expert. The teacher or expert should provide a signed certificate stating that the study was carried out under their guidance.

Assignment 3:

Individual or Group Project (Choice left to the college)

Requirement: The choice of this assignment can be done individually or in a group of two, as per the units covered in the course.

Format: The specific details and format of the project are not mentioned, but it should be presented in an A4 report format of minimum 10 pages. It should include a summary of interactions, essays, class notes, case studies, and sessional work prescribed by the faculty.

Books:

Architect and Entrepreneur: A Field Guide to Building, Branding, and Marketing Your Startup Design Business- by Eric Reinholdt

Architect's Essentials of Starting, Assessing, and Transitioning a Design Firm- by Peter Piven

Design Professional's Guide to Business Development: Practical Strategies for Architects, Engineers, and Environmental Consultants- by Sylvia Montgomery and David H. Maister

Architecture Entrepreneurship in Practice: A Guide for Architects, Engineers, and Design Professionals- by Rajeev Kathpalia and Nisha Mathew Ghosh

The Business of Architecture: A Guide to Successful Practice in India-by S. Raghavendra

Professional practice 2018 by Roshan Namavati

Architectural Practice by prof. Madhav Devbhakth