ARCH 901: Architectural Design VII

Course Core	Course Area	Course Typology	Course Code	Course Name	EXAMINATION SCHEME					MARKS	TEACHING SCHEME/WEEK			CREDITS
					THEORY			STUDIO			L	T	S	
					End Sem University Exam (50%OR 40%)	Two Term Exam (20%)	Teachers Assessment* (30%OR 20%)	End Sem University Exam (50%OR 10%)	Teachers Assessment* (50%OR 10%)	TOTAL				
PC	AR	STUDIO	ARCH 901	ARCHITECTURAL DESIGN VII				300	300	600			12	12

Legends: **L** - Lecture; **T** - Tutorial/Teacher Guided Student Activity; **S** – Studio; **C** - Credit;

Teacher Assessment shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

5TH YEAR / IX Semester

ARCH 901: Architectural Design VII

Course Educational Objectives (CEOs):
To develop abilities in design in the context and people-centric user requirements.

Course outcomes (COs):

At the end of the course, students will be able to	Formulate a design program /proposal based on live or hypothetical architectural projects and concerns Create Environmental design and experiences based on Architectural theory, approaches, processes, techniques and methods Design appropriate and innovative Architectural solutions for environmental, technological, social, economic and cultural context
Expected Skills / Knowledge Transferred:	Design vocabulary, enhancement and sensitization of students in design preparation and its relation to structural systems
Focus: Manual Skills	Understand the scale and context of human settlement, town, city or urban setting. Understand the reading and development of maps for various factors of human settlement. Apply different data collection mechanisms in assessing urban attributes in a given context. Analyze different urban attributes like Physical form, morphology, heritage, environment management, transport etc. to facilitate the design. Propose the urban intervention for sustainable and people-centric design in an urban context.

Course Overview:
The course aims at teaching the design of urban blocks for people-centric designs with context-related large-scale buildings for public use.

Course Contents:

Sr. No.	Syllabus: Topic	Subtopic	Teaching Hours:
Design			
I	Identify and formulate design projects based on concerns and issues	Theme & focus of design: People-centric, context-intensive public-use projects demanding a comprehensive understanding of the urban framework. Students can select projects of varied nature like commercial, institutional, mass housing, recreational, transportation, entertainment, etc. Students realise their design capacity, capability and inclination and choose/select their design project based on that. Choice of the live project with the proposed site and programme or hypothetical project with an appropriate site. Programme formulation with all necessary components and area requirements Site selection/identification based on typical characteristics of the site or location in the region, city, etc.	2 wks
II	Data collection, research, analysis and synthesis	Basic Components: Behavioral Science; Functionality; Building Materials; Theory of Design; Form Development; Tectonic decisions: Structures, Building Materials, Services; Site Planning; Building Control Regulations; Inclusive Design; Design Communication. Streetscape: Importance, Exploring & Understanding the essence; detailing process; User analysis; Elements; functionality, aesthetics; Materials. This Minor Exercise will be represented through conceptual development (sketches, physical & digital models). Precinct Analysis: Exploration & analysis of trendsetting Urban Design works; Understanding urban design theories & processes; Learning from design quality; Literature/book reviews; Urban Design critiques. Study of climate, topography, landscape and other site characteristics Study of	4 wks

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Legends: **L** - Lecture; **T** - Tutorial/Teacher Guided Student Activity; **S** – Studio; **C** - Credit;

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		cultural, historical, social, and political aspects of programme and site Understanding components of the programme and their interrelationships. Doing case studies to understand how the architectural design incorporates the above-mentioned aspects of the site, programme, culture, etc Adoption of a multidisciplinary approach to understand how aspects like economics, society, culture, climate, philosophy, etc affect the architectural design and thereby evolve a design strategy.	
III	Formulate and follow a design process and methodology	Evolve architectural design from ideas, concepts, theories, processes, etc Produce a coherent, imaginative and innovative design entity Architectural design to demonstrate a good response to site, culture and society. Develop an architectural language based on design response to climate, construction technology, programme, site characteristics, etc	6 wks
IV	Incorporation of building construction technologies and systems	Appropriate choice and use of building construction materials for buildings structures Incorporation of various services like toilets, HVAC, components of horizontal and vertical circulation, etc in design Articulation of design and detailing for the efficient functioning of various spaces of inside, outside and inbetween environments.	3 wks

Sessional work:

Guidelines

Assignments /Tasks are to be set from the entire syllabus; The topic of the project is to be displayed on the Institute Notice Board fifteen days - a week time in advance OF the commencement of the classes

Continuous Evaluation shall be made of students' work based on various models, sketch assignments, and market surveys.

One Major And the rest minor tasks are to be set from the entire syllabus

Assignments:

Design Exercise: Context Design. The complexity of design: Master planning, Precinct morphology & Building Detailing; Detailed study & analysis of the existing urban fabric. Formulation of strategies for intervention. Development of Design program for Civic Architecture. Typology: Large-scale public use projects: Commercial Zones, Mixed-Use Developments, Waterfront Developments, Heritage Zones, Redevelopment Projects, Civic Centers, Housing Schemes, Transit-Oriented Developments, Recreational Precincts, Sites &Services Schemes etc. Site extent: Precinct up to 20,000 m2 with an influence zone of 40,000 to 60,000 m2.

Note:

Evaluation is to be done through viva voce by an external examiner appointed by the university at the Institute. Portfolios, after the university exam, shall be retained at the Institute level for the viva-voice

Necessary theoretical inputs are to be given highlighting the norms and design issues. The topics not covered as design problems will have to be covered by the Studio faculty members through lecture/slideshow sessions and site visits.

At least one major exercise and one minor design with two-time problems should be given. The final submission shall necessarily include a model for at least one of the two main problems.

In the end, in an exam which is a viva-voce, the students have to present the entire semester's work for assessment.

Evaluation is to be done through viva voce by an external examiner appointed by the university at Institute. Portfolios, after the university exam, shall be retained at the Institute level for the viva–voice

Students will communicate & present their design and process stagewise, through appropriate and relevant sketches, drawings, models, 3d images, diagrams, etc. ! 18 hours of contact time per week includes time for lectures, discussions between students and teachers, interim reviews, site visits and visits for data collection. ! The actual association hours in college will be only 9 hours out of 18 hours and the rest would be utilised for site visits and fieldwork

Suggested Readings:

Bousmaha Baiche & Nicholas Walliman, Neufert Architect's data, Blackwell Science Ltd.
Building Code – ISI
Chiara Joseph de and Others. Time Savers Standards of Building Types. McGraw – Hill, 1990.

ARCH 901: Architectural Design VII

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PC	AR	STUDIO	ARCH 901	ARCHITECTURAL DESIGN VII				300	300	600			12	12

Legends: **L** - Lecture; **T** - Tutorial/Teacher Guided Student Activity; **S** – Studio; **C** - Credit;

Teacher Assessment shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

Ching, Francis D.K. Architecture: Form, Space, and Order, 2nd Ed. Van Nostrand Reinhold, New York, 1996.
Criss B. Mills, Designing with models: A Studio Guide to making & using architectural models, Thomson & Wadsworth, USA,2000.
DeChiara and Callender, Time-saver standards for building types, Mc Graw Hill Company
Hanks, A. David. Decorative Designs of Frank Lloyd Wright, Dover Publications, Inc. New York, 1999.
Hepler, E. Donald, Wallach, I. Paul. Architecture Drafting and Design, 3rd Ed. McGraw-Hill Book Company, New York, 1977.
Itten, Johannes. Design and Form: The basic course at the Bauhaus, Thames and Hudson Ltd., London 1997.
Kirk, Paul Hayden and Sternberg, D. Eugene. Doctors Offices and Clinics, 2nd Ed. Reinhold Pub., USA, 1960.
Krier, Rob. Architectural Composition, Academy Editions, London, 1988.
Maier Manfired Basic Principles of Design, Vol.1, 2, 3 & 4, Van Nostrand Reinhold, NY. (1977)
Meiss, Pierre Von. Elements of Architecture: From Form to place, E and FN Spon, London, 1992.
Mike w.Lin, Drawing & Designing with confidence – A step by step guide, John Wiley & Sons, USA,1998.
Neufert, Ernst. Ernst Neufert Architects Data, Granada Pub. Ltd., London,2000.Peloquin, Albert. Barrier-Free Residential Design. McGraw-Hill, Inc., New York,1994.Pevsner, Nikolaus. A History of Building Types. Thames and Hudson, London,1976.Ramsey / Sleeper, National Architectural graphic standards, The American Institute of Architects
Sam F Miller, Design process– Van Nostrand Reinhold Shah, S. Charanjit. Architects Hand Book Ready Reckoner. Galogotia Pub., New Delhi, 1996.Smithies, K.W. Principles of Design in Architecture. Chapman and Hall, 1983.
Untermann, Richard and Small, Robert. Site Planning for Cluster Housing.Wucius, Wong. Principles of Two-Dimensional Design. Van Nostrand Reinhold 1972.Time-saver standards for building types, DeChiara and Callender, McGraw Hill Company
National Building Code - ISIPatricia Tutt and David Adler, New Metric Handbook — The Architectural Press
Chiara Joseph de and Others. Time Savers Standards of Building Types.McGraw – Hill, 1980.Dawes, John. Design and Planning for Swimming Pools. The Architectural Press, London, 1979.Ruknitein, M. Harvey. Central City Malls

ARCH 903: Research Methodology and Dissertation

Course Core	Course Area	Course Typology	Course Code	Course Name	EXAMINATION SCHEME					TOTAL MARKS	TEACHING SCHEME/WEEK			CREDITS
					THEORY			STUDIO			L	T	S	
					End Sem University Exam (50%OR 40%)	Two Term Exam (20%)	Teachers Assessment* (30%OR 20%)	End Sem University Exam (50%OR 10%)	Teachers Assessment* (50%OR 10%)					
PA	PR	THEORY	ARCH 903	RESEARCH METHODOLOGY AND DISSERTATION				75	75	150			3	3

Legends: **L** - Lecture; **T** - Tutorial/Teacher Guided Student Activity; **S** – Studio; **C** - Credit;

Teacher Assessment shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

ARCH 903: Research Methodology and Dissertation

Course Educational Objectives (CEOs):

To impart knowledge to students, on the tools and methods needed to handle a design project of reasonable complexity individually,
To introduce the students to research in architecture and its significance in the architectural practice.
To introduce the students to the types of research in architecture and the process of formulating a research plan.
To introduce the students to various methods of research in architecture, their relative advantages and disadvantages and their applications.
To introduce the students to data analysis and simple statistical analysis and to interpret and infer from the data.
To introduce the students to technical writing and presenting a research report.

Course outcomes (COs):

At the end of the course, students will be able to	The student will learn different methods and techniques to represent an idea & thoughts The student will have various representation techniques at her disposal The student will be able to represent a design idea 3 dimensionally Use of presentation software
Expected Skills / Knowledge Transferred:	The skills required to collect, assimilate and synthesise data relevant to handle a design thesis project independently.
Focus: Manual Skills	Demonstrate the research design, develop a systematic enquiry into a subject, and choose a methodology for literature review, data collection, and analysis. Interpret the various facts and scope of research in architecture and allied subjects. Choose an appropriate analytical technique for data analysis. Select the appropriate analytical tool for arriving conclusion. 5. Develop a research paper.

Course Overview:

The course provides students with a framework to understand some emerging concepts in architecture and projects of design complexity and equips the student with adequate architectural design research methods for the realization of the thesis concept. During the study, the subject of the thesis is developed and the project articulated.
The subject of the Dissertation is included in the syllabus to introduce the students to the process of conducting systematic research in the subject of their choice but the overall Architectural Context and acquainting them with the research methodologies adopted while researching a particular subject. The students are expected to get an orientation in Technical Writing which is an emerging field for making a career. The Dissertation is expected to impart initial training at the undergraduate level to prepare them for more advanced research at the postgraduate level. The topic of research should relate to the "Architectural Project" that the student intends to undertake. This will help the student to extend the findings of the research to the architectural design.

Course Contents

Unit	Syllabus: Topic	Subtopic	Teaching Hours:
I	Introduction to research in architecture	Introduction to research in architecture – its significance, research design, types of research, literature study, methods of research in architecture (interviewing / visual methods/content analysis); data documentation and analysis, introduction to statistics, presenting the data and reporting the research.	
II	Introduction to research:	Introduction to research: Introduction to " research" and its significance in architecture – meaning of research. Relationship between design and research. areas of research in architecture, qualitative and quantitative paradigms. The domain of Architectural Research; Understanding the nature of research in architecture- Need & significance; Objectives; Characteristics;	
III	Research Process:		

ARCH 903: Research Methodology and Dissertation

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Legends: **L** - Lecture; **T** - Tutorial/Teacher Guided Student Activity; **S** – Studio; **C** - Credit;

Teacher Assessment shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

IV	Data Collection & Sampling:	Ethics; Concepts of theory; Research methods in Architecture. Research Process: Types of Research; Research methods & Research methodology; Research Process; Review of literature, research statement; Research design – need, components, considerations. Literature Study and Research: Significance of literature study in research, different sources of information such as books, journals, newspapers, internet, magazines, audio recordings, etc. Referencing and documenting the bibliography. Data Collection & Sampling: Methods of Research in Architecture, Interview Techniques: Questionnaires /Face to face Interviews / Internet survey. Designing a Questionnaire / Interview schedule. Visual Techniques: Observations (participant / nonparticipant/direct), activity mapping, accession/erosion trace observations, cognitive maps, etc. Content Analysis: Secondary data analysis. Understanding the relative advantages, disadvantages and application of various methods mentioned above and choosing a method appropriate for research to achieve its objectives. • Primary data; methods of data collection; survey & observation; Questionnaires - types, aspects, sequence, Observation- types, characteristics, advantages, limitations etc., recording observations; Secondary data- sources, characteristics; Other Methods of Survey - visual, use of mechanical devices etc.; Sampling - need, significance, methods, classification, characteristics, determining sample size, time, event sampling etc. • Data Analysis: Overview of measuring & scaling techniques; Processing & analysis of data - descriptive & inferential; graphical representation of analysis. • The report, Paper & proposal writing: Purpose, characteristics, guidelines, steps, format, structure, contents, presentation, referencing style, ethical issues: plagiarism etc.
V	Thesis Report	Introduction to architectural thesis Project, Difference between design thesis and design studio, selection of topics for architectural design thesis, design thesis topics based on building typologies, preparation of synopsis, Methodology of a design thesis. Emerging concepts in architecture due to changes in social, economic, and technological variables. Review of design projects related to real-world instances and relevant to the community at large. Review of projects of design complexity, involving themes, sub-themes and architectural expression. • Research in architecture: Tools and Methods required to handle a design project. Scientific methods of research with special emphasis on architectural research methods. Architectural

ARCH 903: Research Methodology and Dissertation

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enquiry visual, observations, questionnaire formats of enquiry, Literature Review and case studies. Data analysis techniques interpretation of data.

- Thesis report writing and presentation:
- · Formats for the presentation of data, case studies and analysis.
- · Formats for the presentation of thesis design-media appropriate in the architectural profession such as two-dimensional drawing, physical models, and three-dimensional computer models.
- · Report Writing: Techniques in report writing, presentation of contextual information relevant to the interpretation of the data collected and design; reporting the design development from concept to design solution, explaining the relation of the design to existing knowledge on the topic in the form of coherently written thesis report.

• Overview of current research trends in architecture 3 wks
• Research Ethics: Code of Ethics 4 wks
• Study some research methods in detail 5 wks
• Finalize the research method that relates the most to the current research undertaken • Prepare a research proposal

Sessional work:

Guidelines

Assignments /Tasks are to be set from the entire syllabus; The topic of the project is to be displayed on the Institute Notice Board fifteen days - a week time in advance OF the commencement of the classes

Continuous Evaluation shall be made of students' work based on various models, sketch assignments.

A-Class test based upon the units 1 to 4. (20 % of total marks) to be conducted at the end of the term

Writing a review essay of about 1000 words on any one book/part of a book (chapter) related to architecture, read by the student. (10% of total marks) in term

The topic of the project is to be displayed on the Institute Notice Board fifteen days in advance OF the commencement of the classes

- Researching a topic (for an Architectural Project approved by the University of Pune).
- a. Approach to research, research design (20% of total marks)
- b. Fieldwork (data collection) and Analysis of the data (20% of total marks)
- c. report writing and presentation (30% of total marks).
- Phases (a) above can be assessed in .a term I while phases (b) & (c) above, will be essentially assessed in term II.

  SUBMISSION, CHAPTERS AND FORMAT OF THE REPORT (Architectural Project Part I):

  Candidates must submit three copies of the report duly signed and endorsed by the Principal and the Guide to their respective Institutes. Following is a brief guideline for the sections/chapters in the report and the formatting of the report.
- 1. The report will have three main parts :
  a. Initial Pages –in the following sequence. i. Title Page.

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ii. Certificate from the Institute
iii. Acknowledgement.
iv. Table of Contents
v. List of figures, photos, drawings, and tables.
vi. List of abbreviations

b. The main body of the report (not to exceed 4000 words). i. Introduction
ii. Literature review
iii. Methodology
iv. Data Analysis and Findings
v.Conclusions & Discussions
vi. Recommendations / Design Guidelines
vii. Glossary

c. Appendices

- 2. Formatting of the report

. The report shall be presented in A4 Portrait form using executive bond paper.
b. The font to be used shall be either Times News Roman or Arial.
c. CHAPTER TITLES: 16 points upper case bold, Subheadings: 14 point title case bold and overall text shall be in 12 point sentence case.
d. Line Spacing shall be 1.5 lines.
e. Page numbers shall be given at the bottom centre of a page. The initial pages (as in 1 above) should have roman small numerals (i, ii, iii etc.) while the body of the report and appendices shall have English numerals (1,2,3 etc.)
f. Margins: Left Margin 40mm (1.5 inches approx) All other margins 25mm (1 inch approx).
g. The report shall be typed on one side of the page.
h. Black binding with Golden Embossing.
i. Standard conventions for giving references, writing a bibliography, and annotating figures /tables shall be followed.

Assignments:

Site Studies – Plot, site, land and regions, size and shape of the site, Analysis of accessibility, Topography, Climate, landforms, Surface Drainage, Soil, Water, Vegetation, Ecology, and Visual aspects.

Note:

The thesis process will allow students to harness their research abilities on identifiable domains & demonstrate the research as an application for a design project in the same identifiable manner. The Thesis Process assesses research abilities in identified domains & demonstration of research as an application to a design project. The process of the thesis will be in two stages: Domain Research & Design Project- Research Paper, Thesis research will further continue in preparing the base work for the design project in the eighth semester. Base work will involve a literature survey for identified parameters, secondary case studies, primary guidelines, identification of primary case studies & sites, preparation of process of case studies, & site studies. Secondly, to prepare the guidelines & checklist for case studies & site studies. The process for Thesis I: Inquire will include: Subject Description, Identification of domain, Fundamentals of design domain, Identification of project, its scale &

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complexity, Identification of the scope of work, User activity analysis, Identification of parameters of Thesis & Prioritization, Selection of focus. Research focus - Research shall involve the selection of the broad area of study, defining the scope of the study, finalization of the methodology, data collection, analysis, interpretation, & research paper writing.

Evaluation is to be done through viva voce by an external examiner appointed by the university at the Institute. Portfolios, after the university exam, shall be retained at the Institute level for the viva-voice

The inputs to the students on various design thesis topics would be in the form of Expert /Guest Lectures

Each student in consultation with the faculty shall choose a thesis topic, collect necessary data, review the literature on the chosen topic and present a written paper and seminar at the end of the semester.

Emphasis should be laid on the understating of Building Research. The continuous evaluation shall be made of students' work based on various models, assignments and reports

- **Guide:** The guides for the dissertation should have a minimum of 8 yrs. of teaching experience as a full-time faculty member at an architecture Institute or shall be a visiting faculty member/practitioner with at least 10 yrs experience. Preferably, a guide should not guide more than 8 students for the dissertation.
- **The dissertation coordinator** at an Institute, should deliver research methods lectures and at times call experts from the field of architecture to review students' work, and experts from other fields to give special inputs such as technical writing, statistical methods etc.

RECOMMENDATIONS:

The topic for Research: The topic of research should be related to the "Architectural Project" that the student intends to undertake. This will help the student to extend the findings of the research to the architectural design. In this manner, the effort for the dissertation would become focused, directional and relevant. The choice of a subject shall depend upon many factors such as the student's interests, circumstances and abilities. A careful check shall be made to see that access is available to relevant buildings and appropriate libraries, record offices, laboratories and other technical resources. Thought must be given to any travel, and field trips, which may be necessary.

Thus coordination between "Dissertation" and "Architectural Projects" at the Institute level is very essential and an overview meeting with the students should be arranged at the end of the third year B.Arch. Depending upon the philosophy of a particular institute, the Institute may allow topics focusing on a particular area related to its mission statement. Following is a list of some Building Types for reference.

1**. Housing:** Individual or Group Housing Schemes.

2. **Transportation Projects:** Railway stations, City / Interstate Bus Terminus / Domestic and International Air Ports.

3. **Cultural, and Educational Projects** Display-oriented topics like Museums, Art Galleries, and Theatres for Performing Arts such as Drama, Dance and Music. University and Institute campuses, Libraries etc.

4. Sports Recreation and Tourism oriented topics Stadium, Gymnasium, Swimming Pool, Students Recreation Centers, Clubs, Tourist Resorts, Holiday Homes, Motels, Conference Centers etc.

ARCH 903: Research Methodology and Dissertation

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5. Administrative and Civic Buildings: Private and Government Offices, work centres, Town Halls, Police Headquarters, Law Courts etc.

6. Industrial Projects: Factories, Specialised Production Centers such as the Pharma Industry, IT Parks and related types of building

7. Technical and Specialized topics such as Hospitals, Clinics, Film and T. V. Studios, Cost and Structure oriented topics such as cost-effective technologies, Energy-efficient building design, Prefabricated and Industrialized Construction etc.

Suggested Readings:

*Spector, Tom and Rebecca Damron, How Architects Write (2012)
Babbie, E. The Practice of Social Research, (third edition). Belmont: Wadsworth Publishing Co. 1983.
Barnet, Sylvan. A Short Guide to Writing About Art (9th ed.; 2008)
Barrass, Robert. Writing At Work \b a guide to better writing in administration, business and management, London: Routledge, 2003.
Becker, Howard S. Writing for Social Carrier, David. Principles of Art History Writing (1991)
Becker, Howard S., Writing for Social Scientists: How to Start and Finish Your Thesis, Book, or Article (1986)
Clark, Roy Peter. Writing Tools: 50 Essential Strategies for Every Writer (2006)
Creswell, J. W. Research Design: Qualitative, quantitative and mixed methods approaches, 2nd Ed., Thousand Oaks: Sage. 2003.
Creswell, J.W. Research Design: Qualitative & Quantitative Approaches. Thousand Oaks: Sage.1994.
D'Alleva, Anne. How to Write Art History (2006)
De Vaus, D. A. Surveys in Social Research, Jaipur: Rawat Publications. 2003.
Dey, I. Qualitative Data Analysis: A User-Friendly Guide for Social Scientists, London: Routledge.1993.
Forty, Adrian, Words and Buildings: A Vocabulary of Modern Architecture (2000) MLA Handbook for Writers of Research Papers (7th ed.; 2009)
Frederick, Matthew. 101 Things I Learned in Architecture School (2007)
Graff, Gerald and Cathy Birkenstein. They Say/I Say: The Moves That Matter in Persuasive Writing (2007)
Groat, L. & Wang, D. Architectural Research Methods, NY: John Wiley and Sons Inc. 2002.
Groat, Linda and David Wang. Architectural Research Methods (2002)
Jo Ray McCuen, Anthony Winkler. Readings for writers, 9th ed., Fort Worth: Harcourt Brace Institute Publishers, 1998.
Kothari, C.R. Research Methodology: Methods and Techniques, New Delhi: Wishwa Prakashan. 2005.
Lange, Alexandra. Writing About Architecture (2012)
Mukhi, H.R. Technical Report Writing: Specially prepared for Technical and Competitive Examinations, New Delhi: Satya Prakashan, 2000.
Nachmias, C. F. and Nachmias, D. Research Methods in the Social Sciences, 5th Edition Great Britain: St. Martin's Press Inc.
Norman K Denzin and Yvonna S Lincoln (Eds.) Handbook of Qualitative Research, Thousand Oaks: Sage Publications, pp.
Patton, M. Q. Qualitative Evaluation Methods, Newsbury Park: Sage Publications. 1980.
Sanoff, H. Methods of Architectural Programming, Dowden Hutchinson and Ross, Inc. Vol. 29, Community Development Series.
Sanoff, H. Visual research methods in design, USA: Van Nostrand Reinhold. 1991.
Seely, John. The Oxford guide to effective writing and speaking, 2nd ed., Oxford; New York: Oxford University Press, 2005.
Silverman, D. Interpreting Qualitative Data: Methods for Analysing Talk, Text and Interaction, London: Sage Publication. 1993.
Treece, Malra. Effective reports, 2nd ed., Boston: Allyn and Bacon, 1985.
Turabian, Kate L. A Manual for Writers of Research Papers, Theses, and Dissertations: Chicago Style for Students and Researchers (7th ed.; 2007) Zeisel, John. An inquiry by Design (2006)
William Michelson (ed.) Behavioural Methods in Environmental Design, Stroudsburg, Pennsylvania: Dowden Hutchinson and Ross
Zinsser, William. On Writing Well (2006)

ARCH 905: Core Elective IV (Part A) Minor

Course Core	Course Area	Course Typology	Course Code	Course Name	EXAMINATION SCHEME					TOTAL MARKS	TEACHING SCHEME/WEEK			CREDITS
					THEORY			STUDIO			L	T	S	
					End Sem University Exam (50%OR 40%)	Two Term Exam (20%)	Teachers Assessment* (30%OR 20%)	End Sem University Exam (50%OR 10%)	Teachers Assessment* (50%OR 10%)					
SEC	PR	THEORY CUM STUDIO	ARCH 905	CORE ELECTIVE IVA				50	50	100			2	2

Legends: **L** - Lecture; **T** - Tutorial/Teacher Guided Student Activity; **S** – Studio; **C** - Credit;

Teacher Assessment shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

ARCH 905: Core Elective IV (Part A) Minor

9 Sem	Core Elective IV (PART A)
905.1	Vernacular architecture & settlements
905.2	Interior Architecture
905.3	Smart Cities / introduction to GIS
905.4	MOOC: Cultural Heritage in Transformation (edX)

Course Educational Objectives (CEOs):
overall nurturing of the student with issues in practice and field outside

Course outcomes (COs):

At the end of the course, students will be able to	The student will learn different methods and techniques to represent an idea & thoughts The student will have various representation techniques at her disposal The student will be able to represent a design idea 3 dimensionally Use of presentation software
Expected Skills / Knowledge Transferred: Focus: Manual Skills	Dexterity; Knowledge of materials and their properties; craft skills; visualization skills; The student will learn different methods and techniques to represent an idea & thoughts The student will have various representation techniques at her disposal The student will be able to represent a design idea 3 dimensionally Use of presentation software
Sessional work: **Guidelines**	Assignments /Tasks are to be set from the entire syllabus; The topic of the project is to be displayed on the Institute Notice Board fifteen days - a week time in advance OF the commencement of the classes Continuous Evaluation shall be made of students' work based on various models, sketch assignments, and market surveys. One Major And the rest minor tasks are to be set from the entire syllabus
Assignments:	Site Studies – Plot, site, land and regions, size and shape of the site, Analysis of accessibility, Topography, Climate, landforms, Surface Drainage, Soil, Water, Vegetation, Ecology, and Visual aspects.
Note:	Evaluation is to be done through viva voce by an external examiner appointed by the university at the Institute. Portfolios, after the university exam, shall be retained at the Institute level for the viva-voice

ARCH 905.1 : Vernacular Architecture & Settlements

Course Educational Objectives (CEOs):

ARCH 905: Core Elective IV (Part A) Minor

Course Core	Course Area	Course Typology	Course Code	Course Name	EXAMINATION SCHEME					TOTAL MARKS	TEACHING SCHEME/WEEK			CREDITS
					THEORY			STUDIO			L	T	S	
					End Sem University Exam (50%OR 40%)	Two Term Exam (20%)	Teachers Assessment* (30%OR 20%)	End Sem University Exam (50%OR 10%)	Teachers Assessment* (50%OR 10%)					
SEC	PR	THEORY CUM STUDIO	ARCH 905	CORE ELECTIVE IVA				50	50	100			2	2

Legends: **L** - Lecture; **T** - Tutorial/Teacher Guided Student Activity; **S** – Studio; **C** - Credit;

Teacher Assessment shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

- The students will know the planning aspects, materials used in construction, construction details and settlement planning of the settlements in various parts of the country

Course outcomes (COs):

At the end of the course, students will be able to	The student will develop sensitivity towards built heritage The student will develop the capacity for Critical appraisal of the status of buildings
Expected Skills / Knowledge Transferred:	to conserve old buildings of cultural importance
Focus: Manual Skills	The students will be able to identify and conserve the untapped values and principles in the evolution of new theories for architectural creations. Highlight needs and various ways of vernacular building research, analysis, presentation of findings and their application to contemporary building

Course Overview:

- To develop an understanding of the importance of historical and heritage buildings

Course Contents:

Unit	Syllabus: Topic	Subtopic	Teaching Hours:
I	Introduction to vernacular architecture	Definition and classification of Vernacular architecture – Vernacular architecture as a process differentiating vernacular architecture from contemporary architecture – Survey and study of vernacular architecture: methodology- Cultural and contextual responsiveness of vernacular architecture: an overview	5 hrs @ each class
II	Approaches and concepts	Approaches and concepts to the study of Vernacular architecture – Introduction to Kutcha architecture and Pucca architecture- Regional topography, local climate, settlement pattern and architecture in a different part of the region., TOQ construction, Dhajji Diwali Construction, local material.	
III	Dravidian south	Planning aspects, materials of construction, Constructional details & Settlement Planning of Kerala – Nair houses (Tarawads), Kerala Muslim houses (Mappilah houses), Temples, Palaces and theatres – Thattchushastra. Tamil Nādu – Toda Huts, Chettinad Houses (Chettiars) & Palaces Karnataka – Gutthu houses (landowning community), Kodava ancestral home (Aynmane) Andhra Pradesh –Kaccha buildings religious practices, beliefs, culture & climatic factors influencing the planning of the above.	
IV	Western Region	Planning aspects, Materials used, Constructional details, Climatic factors influencing the planning of Jat houses for farming caste, Bhungas(Circular Huts) - Brahmin Caste and their Havelis- Hindu Merchants and their Havelis from Rajasthan, Shekhawati Haveli of Rajasthan Rathva Tribe of Gujarat, Chodri Tribe, Sociology and Planning of North Gujarat Sociology and Planning of Rural South Gujarat, 27 Sociology and Planning of Saurashtra, Sociology and Planning of Muslim Community in Gujarat, Woodwork Details of Gujarat- Pol houses of Ahmedabad - Primitive forms, Symbolism, Colour, Folk art etc. in the architecture of the deserts of Kutch. Vernacular architecture of Goa.	
V	Northern and eastern	Kashmir – Typical Kutcha houses, mosque,	

ARCH 905: Core Elective IV (Part A) Minor

Course Core	Course Area	Course Typology	Course Code	Course Name	EXAMINATION SCHEME					TOTAL MARKS	TEACHING SCHEME/WEEK			CREDITS
					THEORY			STUDIO			L	T	S	
					End Sem University Exam (50%OR 40%)	Two Term Exam (20%)	Teachers Assessment* (30%OR 20%)	End Sem University Exam (50%OR 10%)	Teachers Assessment* (50%OR 10%)					
SEC	PR	THEORY CUM STUDIO	ARCH 905	CORE ELECTIVE IVA				50	50	100			2	2

Legends: **L** - Lecture; **T** - Tutorial/Teacher Guided Student Activity; **S** – Studio; **C** - Credit;

Teacher Assessment shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

India	Dhoongas(Boathouses), Ladakhi houses, bridges Himachal Pradesh – Kinnaur houses. Arunachal and their settlement pattern, Thadou Kukis Community of Manipur Uttar Pradesh – Domestic housing of Uttar Pradesh Bengal – Bangla (Rural house form), Aat Chala houses – change from Bangla to Bungalow, Kutcha & Pucca architecture of Bengal. Nagaland – Naga houses & Naga village, Khasi houses Factors influencing the planning aspects, materials of construction & constructional details of the above

Sessional work:

Guidelines Assignments /Tasks are to be set from the entire syllabus; The topic of the project is to be displayed on the Institute Notice Board fifteen days - a week time in advance OF the commencement of the classes
Continuous Evaluation shall be made of students' work based on various models, sketch assignments, and market surveys.
One Major And the rest minor tasks are to be set from the entire syllabus

Assignments: Emphasis should be laid on understating building evolution and form. The continuous evaluation shall be made of students' work based on various models, assignments and sketching

Note: Evaluation is to be done through viva voce by an external examiner appointed by the university at the Institute. Portfolios, after the university exam, shall be retained at the Institute level for the viva-voice

Suggested Readings:

Ilay Cooper, Traditional buildings of India, Thames and Hudson Ltd., London
Kulbushan Jain & Meenakshi Jain, The architecture of the Indian desert, Aadi Centre, Ahmedabad
George Michell, The Royal Palaces of India, Thames and Hudson Ltd., London
S.Muthiah, Meenakshi Meyappan, Visalakshmi Ramaswamy, Chettiar Heritage, LokavaniHallmark Press Pvt. Ltd., Chennai
Encyclopaedia of Vernacular Architecture of the World, Cambridge University Press
V.S.Pramar, Haveli – Wooden houses & mansions of Gujarat, Mapin Publishing Pvt. Ltd., Ahmedabad
The Tradition of Indian architecture – Continuity & Controversy – Change since 1850, G.H.R.Tillotsum, Oxford University Press, Delhi
VISTARA – The architecture of India, Carmen Kagal. Pub: The Festival of India, 1986.
House, Form & Culture, Amos Rappoport, Prentice Hall Inc, 1969.

ARCH 905.2. Interior Architecture

Course Educational Objectives (CEOs):
Understanding of the various issues involved in planning knowledge design solutions for interiors

Course outcomes (COs):

At the end of the course, students will be able to	The student will learn different methods and techniques to represent an idea & thoughts The student will have various representation techniques at her disposal The student will be able to represent a design idea 3 dimensionally Use of presentation software
Expected Skills / Knowledge Transferred:	To understand the techniques of planning and construction for an interior project using different materials
Focus: Manual Skills	The student will learn different methods and techniques to represent an idea & thoughts The student will have various representation techniques at her disposal The student will be able to represent a design idea 3 dimensionally Use of presentation software

ARCH 905: Core Elective IV (Part A) Minor

Course Core	Course Area	Course Typology	Course Code	Course Name	EXAMINATION SCHEME					TOTAL MARKS	TEACHING SCHEME/WEEK			CREDITS
					THEORY			STUDIO			L	T	S	
					End Sem University Exam (50%OR 40%)	Two Term Exam (20%)	Teachers Assessment* (30%OR 20%)	End Sem University Exam (50%OR 10%)	Teachers Assessment* (50%OR 10%)					
SEC	PR	THEORY CUM STUDIO	ARCH 905	CORE ELECTIVE IVA				50	50	100			2	2

Legends: **L** - Lecture; **T** - Tutorial/Teacher Guided Student Activity; **S** – Studio; **C** - Credit;

Teacher Assessment shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

Course Overview:

The course provides a framework for the discipline by addressing the theoretical, social, historical, technological, and professional aspects of Interior Design.

Course Contents:

Unit	Syllabus: Topic	Subtopic	Teaching Hours:
I	**Introduction to interior design**	History, styles; Behavioral Science: Nature & role of social, physical & built environment; Environmental psychology: behaviour, psychology, perceptions, preferences, etc.; Basic components- Functionality, Services, Inclusive Design; Basic elements of design for evolution of creativity - dot, line, plane, volume 2D & 3D. Basic principles of design - Axis, symmetry, balance, focus, rhythm, harmony, unity, variety, contrast, hierarchy, scale & proportion, movement, emphasis, dominance, fluidity, articulation & order.	5 hrs @ each class
II	**Concept & Theme Development**	Enclosures & envelopes to formulate the volumes, and response to functional spaces; Functionality: Spatial Organization & Planning; Derivation of the quantitative aspect of spaces based on User-Activity Analysis, furniture/equipment, Anthropometry, Ergonomics, Layout, Circulation, etc.; qualitative aspects based on ambience.	
III	**Technical decisions-**	Constructional details & Material specification- Exploration & selection responding to functionality & aesthetics; Decisions for aesthetics: Color, textures, patterns, surface finishes, ornamentation, furnishings, accessories, interior Landscaping, etc. concerning visual comfort & ambience in the interiors.	
IV	**Services**	Mechanical & Environmental System: HVAC, electrical, firefighting, sanitary & plumbing, security, telecommunications, lifts, escalators, lighting & acoustical systems etc. responding to functionality & aesthetics.	
V	**Design & Detailing:**	Broad Typology: Residential/ Commercial / Retails / Offices/ Institutional/ Hospitality/ Recreational/ Sports/ Healthcare/ Others. Site extent: Ranges from 200 m2 - 600 m2.	

Sessional work:

Guidelines

Assignments /Tasks are to be set from the entire syllabus; The topic of the project is to be displayed on the Institute Notice Board fifteen days - a week time in advance OF the commencement of the classes

Continuous Evaluation shall be made of students' work based on various models, sketch assignments, and market surveys.

One Major And the rest minor tasks are to be set from the entire syllabus

Assignments:

The evaluation shall be through periodic internal reviews. The final submission will include a brief report of about 1000 words explaining the concept and design proposals for the main portfolio. It will also include a model.

Note:

Students would need to undertake one of the design subjects for the studio exercise. Students may be required to develop a brief, and translate it into requirements and design. One Major design exercise should be given.

Evaluation is to be done through viva voce by an external examiner appointed by

ARCH 905: Core Elective IV (Part A) Minor

Course Core	Course Area	Course Typology	Course Code	Course Name	EXAMINATION SCHEME					TOTAL MARKS	TEACHING SCHEME/WEEK			CREDITS
					THEORY			STUDIO			L	T	S	
					End Sem University Exam (50%OR 40%)	Two Term Exam (20%)	Teachers Assessment* (30%OR 20%)	End Sem University Exam (50%OR 10%)	Teachers Assessment* (50%OR 10%)					
SEC	PR	THEORY CUM STUDIO	ARCH 905	CORE ELECTIVE IVA				50	50	100			2	2

Legends: **L** - Lecture; **T** - Tutorial/Teacher Guided Student Activity; **S** – Studio; **C** - Credit;

Teacher Assessment shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

the university at the Institute. Portfolios, after the university exam, shall be retained at the Institute level for the viva-voice

Suggested Readings:

Archi World. Interior Best Collection: Residence, Commerce, Office, Restaurant Asia I-IV. Archi World Co., Korea, 2003.
Friedmann, Arnold and Others. Interior Design: An Int. to Architectural Interiors.Elsevier, New York, 1979.
Miller, E. William. Basic Drafting for Interior Designers. Van Nostrand Reinhold, New York, 1981.
Kurtich, John and Eakin, Garret. Interior Architecture, Van Nostrand Reinhold, New York, 1993.
Rao, M. Pratap. Interior Design: Principles and Practice, 3rd ed. Standard Pub.,2004.

ARCH 905.3 :Smart Cities

Course Educational Objectives (CEOs):

To understand the Concepts, Methods and models of e-Governance, Citizenship, ICT acts and Initiatives.
Understanding the Concept of Smart Cities. Systematic and strategic planning approaches for developing, managing and implementing Smart City design.

Course outcomes (COs):

At the end of the course, students will be able to	The student will learn different methods and techniques to represent an idea & thoughts The student will have various representation techniques at her disposal The student will be able to represent a design idea 3 dimensionally Use of presentation software
Expected Skills / Knowledge Transferred:	Sustainable designs and related theory.
Focus: Skills	The student will learn different methods and techniques to represent an idea & thoughts The student will have various representation techniques at her disposal The student will be able to represent a design idea 3 dimensionally Use of presentation software

Course Overview:

A growing worldwide concern for the conservation of energy & the environment has led to the emphasis on sustainable habitats as a key solution to growing urban concerns. Sustainable architecture aims to create an environmentally–friendly and energy-efficient building by actively harnessing renewable natural sources of energy (solar energy etc) and utilizing materials that least pollute the environment.

Course Contents:

Unit	Syllabus: Topic	Subtopic	Teaching Hours:
		Introduction & Background, Overview of Smart Systems and ICT (Information and Communication Technology) at sectoral level (neighbourhood, ward etc.) covering attributes of physical and social infrastructure; Real-Time Sensing Technologies (SCADA). Real-time Security, Surveillance and Response Systems for emergency services and Disaster Management Systems. Intelligent Transport Systems – Parking, Non-Motorized Transport system (Bicycle etc.) Last-mile connectivity systems, Real-Time Transport Information Systems (Dashboard etc.) Tools and Systems for Real-time Environment Information Capture and Display- Weather, Ambient Air Quality etc. Examples: Cline line modelling, Box Modelling, PLC (Programmable Logic Controllers)	5 hrs @ each class

ARCH 905: Core Elective IV (Part A) Minor

Course Core	Course Area	Course Typology	Course Code	Course Name	EXAMINATION SCHEME					TOTAL MARKS	TEACHING SCHEME/WEEK			CREDITS
					THEORY			STUDIO			L	T	S	
					End Sem University Exam (50%OR 40%)	Two Term Exam (20%)	Teachers Assessment* (30%OR 20%)	End Sem University Exam (50%OR 10%)	Teachers Assessment* (50%OR 10%)					
SEC	PR	THEORY CUM STUDIO	ARCH 905	CORE ELECTIVE IVA				50	50	100			2	2

Legends: **L** - Lecture; **T** - Tutorial/Teacher Guided Student Activity; **S** – Studio; **C** - Credit;

Teacher Assessment shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

Actuators etc. Undertaking a Holistic Project Design based upon learnings from previous units.

Introduction & Background, Overview of Smart City Concept. Smart Growth, Smart Urbanism, Smart Networks, Real-Time Sensing Technologies etc. The role of technology, data and urban analytics in managing urban transformation, addressing public delivery services, businesses, institutions and other stakeholders of the city. Public systems (ULB, state, federal government, NGO etc.) in developing smart cities, Standards and Data policy climate. The connections between Urban Innovation, Social Planning, Enterprise and Future Smart Cities, Finance and Global Circuits of Capital Flow (World Bank, ADB etc.) in Smart approaches. Challenges to Smart Cities- Social Acceptability and Sustainability, Monitoring and tooling of Smart Infrastructure.

- Introduction: Concepts of Reduce, Reuse & Recycle; Environmental Legislations; Climate change Protocols & Conventions;
- Passive Systems:
- Energy Systems:
- Water Management

Sessional work:

Guidelines Assignments /Tasks are to be set from the entire syllabus; The topic of the project is to be displayed on the Institute Notice Board fifteen days - a week time in advance OF the commencement of the classes

Continuous Evaluation shall be made of students' work based on various models, sketch assignments, and market surveys.

One Major And the rest minor tasks are to be set from the entire syllabus

Assignments: Emphasis should be laid on understating the Principle that continuous evaluation shall be made of students' work based on various models, assignments and sketching.

Note: Evaluation is to be done through viva voce by an external examiner appointed by the university at the Institute. Portfolios, after the university exam, shall be retained at the Institute level for the viva-voice

Suggested Readings:

Arvind Krishnan & Others – Climate Responsive Architecture, Tata Mcgraw –Hill New Delhi 2001.
Lawson. B, Building Materials, Energy And The Environment; Towards Ecologically Sustainable Development Raia, Act, 1996
Ralph M.Lebens – Passive Solar Architecture in Europe – 2, Architecture Press, London 1983.
Sandra Mendler, William Odell, The Guide Book Of Sustainable Design, John Wiley & Sons, 2000.
Sustainable design manual, Vols 1& 2, The energy and Resource Institute, New Delhi.
Stimmel, C. L. (2015). Building smart cities: analytics, ICT, and design thinking. Auerbach Publications.
Idris, M. Y. I., Leng, Y. Y., Tamil, E. M., Noor, N. M., & Razak, Z. (2009). Car park system: a review of the smart parking system and its technology. Information Technology Journal, 8(2), 101-113.
Khedo, K. K., Perseedoss, R., & Mungur, A. (2010). A wireless sensor network air pollution monitoring system. arXiv preprint arXiv:1005.1737.
Geertman, S., Ferreira, J., Goodspeed, R., & Stillwell, J. C. H. (Eds.). (2015). Planning support systems and smart cities. Switzerland: Springer.
Shepard, M. (2011). Sentient City: Ubiquitous computing, architecture, and the future of urban space. The MIT Press.
Goldsmith, S., & Crawford, S. (2014). The Responsive City: Engaging Communities Through Data-Smart Governance. John Wiley & Sons.
Mele, N. (2013). The end of big: How the Internet Makes David the New Goliath. Macmillan
Stimmel, C. L. (2015). Building smart cities: analytics, ICT, and design thinking. Auerbach Publications.
Townsend, A. M. (2013). Smart cities: Big data, civic hackers, and the quest for a new utopia. WW Norton & Company

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ARCH 905.3. Introduction to GIS

ARCH 905: Core Elective IV (Part A) Minor

Course Core	Course Area	Course Typology	Course Code	Course Name	EXAMINATION SCHEME					TOTAL MARKS	TEACHING SCHEME/WEEK			CREDITS
					THEORY			STUDIO			L	T	S	
					End Sem University Exam (50%OR 40%)	Two Term Exam (20%)	Teachers Assessment* (30%OR 20%)	End Sem University Exam (50%OR 10%)	Teachers Assessment* (50%OR 10%)					
SEC	PR	THEORY CUM STUDIO	ARCH 905	CORE ELECTIVE IVA				50	50	100			2	2

Legends: **L** - Lecture; **T** - Tutorial/Teacher Guided Student Activity; **S** – Studio; **C** - Credit;

Teacher Assessment shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

Course Educational Objectives (CEOs):
Understand the basics of GIS

Course outcomes (COs):

At the end of the course, students will be able to	Learn about GIS as an advanced socio-economic planning and management tool
Expected Skills / Knowledge Transferred:	Integrate barrier elements in the design of buildings
Focus: Manual Skills	The student will learn different methods and techniques to represent an idea & thoughts The student will have various representation techniques at her disposal Use of presentation software

Course Overview:
Application of GIS in the spatial analysis and design process

Course Contents:

Unit	Syllabus: Topic	Subtopic	Teaching Hours:
	Introduction TO GIS	Concept of GIS, Definition, History, Components of GIS, Advantages of GIS	5 hrs @ each class
	Fundamentals of GIS	The function of GIS, Basic database: visual and numerical, software applications for GIS: ArcGIS & ArcView	
	GIS applications in planning and design	Tools and techniques for analysis in GIS, presentation. Socio-economic and demographic analysis, Settlement planning: regional and urban planning. Natural resource management, other management applications	

Sessional work:

Guidelines Assignments /Tasks are to be set from the entire syllabus; The topic of the project is to be displayed on the Institute Notice Board fifteen days - a week time in advance OF the commencement of the classes
Continuous Evaluation shall be made of students' work based on various models, sketch assignments, and market surveys.
One Major And the rest minor tasks are to be set from the entire syllabus

Assignments: Emphasis should be laid on understating the Principle that continuous evaluation shall be made of students' work based on various models, assignments and sketching

Note: Evaluation is to be done through viva voce by an external examiner appointed by the university at the Institute. Portfolios, after the university exam, shall be retained at the Institute level for the viva-voice

Suggested Readings:

Davis, B. E. (2001). GIS: a visual approach. Albany, NY: Delmar Thomson Learning.
Grinderud, K. (2009). GIS: the geographic language of our age. Trondheim: Tapir Academic Press.
Hanna, K. C., & Culpepper, R. B. (1998). GIS and site design: new tools for design professionals. New York: Wiley.
Korte, G. (2001). The GIS book. Australia: Onward Press.

ARCH 905.4. MOOC

Course Educational Objectives (CEOs):
overall nurturing of the student with issues in practice and field outside

Course outcomes (COs):

ARCH 905: Core Elective IV (Part A) Minor

Course Core	Course Area	Course Typology	Course Code	Course Name	EXAMINATION SCHEME					TOTAL MARKS	TEACHING SCHEME/WEEK			CREDITS
					THEORY			STUDIO			L	T	S	
					End Sem University Exam (50%OR 40%)	Two Term Exam (20%)	Teachers Assessment* (30%OR 20%)	End Sem University Exam (50%OR 10%)	Teachers Assessment* (50%OR 10%)					
SEC	PR	THEORY CUM STUDIO	ARCH 905	CORE ELECTIVE IVA				50	50	100			2	2

Legends: **L** - Lecture; **T** - Tutorial/Teacher Guided Student Activity; **S** – Studio; **C** - Credit;

Teacher Assessment shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

At the end of the course, students will be able to	The student will learn different methods and techniques to represent an idea & thoughts The student will have various representation techniques at her disposal The student will be able to represent a design idea 3 dimensionally Use of presentation software
Expected Skills / Knowledge Transferred: Focus: Manual Skills	Dexterity; Knowledge of materials and their properties; craft skills; visualization skills; The student will learn different methods and techniques to represent an idea & thoughts The student will have various representation techniques at her disposal The student will be able to represent a design idea 3 dimensionally Use of presentation software

Course Overview:

The following is a representative list of what may :

Tutorials/ additional classes for any course on online mode of platforms, Provides knowledge to support student being sensitive to design;

- a paper presentation

Course Contents:

Unit	Syllabus: Topic	Subtopic	Teaching Hours:
	• The creative MOOC provide an opportunity to access a different form of architecture related to imagination, visualization & creation. They offer the experience of unique ingenuity, theory or workmanship. The essence of the creative domain can be achieved by exploring different materials, techniques, and processes; developing creative products/theories; finishing & presenting the product for the concepts evolved. The outcome will be through portfolio & presentations. Where these workshops or MOOCs help them explore the different topics relevant to individual interests and in the palette of choices for the semester		

Sessional work:

Guidelines	Assignments /Tasks are to be set from the entire syllabus; The topic of the project is to be displayed on the Institute Notice Board fifteen days - a week time in advance OF the commencement of the classes Continuous Evaluation shall be made of students' work based on various models, sketch assignments, and market surveys. One Major And the rest minor tasks are to be set from the entire syllabus
Assignments:	Site Studies – Plot, site, land and regions, size and shape of the site, Analysis of accessibility, Topography, Climate, landforms, Surface Drainage, Soil, Water, Vegetation, Ecology, and Visual aspects.
Note:	Evaluation is to be done through viva voce by an external examiner appointed by the university at the Institute. Portfolios, after the university exam, shall be retained at the Institute level for the viva-voice

ARCH 906: Core Elective V (Part A) /Minor

Course Core	Course Area	Course Typology	Course Code	Course Name	EXAMINATION SCHEME					TOTAL MARKS	TEACHING SCHEME/WEEK			CREDITS
					THEORY			STUDIO			L	T	S	
					End Sem University Exam (50%OR 40%)	Two Term Exam (20%)	Teachers Assessment* (30%OR 20%)	End Sem University Exam (50%OR 10%)	Teachers Assessment* (50%OR 10%)					
SEC	PR	THEORY CUM STUDIO	ARCH 906	CORE ELECTIVE V A				50	50	100			2	2

Legends: **L** - Lecture; **T** - Tutorial/Teacher Guided Student Activity; **S** – Studio; **C** - Credit;

Teacher Assessment shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

ARCH 906: Core Elective V (Part A) /Minor

9 Sem	CORE ELECTIVE V (PART A)
906.1	Urbanism / Building Regulations
906.2	Geometry in architecture
906.3	Social Entrepreneurship
906.4	MOOC:Sustainable Building Design (edX)

ARCH 007: 1. Urbanism

Course Educational Objectives (CEOs):

Knowledge about the various codes of the built environment especially influences architecture and development.
To study Habitat Design and the scope of impact and participation. To identify the characteristics and mass sensitivity to the discourse
To identify the mass behaviour and design for the Mass concept. To understand the concept of units in a Community
During the last several years, there has been substantial and important growth in the application of quantitative analysis, i.e., operations research/management science, statistics, and related arenas, to interdisciplinary problems arising in the area of socio-economic planning and development. The module aims to highlight the importance of socio-economic aspects and methodologies. To study the process of quantification and assessment in planning processes. To understand the importance of Vulnerability indexing as a beginning to attain resilience as an objective. To understand various Neo-modernist urban strategies as the call of need and time. To examine and understand the current strategies on account of efficiency and productivity to humans. To understand environmental sensitivity in terms of socio-economic betterment. To read and examine various participant elements contributing to environmental design. To understand the word self-sufficient as a sustainable concept. To Identify various resources and elements of planning for self-sufficiency.

Course outcomes (COs):

At the end of the course, students will be able to	The student will develop sensitivity towards built terms of regulations and codes The student will develop the capacity for Critical appraisal of the status of buildings
Expected Skills / Knowledge Transferred:	to codes and regulations of built environment importance
Focus: Manual Skills	To develop an understanding of the duties, importance and liabilities of an architect along with knowledge of bye-laws that relate to the building and the environment in the Indian context

Course Contents:

Unit	Syllabus: Topic	Subtopic	Teaching Hours:
		• To understand the Dynamics of the Units To understand the role of Government in the policy-making Basics of Habitat Design Terminologies; Stakeholders & their role in the process of Habitat Design; Habitat Design as a Multidisciplinary field; Necessity & benefits of quality Habitat design; Scope, strategies, levels, legislation & scale of Habitat Design. People's Perception: Users and activities in a city and their analysis. Behavioural studies and user needs. Socio-cultural and socio-economic aspects. Different zones and activities in an urban area. Memory and mental mapping, the Five Elements in a city. People-centric design and public participation. Anatomy of an Urban Area: Urban morphology & urban character; Elements & aspects of Urban Design; Built & Unbuilt spaces; Buildings, public spaces, streets & transport; pedestrianization & streetscape; movement pattern; services; safety & sensitive urban development – defensible spaces. Nature and urban design - open spaces; Environment & urban design. Overview of housing: Concept of shelter, Timeline, Dynamics of housing- users, need, supply & demography &, providers, economic forces, terminologies; migration, urbanization, scale, scope, types & ownership; construction industry, current trends, realty sector. Housing Issues: Significance in National Development; Urban & Rural housing in India: statistics, problems-slums, shortage etc., Issues, Challenges; Current scenario; Planning principles & policies; Demography &, Role of different institutions; Stakeholder analysis, current typologies, appropriate housing requirements, best practices. • Introduction to Socio-Economic aspect of Planning Importance of	5 hrs @ each class

ARCH 906: Core Elective V (Part A) /Minor

Course Core	Course Area	Course Typology	Course Code	Course Name	EXAMINATION SCHEME					TOTAL MARKS	TEACHING SCHEME/WEEK			CREDITS
					THEORY			STUDIO			L	T	S	
					End Sem University Exam (50%OR 40%)	Two Term Exam (20%)	Teachers Assessment* (30%OR 20%)	End Sem University Exam (50%OR 10%)	Teachers Assessment* (50%OR 10%)					
SEC	PR	THEORY CUM STUDIO	ARCH 906	CORE ELECTIVE V A				50	50	100			2	2

Legends: **L** - Lecture; **T** - Tutorial/Teacher Guided Student Activity; **S** – Studio; **C** - Credit;

Teacher Assessment shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

social-economic perspective and outcomes. Holistic development and socio-economic inclusions. Existing cases as examples and frameworks. Indexing principles methodologies - Introduction to Social and economic resilience indexing; introduction to social and economic vulnerability indexing; inter-relation of resilience and vulnerability Introduction to Neo modernist Urban strategies concerning current issues; Human-Centric Development through the perspective of Socio-Economic paradigm. Role of Communication and technology in planning evolution and habitat management; Impact assessment Environmental Sustainability & Socio-Economic Planning Form & ecology, footprint assessments; waste management; assessment of services; environmental ecology. Self Sufficiency and attributes Concept of Self Sufficiency in planning. Core area identification- Information, Matter, Water, Mobility, Energy, Buildings, nature; Identification of consumers in terms of Housing, facilities, public space and tertiary consumptions; Waste as a resource.

Sessional work:

Guidelines Assignments /Tasks are to be set from the entire syllabus; The topic of the project is to be displayed on the Institute Notice Board fifteen days - a week time in advance OF the commencement of the classes

Continuous Evaluation shall be made of students' work based on various models, sketch assignments, and market surveys.

One Major And the rest minor tasks are to be set from the entire syllabus

Assignments: Emphasis should be laid on understating building evolution and form and influencing built form. The continuous evaluation shall be made of students' work based on various models, assignments and sketching

Note: Evaluation is to be done through viva voce by an external examiner appointed by the university at the Institute. Portfolios, after the university exam, shall be retained at the Institute level for the viva-voice

Suggested Readings:

Banerjee Tridib Southworth Michael, (1990), City Sense and City Design, M I T Press
Broadbent Geoffrey, (1990), Emerging concepts in urban space design, Van Nostrand Reinhold, London.
Caminos Horacio; Goethert Reinhard, (1983), Urbanization Primer, M I T Press
Catanese Anthony J; Snyder James C;(1979), Introduction to urban planning, McGraw Hill
Watson Donald; others,(2003) Time saver standards for urban design, McGraw Hill, NY
Basics Urban Building Blocks By Thorsten Bürklin, Michael Peterek
The Image of the City by Kevin Lynch (1960)
A Pattern Language: Towns, Buildings, Construction by Christopher Alexander, Sara Ishikawa, and Murray Silverstein
The Urban Design Reader edited by Michael Larice, Elizabeth Macdonald
Urban Development in India by Kamaldeo Narain Singh
Shelter for the Rural Poor by Joseph P. John, N. Sridharan
Bramley, G., & Power, S. (2009). Urban form and social sustainability: the role of density and housing type. Environment and Planning B: Planning and Design, 36(1), 30-48. 2. Frey, H. (2003). Designing the city: Towards a more sustainable urban form. Taylor & Francis. 3. Dizdaroglu, D., Yigitcanlar, T., & Dawes, L. (2012). A micro-level indexing model for assessing urban ecosystem sustainability. The smart and sustainable built environment, 1(3), 291-315. 4. Oktay, D. (2012). Human sustainable urbanism: In pursuit of ecological and social-cultural sustainability. Procedia-Social and Behavioral Sciences, 36, 16-27. 5. Knox, P., & Pinch, S. (2014). Urban social geography: an introduction. Routledge. 6. Manzi, T., Lucas, K., Jones, T. L., & Allen, J. (Eds.). (2010). Social sustainability in urban areas: communities, connectivity and the urban fabric. Routledge. 7. Shaftoe, H. (2012). Convivial urban spaces: Creating effective public places. Routledge. 8. Aurigi, A. (2016). Making the digital city: the early shaping of urban internet space. Routledge.

ARCH 906.1 Building Regulations

Course Educational Objectives (CEOs):

Students will understand the role and function of various statutory authorities responsible for the development of the city.

Course outcomes (COs):

ARCH 906: Core Elective V (Part A) /Minor

Course Core	Course Area	Course Typology	Course Code	Course Name	EXAMINATION SCHEME					TOTAL MARKS	TEACHING SCHEME/WEEK			CREDITS
					THEORY			STUDIO			L	T	S	
					End Sem University Exam (50%OR 40%)	Two Term Exam (20%)	Teachers Assessment* (30%OR 20%)	End Sem University Exam (50%OR 10%)	Teachers Assessment* (50%OR 10%)					
SEC	PR	THEORY CUM STUDIO	ARCH 906	CORE ELECTIVE V A				50	50	100			2	2

Legends: **L** - Lecture; **T** - Tutorial/Teacher Guided Student Activity; **S** – Studio; **C** - Credit;

Teacher Assessment shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

At the end of the course, students will be able to	Students will learn basic legal definitions related to building.
Expected Skills / Knowledge Transferred:	Students will learn to build bye-laws.
Focus: demonstrate knowledge and understanding	Students will learn the procedure of sanctioning the building plan

Course Overview:

• Students will learn to build bye-laws ; Students will learn the procedure of sanctioning the building plan

Course Contents:

Unit	Syllabus: Topic	Subtopic	Teaching Hours:
		• Building Code • Use and occupancy • Building Heights and Areas • Types of Construction • Methods and rules for submitting plans to the Local Authority for approval • Notations used in the drawings to be submitted • General Requirements for Development of Land in Urban Area • Special Development Requirements for Existing Nucleus • Special Development requirement for other (Revenue Survey Numbers) areas • Width of Roads as per their length, Common Plot, Uses not permissible as per the road widths in Development Plan, Minimum Area of a Building Unit (Plot), Floor Space Index, Margins as per the road widths, Margins as per the size of the plot, Open Space for high rise buildings, Projections in Margins, Compound walls and gates, Distance from Water Courses, Nalas, Rivers Kans, Elaborate description about Parking Rules including parking layouts, etc. • Additional Regulations / Bye-Laws for special structures • Open spaces. Minimum requirements, Doors, Plinths, Corridors, Balconies, Aisles, Sanitary Accommodations	5 hrs @ each class

Sessional work:

Guidelines Assignments /Tasks are to be set from the entire syllabus; The topic of the project is to be displayed on the Institute Notice Board fifteen days - a week time in advance OF the commencement of the classes

Continuous Evaluation shall be made of students' work based on various models, sketch assignments, and market surveys.

One Major And the rest minor tasks are to be set from the entire syllabus

Assignments: Emphasis should be laid on understating the Principle that continuous evaluation shall be made of students' work based on various models, assignments and sketching

Note: Evaluation is to be done through viva voce by an external examiner appointed by the university at the Institute. Portfolios, after the university exam, shall be retained at the Institute level for the viva-voice

Suggested Readings:

Administrative Reforms since Independence. Supplement to the Indian Journal of Public Administration, Vol. 9, No. 3, July-September, 1963. New Delhi: L.P. Singh for the Indian Institute of Public Administration, 1964. Print.

- Ahluwalia, Isher Judge, S. M. Ravi. Kanbur, and P. K. Mohanty. Urbanisation in India: Challenges, Opportunities and the Way Forward. Print.
- Patel, Shirish B., and Aromar Revi. Recovering from Earthquakes: Response, Reconstruction, and Impact Mitigation in India. New Delhi: Routledge, 2010. Print.
- Repair and Rehabilitation: Compilation from the Indian Concrete Journal. Thane, India: Research & Consultancy Directorate, Associated Cement Companies, 2001. Print.
- Schroeder, Horst. Sustainable Building with Earth. Print.
- Prasad, R. N. Urban Local Self-government in India: Concerning the North-eastern States. New Delhi: Mittal Publications, 2006. Print.
- Building India Brick-by-brick: Comprehensive Compilation on Construction Industry. Ahmedabad: Saket Projects, 2001. Print. 8. Shaw, Rajib, and R. R. Krishnamurthy. Disaster Management: Global Challenges and Local Solutions. Himayatnagar, India: Universities, 2009. Print.

ARCH 906: Core Elective V (Part A) /Minor

Course Core	Course Area	Course Typology	Course Code	Course Name	EXAMINATION SCHEME					TOTAL MARKS	TEACHING SCHEME/WEEK			CREDITS
					THEORY			STUDIO			L	T	S	
					End Sem University Exam (50%OR 40%)	Two Term Exam (20%)	Teachers Assessment* (30%OR 20%)	End Sem University Exam (50%OR 10%)	Teachers Assessment* (50%OR 10%)					
SEC	PR	THEORY CUM STUDIO	ARCH 906	CORE ELECTIVE V A				50	50	100			2	2

Legends: **L** - Lecture; **T** - Tutorial/Teacher Guided Student Activity; **S** – Studio; **C** - Credit;

Teacher Assessment shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

- National Building Code of India, 1983. New Delhi: Institution, 1984. Print.
- All India Standard Schedule of Rates, 1977. New Delhi: Govt. of India, Ministry of Works & Housing, National Buildings Organisation and UN Regional Housing Centre, ESCAP, 1978. Print.
- Reinforced Concrete Design: Principles and Practice. New Age International (P) Ltd., 2003. Print.
- Lal, A. K. Hand Book of Low-Cost Housing. New Delhi: New Age International, 1996. Print.
- Ching, Francis D. K., and Steven R. Winkel. Building Codes Illustrated: A Guide to Understanding the 2006 International Building Code. Hoboken, NJ: John Wiley & Sons, 2007. Print. **Thornburg, Douglas W., and Roger Mensink. 2003 International Building Code Study Companion. Country Club Hills, IL:** International Code Council, 2004. Print.
- International Building Code 2015. Country Club Hills, IL: ICC, 2014. Print.
- International Building Code. Falls Church, VA: International Code Council, 2006. Print.
- Gibson, David. The Wayfinding Handbook: Information Design for Public Places. New York: Princeton Architectural, 2009. Print.
- Allen, Edward, and Joseph Iano. The Architect's Studio Companion: Rules of Thumb for Preliminary Design. New York: Wiley, 2002. Print.
- Deobhakta, Madhav, and Meera Deobhakta. Architectural Practice in India. New Delhi: Council of Architecture, 2007. Print.

ARCH 906.2 Geometry In Architecture

Course Educational Objectives (CEOs):

Students will be able to solve applied problems involving the areas and perimeters of polygons and circles and the surface areas and volumes of spheres, cylinders, cones and other solids.

Course outcomes (COs):

At the end of the course, students will be able to	The student will learn different methods and techniques to represent an idea & thoughts The students will understand the topics in mathematics necessary for an effective understanding of architecture subjects. At the end of the course, the students would know the appropriate role of the mathematical concepts learnt.
Expected Skills / Knowledge Transferred:	Dexterity; Knowledge of materials and their properties; craft skills; visualization skills;
Focus: demonstrate knowledge and understanding	The student will learn different methods and techniques to represent an idea & thoughts The student will have various representation techniques at her disposal The student will be able to represent a design idea 3 dimensionally Use of presentation software

Course Overview:

instil an interest and the student shall - demonstrate knowledge and understanding in the main field of study, including both broad knowledge of the field.

Course Contents:

Unit	Syllabus: Topic	Subtopic	Teaching Hours:
	Geometry in architecture	Points: The Distance and Midpoint Formulas, Graphs of Equations in Two Variables: Intercepts, Symmetry, Lines: Slope of a line, Graphing a Line, Parallel Lines, Perpendicular Lines : Circles: Standard Form of the Equation of a Circle, Graphing a Circle, Finding the Intercepts of a Circle Planes: Lines and Planes : Area: Area of Squares, Rectangles, Parallelograms, Triangles, Circles, Sectors and Circle Segments : Conics: The Parabola, Ellipse, Hyperbola: Volume and Area of Solid Objects: Prisms, Pyramids, Cylinders, Cones, Spheres, Cubes: Projective Geometry:	5 hrs @ each class

ARCH 906: Core Elective V (Part A) /Minor

Course Core	Course Area	Course Typology	Course Code	Course Name	EXAMINATION SCHEME					TOTAL MARKS	TEACHING SCHEME/WEEK			CREDITS
					THEORY			STUDIO			L	T	S	
					End Sem University Exam (50%OR 40%)	Two Term Exam (20%)	Teachers Assessment* (30%OR 20%)	End Sem University Exam (50%OR 10%)	Teachers Assessment* (50%OR 10%)					
SEC	PR	THEORY CUM STUDIO	ARCH 906	CORE ELECTIVE V A				50	50	100			2	2

Legends: **L** - Lecture; **T** - Tutorial/Teacher Guided Student Activity; **S** – Studio; **C** - Credit;

Teacher Assessment shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

Introduction, Projectivities, Perspectivities, The Principle of Duality, Elementary Properties of Points and Lines, The Theorem of Desargues and Pappus, Conics, The Intersection of a Line and a Conic, Desargues' Conic Theorem, Applications

Sessional work:

Guidelines

Assignments /Tasks are to be set from the entire syllabus; The topic of the project is to be displayed on the Institute Notice Board fifteen days - a week time in advance OF the commencement of the classes

Continuous Evaluation shall be made of students' work based on various models, sketch assignments, and market surveys.

1.Students will be able to solve applied problems involving the areas and perimeters of polygons and circles and the surface areas and volumes of spheres, cylinders, cones and other solids.

2. Students will become proficient in applying the basic trigonometric identities and in solving right and oblique triangles.

3. Students will learn to plot in Cartesian and polar coordinates and to convert equations from Cartesian to polar coordinates and vice versa.

4. Students will learn to measure distances in 3-space with Cartesian and spherical coordinates, locate the shadow of a body based on the solar azimuth and solar elevation angles, and find the angular velocity of a rotating body and the linear speed of a point on such a body.

5. Students will learn to graph the conic sections, find their tangent lines, and find the equations of the rotations and translations of these curves.

6. Students will learn to find the distance from a point to a line, find the angles between pairs of lines and determine the slopes of angle bisectors.

One Major And the rest minor tasks are to be set from the entire syllabus

Assignments: Emphasis should be laid on understating the Principle that continuous evaluation shall be made of students' work based on various models, assignments and sketching

Note: Evaluation is to be done through viva voce by an external examiner appointed by the university at the Institute. Portfolios, after the university exam, shall be retained at the Institute level for the viva-voice

Suggested Readings:

https://worldslargestlesson.globalgoals.org/

The six trigonometric functions, solving right and oblique triangles.

Solar geometry: the location of shadows on the ground due to the angle of the sun.

The longitudinal/latitudinal geographic coordinate system and the 3-dimensional Cartesian coordinate system. Calculating surface distances on the earth.

Trigonometric functions of a general angle, the fundamental trig identities, plotting trig functions in Cartesian and polar coordinates

Analytic geometry: the slopes and inclinations of straight lines, the angles between intersecting lines, and the conic sections.

ARCH 906.3: SOCIAL ENTREPRENEURSHIP

Course Educational Objectives (CEOs):

Understand the theory and practice of social entrepreneurship and its potential as a transformative model of social change

Understand the characteristics of successful social entrepreneurship and engage with the people who make this happen

Learn and apply skills to constructively critique an organization's strategies and assess related challenges, barriers and opportunities to realize its goal.

Develop "an entrepreneurial imagination."

Course outcomes (COs):

At the end of the course, students will be able to

The student will learn different methods and techniques to represent an idea & thoughts

The student will have various representation techniques at her disposal

The student will be able to represent a design idea 3 dimensionally

Use of presentation software

ARCH 906: Core Elective V (Part A) /Minor

Course Core	Course Area	Course Typology	Course Code	Course Name	EXAMINATION SCHEME					TOTAL MARKS	TEACHING SCHEME/WEEK			CREDITS
					THEORY			STUDIO			L	T	S	
					End Sem University Exam (50%OR 40%)	Two Term Exam (20%)	Teachers Assessment* (30%OR 20%)	End Sem University Exam (50%OR 10%)	Teachers Assessment* (50%OR 10%)					
SEC	PR	THEORY CUM STUDIO	ARCH 906	CORE ELECTIVE V A				50	50	100			2	2

Legends: **L** - Lecture; **T** - Tutorial/Teacher Guided Student Activity; **S** – Studio; **C** - Credit;

Teacher Assessment shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

Expected Skills / Knowledge Transferred:	This syllabus is organized to mimic the social-entrepreneurial process, with units designed around a cumulative set of decisions that every social entrepreneur addresses on the path to launching a venture. Students will learn how to define & understand a target problem and situate it in a larger context, how social systems work and the strategies that can transform them, and become acquainted with a set of building blocks for structuring a social entrepreneurship organization.
Focus: Manual Skills	The student will learn different methods and techniques to represent an idea & thoughts The student will have various representation techniques at her disposal

Course Overview:

Social Entrepreneurship, engages students in the process of exploring significant global problems and developing innovative solutions that drive transformative social change. The course helps students understand some of the strategies that social entrepreneurs employ to create high-impact ventures, highlighting unique models for social problem-solving that offer bold solutions to complex and entrenched societal issues.

Social entrepreneurs address problems where the government, private sector, and traditional non-profit sector fail to achieve systemic impact. The course considers the full spectrum of social business models, including strictly non-profit organizations, enterprises developing revenue-generating products or services for a social goal, and socially responsible for-profit companies. The course takes a global perspective, including organizations from Providence, around the US, and abroad.

Students will learn about real organizations and interact with entrepreneurs leading this work. Case studies, complemented by articles and guest speakers, will show different approaches to social entrepreneurship and illustrate the strengths and weaknesses of various models and strategies. The course demands active participation from each student and includes written assignments where students apply the methodological frameworks presented in each unit.

Course Contents:

Unit	Syllabus: Topic	Subtopic	Teaching Hours:
		Problem Definition -- What exactly is the problem I seek to solve? What are its boundaries? Systems Change -- What is the system that the problem exists within? Where in this system would it be best for me to intervene for maximum impact? Ethics --How can I ethically treat my target population? How can I ethically distribute resources? Evaluation -- How do I know that I am achieving my target impact? Business Models -- What are the different organizational structures & funding options? What are the implications for selecting each? Scaling -- How can I expand my transformative solution and reach more people? What are strategies for exponentially changing the relationship between resources and social impact?	5 hrs @ each class
I	**Course Introduction**	What is Social Entrepreneurship? Assignment: Read Osberg & Martin's Social Entrepreneurship: The Case for Definition & When Good is Not Good Enough (both available on Canvas) before attending the first class on September 8. Come to class ready to share your definition of social entrepreneurship – and why it's needed.	
II	**Problem Definition**	Framework for Problem Definition Case: Capital Good Fund, Andy Posner Case: Con Body, Coss Marte Assignment Due - Problem Definition	
	Systems Change	Framework for Systems Change: Mark Kravatz, Optimal Energy Resources	

		Case: Generation Citizen, Scott Warren Case: GirlTrek, Morgan Dixon (Invited) Assignment Due: Systems Change
III	**Ethics In Social Entrepreneurship**	Framework for Ethics in Social Entrepreneurship. Case: Good Fortune & Starbucks Case: Warby Parker & Toms Shoes Assignment Due: Ethics in Social Entrepreneurship
	Evaluation	Framework for Evaluation, Han Sheng Chia of Give Directly Case: YearUp, George Nippo Case: City Year, Christine Morin Assignment Due: Evaluation
IV	**Business Models**	Framework for Business Models, Case: Embrace Case: Runa, Tyler Gage Assignment Due: Business Models
V	**Strategies To Spread Impact**	Framework for Strategies to Spread Impact, Al Etmanski Case: One Acre Fund, Jennie Calhoun Case: Pay for Performance, Diane Lynch Case: FORCE, Jyoti Sharma Case: Eye to Eye, Dave Flink "Connecting-the-Dots" Assignment Due: Strategies to Spread Impact Class Wrap-Up Final Paper Due:

Sessional work:

Guidelines Assignments /Tasks are to be set from the entire syllabus; The topic of the project is to be displayed on the Institute Notice Board fifteen days - a week time in advance OF the commencement of the classes
Continuous Evaluation shall be made of students' work based on various models, sketch assignments, and market surveys.
One Major And the rest minor tasks are to be set from the entire syllabus

Assignments: Assignments based on syllabus

Note: Evaluation is to be done through viva voce by an external examiner appointed by the university at the Institute. Portfolios, after the university exam, shall be retained at the Institute level for the viva-voice

Suggested Readings:

Etmanski, Al. Impact: Six Patterns to Spread Your Social Innovation. Orwell Cove. 2015 ($18) (Available at Amazon (Links to an external site.).
Martin, Roger L., Osberg, Sally R. Getting Beyond Better: How Social Entrepreneurship Works. Harvard Business Review Press, 2015 ($30)
CoursePak must be purchased from HBS using this link (Links to an external site.) (Estimated cost $13)
All additional readings will be posted on Canvas in the applicable Module

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ARCH 905.4. MOOC

Course Educational Objectives (CEOs):

overall nurturing of the student with issues in practice and field outside

Course outcomes (COs):

At the end of the course, students will be able to

The student will learn different methods and techniques to represent an idea & thoughts
The student will have various representation techniques at her disposal
The student will be able to represent a design idea 3 dimensionally
Use of presentation software

ARCH 906: Core Elective V (Part A) /Minor

Course Core	Course Area	Course Typology	Course Code	Course Name	EXAMINATION SCHEME					TOTAL MARKS	TEACHING SCHEME/WEEK			CREDITS
					THEORY			STUDIO			L	T	S	
					End Sem University Exam (50%OR 40%)	Two Term Exam (20%)	Teachers Assessment* (30%OR 20%)	End Sem University Exam (50%OR 10%)	Teachers Assessment* (50%OR 10%)					
SEC	PR	THEORY CUM STUDIO	ARCH 906	CORE ELECTIVE V A				50	50	100			2	2

Legends: **L** - Lecture; **T** - Tutorial/Teacher Guided Student Activity; **S** – Studio; **C** - Credit;

Teacher Assessment shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

Expected Skills / Knowledge Transferred: Dexterity; Knowledge of materials and their properties; craft skills; visualization skills;

Focus: Manual Skills

The student will learn different methods and techniques to represent an idea & thoughts
The student will have various representation techniques at her disposal
The student will be able to represent a design idea 3 dimensionally
Use of presentation software

Course Overview:

The following is a representative list of what may :
Tutorials/ additional classes for any course on online mode of platforms, Provides knowledge to support student being sensitive to design;

- a paper presentation

Course Contents:

Unit	Syllabus: Topic	Subtopic	Teaching Hours:
	• The creative MOOC provide an opportunity to access a different form of architecture related to imagination, visualization & creation. They offer the experience of unique ingenuity, theory or workmanship. The essence of the creative domain can be achieved by exploring different materials, techniques, and processes; developing creative products/theories; finishing & presenting the product for the concepts evolved. The outcome will be through portfolio & presentations. Where these workshops or MOOCs help them explore the different topics relevant to individual interests and in the palette of choices for the semester		

Sessional work:

Guidelines

Assignments /Tasks are to be set from the entire syllabus; The topic of the project is to be displayed on the Institute Notice Board fifteen days - a week time in advance OF the commencement of the classes
Continuous Evaluation shall be made of students' work based on various models, sketch assignments, and market surveys.
One Major And the rest minor tasks are to be set from the entire syllabus

Assignments:

Site Studies – Plot, site, land and regions, size and shape of the site, Analysis of accessibility, Topography, Climate, landforms, Surface Drainage, Soil, Water, Vegetation, Ecology, and Visual aspects.

Note:

Evaluation is to be done through viva voce by an external examiner appointed by the university at the Institute. Portfolios, after the university exam, shall be retained at the Institute level for the viva-voice

ARCH 908: Building Project Management

Course Core	Course Area	Course Typology	Course Code	Course Name	EXAMINATION SCHEME					TOTAL MARKS	TEACHING SCHEME/WEEK			CREDITS
					THEORY			STUDIO			L	T	S	
					End Sem University Exam (50%OR 40%)	Two Term Exam (20%)	Teachers Assessment* (30%OR 20%)	End Sem University Exam (50%OR 10%)	Teachers Assessment* (50%OR 10%)					
PA	AR	THEORY	ARCH 908	BUILDING PROJECT MANAGEMENT	50	20	30	20		100	2			2

Legends: **L** - Lecture; **T** - Tutorial/Teacher Guided Student Activity; **S** – Studio; **C** - Credit;

Teacher Assessment shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

ARCH 908: Building Project Management

Course Educational Objectives (CEOs):

To impart training in the preparation of working drawings for buildings with specific reference to the code of practice as per IS Code No. 962 of 1969 and incorporating specifications as complementary to the working drawings.
To sensitize the students in preparing finer design details required for buildings.
The student shall prepare a report consisting of the Detailed Structure Design of a building considering all safety factors including fire, earthquake, cyclone, floods, etc.
Report being prepared in bound form with drawings attached.

Course outcomes (COs):

At the end of the course, students will be able to	The student will learn different methods and techniques to represent an idea & thoughts
Expected Skills / Knowledge Transferred:	Prepare working drawings for a project and resolve complex aspects in the buildings with appropriate materials and design details
Focus: construction management Skills	To introduce the importance of construction management in the field of architecture.

Course Overview:

To introduce the importance of construction management in the field of architecture.

Course Contents:

Unit	Syllabus: Topic	Subtopic	Teaching Hours:
I	Introduction:	History; Stages involved; Project life cycle analysis; Role & responsibilities of the project manager; Areas of project management; Co-ordination of various teams involved in the project; Scheduling; Classification; Methods; Controlling & Lifecycle curves; Work breakdown structure.	5hrs
II	Project Management	Project Management through Networks: Network techniques; Interrelationship of events & activities; Dummy activities; Types of networks; Rules of drawing a network; Fulkerson's rule.	6hrs
III	Project management techniques:	Project management techniques: Program Evaluation & Review Technique; & Critical Path Method; Time Estimates; Networking with PERT models; Probability analysis.	6hrs
IV	Precedence Networks	Precedence Networks for Construction Projects: Representation of Nodes; Logic of Precedence diagram; Rules for drawing; Forward pass & backwards pass calculations.	6hrs
V	Time-Cost Relationship:	Time-Cost Relationship: Total Project Costs; Cost curve; Optimization of Cost through Network Contraction & steps involved; Cost control & cash flow; Case studies- Application of knowledge & understanding of project management tools.	7hrs

Sessional work:

Guidelines

Assignments /Tasks are to be set from the entire syllabus; The topic of the project is to be displayed on the Institute Notice Board fifteen days - a week time in advance OF the commencement of the classes
Continuous Evaluation shall be made of students' work based on various models, sketch assignments, and market surveys.
One Major And the rest minor tasks are to be set from the entire syllabus

Assignments:

Emphasis should be laid on understating building evolution and form. The continuous evaluation shall be made of students' work based on various models, assignments

ARCH 908: Building Project Management

Course Core	Course Area	Course Typology	Course Code	Course Name	EXAMINATION SCHEME					TOTAL MARKS	TEACHING SCHEME/WEEK			CREDITS
					THEORY			STUDIO			L	T	S	
					End Sem University Exam (50%OR 40%)	Two Term Exam (20%)	Teachers Assessment* (30%OR 20%)	End Sem University Exam (50%OR 10%)	Teachers Assessment* (50%OR 10%)					
PA	AR	THEORY	ARCH 908	BUILDING PROJECT MANAGEMENT	50	20	30	20		100	2			2

Legends: **L** - Lecture; **T** - Tutorial/Teacher Guided Student Activity; **S** – Studio; **C** - Credit;

Teacher Assessment shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

Note:

and sketching. Students shall prepare at least two structural drawing sets and design the structures, one for a small residence and one for a large building than the other
Evaluation is to be done through viva voce by an external examiner appointed by the university at the Institute. Portfolios, after the university exam, shall be retained at the Institute level for the viva-voice

Suggested Readings:

Gupta, B.L. and Gupta, Amit. Construction Management, Machinery and Accounts, 3rd ed. Standard Pub, 2005.
Loraine, R.K. Construction Management in Developing Countries. Thomas Telford, London, 1993.
Srinath, L.S. PERT and CPM Principles and Applications, 3rd ed. Affiliated East-West Press, New Delhi, 2003.
Singh, Harpal. Construction Management and Accounts 14th ed. Tata McGraw-Hill Pu b., New Delhi, 1981.
Gould, E. Frederick and Joyce, E. Nancy. Construction Project Management.Prentice-Hall, New Jersey, 2000.
Shrivastava, U.K. Construction Planning and Management, 3rd ed. Galgotia Pub., New Delhi, 2004.

ARCG 919: Elective – VIII

Course Core	Course Area	Course Typology	Course Code	Course Name	EXAMINATION SCHEME					TOTAL MARKS	TEACHING SCHEME/WEEK			CREDITS
					THEORY			STUDIO			L	T	S	
					End Sem University Exam (50%OR 40%)	Two Term Exam (20%)	Teachers Assessment* (30%OR 20%)	End Sem University Exam (50%OR 10%)	Teachers Assessment* (50%OR 10%)					
SEC	SU	THEORY /STUDIO	ARCG 919	ELECTIVE- VIII (POOL III)/ GENERIC	50	20	30	50		150			3	3

Legends: **L** - Lecture; **T** - Tutorial/Teacher Guided Student Activity; **S** – Studio; **C** - Credit;

Teacher Assessment shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

ARCG 919: Elective – VIII

9 sem	Elective VII
919.1	**Energy-Conscious Built Environment**

Course Educational Objectives (CEOs):
overall nurturing of the student with issues in practice and field outside

Course outcomes (COs):

At the end of the course, students will be able to	overall nurturing of the student with issues in practice and field outside
Expected Skills / Knowledge Transferred:	better grooming than just books and theories.
Focus: Manual Skills	The creative electives provide an opportunity to express talents that are different from architecture but related to imagination, visualization & creation. They offer hands-on experience of unique ingenuity & workmanship. The essence of a creative domain can be achieved by exploring different materials, techniques, and processes; developing creative products; and finishing & presenting the product for the concepts that evolved. The outcome will be through portfolio & presentations. As Per Pool Electives Choices Stage I odd semester pool

Course Overview:
The following is a representative list of Institute projects: Seminars, Tutorials/ additional classes for any course, Guest Lectures, Workshops, Providing knowledge to support students being sensitive to design;

Sessional work:

Guidelines	The topic of the project is to be displayed on the Institute Notice Board fifteen days in advance OF the commencement of the classes Assignments /Tasks are to be set from the entire syllabus; The topic of the project is to be displayed on the Institute Notice Board fifteen days - a week time in advance OF the commencement of the classes
Assignments:	One Major And the rest minor tasks are to be set from the entire syllabus Evaluation is to be done through viva voce by an external examiner appointed by the university at the Institute. Portfolios, after the university exam, shall be retained at the Institute level for the viva–voice
Note:	Evaluation: Stages: Proposal and on final submission of the paper /DOCUMENTATION of places visited Students contribute to the topic/area is of critical importance. Evaluation is to be done through viva voce, Portfolios after the university exam shall be retained at the Institute level for the viva–voice

ARCG 919: Energy-Conscious Built Environment

Course Educational Objectives (CEOs):
to change the way you think about energy and how this is spent within a building.
to develop the knowledge, skills and competence in the field of energy-efficient and environmental buildings for different climates.

Course outcomes (COs):

At the end of the course, students will be able to	overall nurturing of the student with issues in practice and field outside better grooming than just books and theories. the student shall - demonstrate the ability to critically and systematically integrate knowledge and

ARCG 919: Elective – VIII

Course Core	Course Area	Course Typology	Course Code	Course Name	EXAMINATION SCHEME					MARKS	TEACHING SCHEME/WEEK			CREDITS
					THEORY			STUDIO			L	T	S	
					End Sem University Exam (50%OR 40%)	Two Term Exam (20%)	Teachers Assessment* (30%OR 20%)	End Sem University Exam (50%OR 10%)	Teachers Assessment* (50%OR 10%)	TOTAL				
SEC	SU	THEORY /STUDIO	ARCG 919	ELECTIVE- VIII (POOL III)/ GENERIC	50	20	30	50		150			3	3

Legends: **L** - Lecture; **T** - Tutorial/Teacher Guided Student Activity; **S** – Studio; **C** - Credit;

Teacher Assessment shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

analyse, assess and deal with complex phenomena, issues and situations even with limited information
demonstrate the ability to identify and formulate issues critically, autonomously and creatively as well as to plan and, using appropriate methods, undertake advanced tasks within predetermined time frames and so contribute to the formation of knowledge as well as the ability to evaluate this work

Expected Skills / Knowledge Transferred: **All you need is an interest in energy-efficient construction.** Sustainable designs and related theory.

Focus: Manual Skills designing buildings whilst having energy efficiency in mind is gradually gaining ground over the last few decades. As the future is approaching and the energy production mix is radically changing towards more sustainable sources, it is apparent that **energy efficiency will be a driving factor in the construction industry**.

Course Overview:

instil an interest and an "energy efficiency" mentality in the student.
the student shall - demonstrate knowledge and understanding of the main field of study, including both broad knowledges of the field.

Course Contents:

Unit	Syllabus: Topic	Subtopic	Teaching Hours:
		The course addresses energy use in buildings and the environmental impact considering three essential dimensions. · Human comfort and health, · Strategies and systems, · Whole building design (building type and scale) and process. to promote the integration of strategies and systems with building design, taking into consideration all human comfort parameters (thermal, olfactory, visual and acoustic) at all scales of intervention from materials components-systems to small-scale buildings (houses) or large buildings (e.g. office buildings, libraries, shopping malls).	
	Climate & shelter	Overview of the different Passive Solar Techniques &Climate responsive design features adopted in the traditional/vernacular architecture of various places in different climate zones – Control of Micro-climate around the building by settlement pattern, built form – open space relationship & façade articulation &appropriate use of building materials in historic buildings.	
	Energy efficiency basics	A few words about energy efficiency ;Types of energy sources ; Actual energy costs ;Energy uses in a household ;Energy efficiency basics.	
	The building envelope	Energy Use and Thermal Comfort in Buildings ;Moisture Safety Design Introduction to the building envelope ;Airtightness layer ;Insulation layer Wind & weather tightness layer ;Recap, openings & thermal bridges The building envelope ;Passive House – Integrating Thermal and Moisture Issues	
	Ventilation Hot water systems; Heating & cooling	Ventilation and Indoor Air Quality ;Daylighting and Lighting of Buildings Energy-Efficient Office Building – Integrating Daylight and Ventilation Mechanical ventilation with heat recovery ;Hot water ; Heating ;Cooling	
	Passive Cooling Concepts	PASSIVE COOLING CONCEPTS General principles – Evaporative cooling, Nocturnal radiation cooling, Passive Desiccant cooling, induced ventilation, earth sheltering, Berming, Wind Towers, earth – Air tunnels, Curved Roofs & Air Vents, Insulation, Vary Thermal walls etc. Case studies on buildings designed with passive cooling techniques.	
	Light -	Light - Perception, uses & sources	

ARCG 919: Elective – VIII

Course Core	Course Area	Course Typology	Course Code	Course Name	EXAMINATION SCHEME					TOTAL MARKS	TEACHING SCHEME/WEEK			CREDITS
					THEORY			STUDIO			L	T	S	
					End Sem University Exam (50%OR 40%)	Two Term Exam (20%)	Teachers Assessment* (30%OR 20%)	End Sem University Exam (50%OR 10%)	Teachers Assessment* (50%OR 10%)					
SEC	SU	THEORY /STUDIO	ARCG 919	ELECTIVE- VIII (POOL III)/ GENERIC	50	20	30	50		150			3	3

Legends: **L** - Lecture; **T** - Tutorial/Teacher Guided Student Activity; **S** – Studio; **C** - Credit;

Teacher Assessment shall be based following components: Quiz/Assignment/ Project/Participation in Class, given that no component shall exceed more than 10 marks.

Perception, uses & sources	Introduction to light ; Basic uses of light ; Daylight in the built environment Light sources ; Lighting requirements for different activities ;Light - Perception, uses & sources ;Energy consumed by appliances ;A few words about the Passive House Institute	
Alternative energy sources	Alternative energy sources ;Building Integrated Solar Energy Systems Life-Cycle Perspective and Environmental Impact of Buildings ; Public Building – Integrating Solar Energy, Costs and Environmental Issues ; Degree project in Energy-Efficient and Environmental Buildings	
Solar Energy & Building	SOLAR ENERGY & BUILDING Solar geometry and built form – Various techniques of shading to reduce heat gain in a tropical climate –Various methods of Maximizing exposure to solar radiation in cold &temperature climates. Heating & cooling loads – Energy estimates - Energy conservation – Efficient daylighting – Solar Water heating system.Exercises in heating and cooling load calculations in buildings.	8hrs
Overall Design Concepts	OVERALL DESIGN CONCEPTS Landform & orientation – Vegetation & Pattern – Water Bodies – Open Space & Built from - Plan form &Elements – Roof form – Fenestration pattern &Configuration – Building envelope & finishes.	8hrs

Sessional work:

Guidelines

Assignments /Tasks are to be set from the entire syllabus; The topic of the project is to be displayed on the Institute Notice Board fifteen days - a week time in advance OF the commencement of the classes

Continuous Evaluation shall be made of students' work based on various models, sketch assignments, and market surveys.

One Major And the rest minor tasks are to be set from the entire syllabus

Assignments: Emphasis should be laid on understating the Principle that continuous evaluation shall be made of students' work based on various models, assignments and sketching

Note: Evaluation is to be done through viva voce by an external examiner appointed by the university at the Institute. Portfolios, after the university exam, shall be retained at the Institute level for the viva-voice

Suggested Readings:

A general description of the calculation tools for Cost-Benefit Analysis and Life Cycle Assessment of very low-energy houses. IVL, 2010.
Abel E, Elmroth A: Buildings and Energy - a systematic approach, T6:2007. FORMAS, 2007,
Åke Blomsterberg: Barriers to implementation of very low energy residential buildings and how to overcome them. Lund University, 2011.
American Institute of Architects (AIA): AIA Guide to Building Life Cycle Assessment in Practice. 2010.
Arvind Krishnan & Others – Climate Responsive Architecture, Tata Mcgraw –Hill New Delhi 2001.
Bill Baker – How to beat the Energy Crisis and Still Live in Style – G.P. Putnam's Sons, Newyork 1979. Economic and environmental impact assessment of very low-energy house concepts in the North European countries. IVL, 2011.
George Basid& Others – Energy Performance of Bldg – CRC Press, Florida 1984.
Hagentoft C-E: Introduction to Building Physics. Studentlitteratur, 2005, Identification of tools for cost-benefit and LCC analysis and success factors for very low-energy housing. 2010. IVL, 2010.
IEA Task 41: Solar Energy Systems in Architecture Integration Criteria and guidelines. International Energy Agency (IEA), 2012. The report can be downloaded at http://archive.iea-shc.org/publications/downloads/T41A2-Solar_Energy_Systems_in_Architecture-19sept2012.pdf.
IVL: Economic and environmental impact assessment of very low-energy house concepts in the North European countries. 2011.
J.K Nayak&Others, Energy Systems Energy Group,- Isa Annal Of Passive Solar Architecture.
James D. Ritchie – Successful Alternate Energy Methods – Structures Publishing Co. Michigan 1980.
Lars Andrén: Solar installations, Practical applications for the built environment. James & James Science Publishers, 2003,
Lechner, Norbert: Heating, Cooling, Lighting, Sustainable Design Methods for Architects. Wiley, 2014
MiliMajunder, Teri – Energy – Efficient Bldg in India – Thomson Press, New Delhi – 2001
Mohamad Monkiz Khasreen, Phillip F.G. Banfill and Gillian F. Menzies: Life-Cycle Assessment and the Environmental Impact of Buildings: A Review.
Ralph M . Lebens – Passive Solar Architecture in Europe – 2, Architecture Press, London 1983.
Sartori, I.& Hestnes, A.: Energy use in the life cycle of conventional and low-energy buildings: A review article. Elsevier, 2007.
T. Agami Reddy, Jan F. Kreider, Peter S. Curtiss, Ari Rabl: Heating and Cooling of Buildings: Principles and Practice of Energy Efficient Design, Third Edition. CRC Press, 2016.
The Commtech group, editor Nilsson PE: Achieving the desired indoor climate. Studentlitteratur, 2003,
Yuanhui Zhang: Indoor Air Quality Engineering. CRC Press, 2004, ISBN: 9781566706742. Reference book.

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