

**3. Interior residential construction:** modular kitchens and cabinet shelves.

**4. Interior office construction:** book selves, file cabinets and workstations. Partition systems: wall and ceiling using plywood, PVC, marble, granite, aerated concrete blocks, gypsum board, glass etc.

**Teaching-Learning Process**

1. Visit to interior sites/ factories/showrooms for hands on experience with materials and methods of construction.
2. Document and write a report on uses of various types of Manufactured Wood used in buildings.
3. Minimum one plate on each construction topic. Study of material applications in the form of a portfolio.

**Module-3**

**5. False ceiling systems:** Fibre board, plaster of Paris, particle board, wood wool, metals, straw and any other materials introduced in the market including acoustic ceiling. Study of recyclability of above mentioned false ceiling materials

**6. Pre stressing and post tensioning:** Introduction to pre-stressing and post tensioning of building components especially floor slabs and beams.

**Teaching-Learning Process**

1. Visit to interior sites/ factories/showrooms for hands on experience with materials and methods of construction.
2. Document and write a report on site visit.
3. Minimum one plate on each construction topic. Study of material applications in the form of a portfolio.

**Module-4**

**7. Introduction to Advanced foundation:** Mat foundations, Pile foundations; different types of piles, precast piles, cast-in-situ piles in wood concrete and steel.

**8. Pile foundation construction:** method of driving piles, Sheet piling, pile caps, etc.

**9. Earth retaining structure:** Selection, Design, Construction of retaining structures including gravity, cantilever, sheet pile, and anchored earth and mechanically stabilized earth (reinforced earth) walls.

**Teaching-Learning Process**

1. Visit to construction sites for hands on experience with materials and methods of construction.
2. Document and write a report on site visit.
3. Minimum one plate on each construction topic. Study of material applications in the form of a portfolio.

**Module-5**

**10. Bamboo Construction:** detailing of walls, wall panels, doors, windows and roof in Bamboo. Qualitatively and quantitatively study the material's contributions to/resistance to increased building solar heat gain in the tropics, increase or reduction in air conditioning load and hence artificial cooling energy needs, and ability/inability to promote natural unassisted night-time cooling through spontaneous release of accumulated heat Study the life cycle environmental impacts, carbon emissions and circularity (recyclability) of bamboo as a material used in building construction.

**11. Prefabrication in India:** Advantages and relevance in the Indian context.

Prefabrication: Design, analysis and manufacture processes. Study of one example.

**12. Introduction to advanced methods of Building construction:** CAD /CAM fabrication and 3D printing. Analyze the larger impact of the advanced methods on the construction industry in Indian context.

**Teaching-Learning Process**

1. Visit to construction sites for hands on experience with materials and methods of construction.
2. Document and write a report on site visit.
3. Minimum one plate on each construction topic. Study of material applications in the form of a portfolio.

**Course outcome (Course Skill Set)**

1. The students will be able to work with ply wood and false ceiling system on Interior projects.
2. The students will be able to explore various advances such as pile foundation, Pre fabrication, Bamboo and 3D printing in building construction.

**Assessment Details (both CIE and SEE)**

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

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The student has to obtain a minimum of 50% marks individually both in CIE and 40 % marks in SEE to pass. Semester End Exam (SEE) is conducted for 50 marks (Viva-voce) and a minimum of 50% (50 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together. Based on this grading will be awarded.

**Continuous Internal Evaluation:**

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

**Semester End Examination:**

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

**Suggested Learning Resources:**

**Books;**

2. Chudley, "Construction Technology"
3. Barry, "Construction of Buildings"

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

- <https://ndl.iitkgp.ac.in>
- <https://www.youtube.com/watch?v=SFomXXXMYXw>
- <https://www.youtube.com/watch?v=YSV6YMqMO5k>
- <https://www.youtube.com/watch?v=UZmE5bxXoLY>
- <https://www.youtube.com/watch?v=ymMSz3qTfjU>
- <https://www.youtube.com/watch?v=mNH0ZaoUf74>
- <https://www.youtube.com/watch?v=aHsTFooJfq4>
- <https://www.youtube.com/watch?v=VHOC0ZaZErE>
- [https://www.youtube.com/watch?v=MlloLYty\\_W0](https://www.youtube.com/watch?v=MlloLYty_W0)
- <https://www.youtube.com/watch?v=vRjGVS1FIwk>
- <https://www.youtube.com/watch?v=XHSYEH133HA>

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

Minimum one plate on each construction topic. Site visits to be arranged by studio teachers.  
Study of material applications in the form of portfolio.

**VII Semester**

<b>Urban Design</b>			
Course Code	<b>21ARC73</b>	CIE Marks	50
Teaching Hours/Week (L:T:P: S)	3:0:0:0	SEE Marks	50
Total Hours of Pedagogy	40	Total Marks	100
Credits	03	Exam Hours	3
<p><b>Course objectives:</b></p> <ol style="list-style-type: none"> <li>1. To introduce theoretical aspects of Urban Design</li> <li>2. To understand the changing attitude toward Urban form/Space and Architecture</li> <li>3. To familiarize Urban Design theory through traditional and contemporary examples</li> <li>4. To comprehend and dissect the formality and informality of urban design interventions</li> <li>5. To understand that city design must respond to new challenges - environmental challenges, low-carbon cities, compact cities, healthy cities, etc.</li> </ol>			
<p><b>Teaching-Learning Process (General Instructions)</b> These are sample Strategies, which teacher can use to accelerate the attainment of the various course outcomes.</p> <ol style="list-style-type: none"> <li>1. Use of theory, activities, sketches, drawings, assignment and tutorial for teaching.</li> <li>2. Evaluation by quiz, tests, classroom activities.</li> </ol>			
<b>Module-1</b>			

<p><b>Behavioural /Perceptual approach:</b> City as visual experience– walking, observing, documenting/recording and interpreting city/ and its elements –such as neighbourhood, street, block, building, architectural elements, green spaces, heterogeneous spaces (inclusive of different parts of the city) etc</p> <p><b>Sub module:</b> Theories works of Gordon Cullen, Kevin Lynch. Examples: Organic and Planned development as highlighted through Old market roads (Chor Bazaar, Old Delhi, etc) and Newer settlements (Newer settlements, shopping streets, etc).</p>	
<p><b>Teaching-Learning Process</b></p>	<p>1) The teacher can use PPTs, Videos to discuss the topics. 2) The students need to sketch the urban design elements for their unique qualities. 3) Quizzes, models, seminars from students can be encouraged</p>
<p><b>Module-2</b></p>	
<p><b>Social cultural Approach:</b> study of social and cultural layer that influence urban design and architecture. Study of the transition and dependencies between formal and informal spaces. <b>Sub Module:</b> Theories / approach by Jane Jacob, Kevin Lynch Examples: Studying smaller built environment settings like a part of the market, market adjoining roads, informal vendors, etc.</p>	
<p><b>Teaching-Learning Process</b></p>	<p>1) The teacher can use PPTs, Videos to discuss the topics. 2) The students need to sketch the urban design elements for their unique qualities. 3) Quizzes, models, seminars from students can be encouraged</p>
<p><b>Module-3</b></p>	
<p><b>Morphological approach:</b> built and un-built, relation with scale, size and influence of byelaws and regulation. Example showing sustainable transformation quality of space and form. Understanding the differences between organic and planned city-making through the concepts of density, building-street ratio, safety, communal significance, etc.</p> <p><b>Sub Module:</b> Theory and works of Collin Rowe - Street, public square facade. Notion of Collective Memory by Aldo Rossi</p>	
<p><b>Teaching-Learning Process</b></p>	<p>1) The teacher can use PPTs, Videos to discuss the topics. 2) The students need to sketch the urban design elements for their unique qualities. 3) Quizzes, models, seminars from students can be encouraged</p>
<p><b>Module-4</b></p>	

**Functional and Temporal approach:** contextual formal and informal urban environment and readability differences,  
**Sub Module:** Approach by Kevin Lynch through good city form, critical study by Charles Correa & Indian example such as Connaught place, church gate, Ballard estate, Gate way of India, Chor Bazaar (Mumbai), Old Delhi, Bada Bazaar (Kolkata), etc. (Activity 1)

<b>Teaching-Learning Process</b>	<ol style="list-style-type: none"> <li>1) The teacher can use PPTs, Videos to discuss the topics.</li> <li>2) The students need to sketch the urban design elements for their unique qualities.</li> <li>3) Quizzes, models, seminars from students can be encouraged</li> </ol>
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**Module-5**

**Environmental approach:** Relationship with physical activity and built environment, human activity and building as environment. Components of a healthy city and a city that enables healthy citizens.  
**Sub Module:** study by Charles Correa & Indian example (Activity 2)

<b>Teaching-Learning Process</b>	<ol style="list-style-type: none"> <li>1) The teacher can use PPTs, Videos to discuss the topics.</li> <li>2) The students need to sketch the urban design elements for their unique qualities.</li> <li>3) Quizzes, models, seminars from students can be encouraged</li> </ol>
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**Course outcome (Course Skill Set)**

- 1) The students will be able to learn and compare urban design and it's relation to Architecture.
- 2) The students will be able to appreciate urban design and adopt it in urban level projects.
- 3) The students will be able to link the learnings in a systematic way while working on an urban level project.

### **Assessment Details (both CIE and SEE)**

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 50% of the maximum marks (25 marks). A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/course if the student secures not less than 40% (20 Marks out of 50) in the semester-end examination(SEE), and a minimum of 50% (50 marks out of 100) in the CIE (Continuous Internal Evaluation) and a minimum of 50% (50 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together. Based on this grading will be awarded.

#### **Continuous Internal Evaluation:**

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

First test at the end of 5<sup>th</sup> week of the semester

Second test at the end of the 10<sup>th</sup> week of the semester

Third test at the end of the 15<sup>th</sup> week of the semester

Two assignments each of **10 Marks**

First assignment at the end of 4<sup>th</sup> week of the semester

Second assignment at the end of 9<sup>th</sup> week of the semester

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

At the end of the 13<sup>th</sup> week of the semester

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

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

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

#### **Semester End Examination:**

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

The question paper will have ten questions. Each question is set for 20 marks.

There will be 2 questions from each module. Each of the two questions under a module (with a maximum of 3 sub-questions), **should have a mix of topics** under that module.

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

Theory paper will be out of 100 marks and will be **scaled down to 50 marks**.

#### **Suggested Learning Resources:**

##### **Books**

1. Aldo Rossi, "Architecture of the City", Oppositions Book, The MIT Press
2. Christopher Alexander, "A Pattern Language ", Oxford University Press, 1977.
3. Rob krier, " Street, public square facade"
4. Kamu Iyer, "Bo mbay: From Precincts to Sprawl", Popular Prakashan Ltd; 2014.
5. Kevin Lynch, "The Image of the City", MIT Press, 1960.
6. Kevin Lynch, " Good City Form", MIT Press, 1981.
7. Gordon Cullen, " The Concise Townscape", Architectural Press, 1971.
8. Charles Correa, " Housing and Urbanisation: Building Ideas for People and Cities", Thames & Hudson Ltd, 2000.

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

- <https://ndl.iitkgp.ac.in>
- <https://www.youtube.com/watch?v=q2Sm07pPIPg>
- [https://www.youtube.com/watch?v=iuyc8\\_Eo7XQ](https://www.youtube.com/watch?v=iuyc8_Eo7XQ)
- <https://www.youtube.com/watch?v=IFjD3NMv6Kw>
- [https://www.youtube.com/watch?v=ZORzsubQA\\_M](https://www.youtube.com/watch?v=ZORzsubQA_M)
- <https://www.youtube.com/watch?v=BMPkmprrdhTA>
- <https://www.youtube.com/watch?v=q2Sm07pPIPg&t=85s>
- <https://www.youtube.com/watch?v=LWepXTUb2W0>

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

Activity 1 - Smart City or Common Sense City - One group supports the notion of creating smart cities, where technology is the go-to solution for every urban problem, and common sense takes a back-seat whereas other group supports the idea of common sense cities, which might not have the cutting edge, space age technology to solve the urban problems but would at least address the need of the citizens, amount of heat that the buildings gain and thermal comfort that is provided to the residents of all economic classes.

Activity 2 - **Addressing urban challenges** - Identify a city/town/village and document its major challenges (health of the city, pollution, noise, urbanization, destruction of greenery, etc). Make groups within the class to tackle each solution and intervene with urban design solutions with the following guidelines -

1. The insight collection and Intervention must be participatory in its solving approach
2. The solution should be minimal invasive, i.e, simple, effective and most energy efficient
3. The intervention should highlight its co-benefits for either the environment and the citizens (or community).

## VII Semester

Professional Practice			
Course Code	<b>21ARC74</b>	CIE Marks	50
Teaching Hours/Week (L:T:P: S)	3:0:0:0	SEE Marks	50
Total Hours of Pedagogy	40	Total Marks	100
Credits	03	Exam Hours	3
<b>Course objectives:</b> <i>To understand the responsibilities &amp; liabilities of the Profession. To appreciate the attitude of professionalism.</i>			
<b>Teaching-Learning Process (General Instructions)</b> These are sample Strategies, which teacher can use to accelerate the attainment of the various course outcomes.			
<ol style="list-style-type: none"> <li>1. Use of theory, activities, assignment and tutorial for teaching.</li> <li>2. Evaluation by quiz, tests, classroom activities.</li> </ol>			
<b>Module-1</b>			

	<ol style="list-style-type: none"> <li>1. <b>Profession:</b> Idea of profession; differences between profession, trade and business.</li> <li>2. <b>Moral and Ethical Orientation of Architects:</b> Non-negotiable values of architects practicing their profession in the era of climate crisis and breach of planetary limits. Understanding architecture as a profession for healthy coexistence between the natural and built environment.</li> <li>3. <b>Profession of architecture:</b> Types and extent of services offered by architects, scale of fees, stages of payment, and contract between client and architect.</li> <li>4. <b>Practice:</b> Types of Architectural firms, proprietorship, partnership, associate ship and private limited firms; advantages and disadvantages of each type of firm; building clientele and projects.</li> <li>5. <b>Office Management:</b> Administration of Architectural firms; basic accounting procedures, financial literacy related to personal and office matters.</li> </ol>
<b>Teaching-Learning Process</b>	<ol style="list-style-type: none"> <li>1) The teacher can use PPTs, Videos to discuss the idea of architectural profession</li> <li>2) Quizzes, models, seminars from students can be encouraged</li> </ol>
<b>Module-2</b>	
	<ol style="list-style-type: none"> <li>6. <b>Code of Professional Conduct:</b> Architects Act of 1972, role of Council of Architecture, Indian Institute of Architects in functioning of the Profession.</li> <li>7. <b>Architectural competitions:</b> guidelines of COA, procedure of conduct of competitions. Recent developments with respect to the use of title ‘Architect’ and other design professionals in a design competition.</li> </ol>
<b>Teaching-Learning Process</b>	<ol style="list-style-type: none"> <li>1) The teacher can use PPTs, Videos to discuss professional Conduct and competitions.</li> <li>2) Quizzes, models, seminars from students can be encouraged</li> </ol>
<b>Module-3</b>	
	<ol style="list-style-type: none"> <li>8. <b>Tender:</b> Tender document and its content. Types of tenders, advantages and disadvantages of each type; suitability to various projects. Tender notices, opening, scrutiny, process of selection and award. Architect’s role in tender process. Earnest Money Deposit, Security Deposit, Retention Amount, Mobilization Amount and Bonus &amp; Penalty Clauses. Issues arising out of tendering process and the role of an architect.</li> <li>9. <b>Contract:</b> General Principles, types of contract; Contract document. Contract Management: Architect’s role in Contract Management. Conditions and Scope of Contract; role of an architect in ensuring completion of contract.  Issues arising in Contract: i) Termination of contract, ii) Certificates of value and quality, iii) Virtual completion and final completion, iv) Defects liability period, v) Latent and patent defects, vi) Liquidated and un-liquidated damages, vii) Extension of time, delays and penalty, viii) Non tendered items, extras, extra work, additional works, variations, rate analysis and</li> </ol>



architect's role in certification of variations,  
ix) Prime cost, provisional sum.

Supervision and Contract Administration: Site visits, site meeting, co-ordination with various agencies, site book, site instructions, clerk of works and site office.

Bill checking, quality auditing, handover procedures and final certification.

Disputes in contract and architect's role in resolving disputes. Case studies from practice highlighting disputes in contract and methods adopted to solve such disputes.

**Teaching-Learning Process**

- 1) The teacher can use PPTs, Videos to discuss Tender and contract management
- 2) Quizzes, models, seminars from students can be encouraged

#### Module-4

10. **Byelaws:** Building byelaws, National Building Code, floor area ratio, floor space index, floating FAR, zoning regulations.

Overview of Master Plan/CDP of relevant cities.

11. **Arbitration:** Arbitration and conciliation; arbitrator, umpire, order of reference, selection of arbitrators, powers and duties of arbitrators, arbitration award and implementation of award.

12. **Valuation and Dilapidation:** Definitions and architect's role in preparation of valuation and dilapidation reports and certifications; Physical and Economic life of buildings.

Introduction to Valuation, essential characteristics, classifications and purpose of classifications. Methods of valuation, standard rent and cost of construction.

**Teaching-Learning Process**

- 1) The teacher can use PPTs, Videos to discuss use of building bye laws in submission plans, Arbitration and Valuation works.
- 2) Quizzes, models, seminars from students can be encouraged

#### Module-5

13. **Building Industry:** General overview of the industry; various participants and dimensions of building industry.

Role of architect, employer, and contractor in sustainable buildings and developments.

Types of insurance necessary during contract; fire insurance

14. **Easements:** easement rights, architect's role in protecting easement rights.

Laws related to Property and Land: Land tenure, types of land holdings, land registration, easement rights, covenants, trespass and nuisance etc.

15. **General Law:** Overview & definition of common law, statute law, equity, criminal law, civil law etc., Role of courts in dispensing various types of cases.

Overview of recent Bills and Acts: Real Estate (Regulation and Development) Act 2016; Land Acquisition Act, Rehabilitation Act and Resettlement Act 2013; Consumer Protection Act. FDI in real estate, Goods & Service Taxes and other taxes applicable in architecture practice and construction industry (Activity1).

<b>Teaching-Learning Process</b>	<p>1) The teacher can use PPTs, Videos to discuss the challenges of Building Industry and laws related to it.</p> <p>2) Quizzes, models, seminars from students can be encouraged</p>
<p><b>Course outcome (Course Skill Set)</b></p> <p>1) The students will be able to understand of Architectural Profession set up.</p> <p>2) The students will be able to handle the challenges of Architectural Profession.</p>	
<p><b>Assessment Details (both CIE and SEE)</b></p> <p>The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 50% of the maximum marks (25 marks). A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/course if the student secures not less than 40% (20 Marks out of 50) in the semester-end examination(SEE), and a minimum of 50% (50 marks out of 100) in the CIE (Continuous Internal Evaluation) and a minimum of 50% (50 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together. Based on this grading will be awarded.</p> <p><b>Continuous Internal Evaluation:</b></p> <p>Three Unit Tests each of <b>20 Marks (duration 01 hour)</b></p> <ul style="list-style-type: none"> <li>First test at the end of 5<sup>th</sup> week of the semester</li> <li>Second test at the end of the 10<sup>th</sup> week of the semester</li> <li>Third test at the end of the 15<sup>th</sup> week of the semester</li> </ul> <p>Two assignments each of <b>10 Marks</b></p> <ul style="list-style-type: none"> <li>First assignment at the end of 4<sup>th</sup> week of the semester</li> <li>Second assignment at the end of 9<sup>th</sup> week of the semester</li> </ul> <p>Group discussion/Seminar/quiz any one of three suitably planned to attain the COs and POs for <b>20 Marks (duration 01 hours)</b></p> <ul style="list-style-type: none"> <li>At the end of the 13<sup>th</sup> week of the semester</li> </ul> <p>The sum of three tests, two assignments, and quiz/seminar/group discussion will be out of 100 marks and will be <b>scaled down to 50 marks</b></p> <p>(to have less stressed CIE, the portion of the syllabus should not be common /repeated for any of the methods of the CIE. Each method of CIE should have a different syllabus portion of the course).</p> <p><b>CIE methods /question paper is designed to attain the different levels of Bloom's taxonomy as per the outcome defined for the course.</b></p> <p><b>Semester End Examination:</b></p> <p>Theory SEE will be conducted by University as per the scheduled timetable, with common question papers for the subject (<b>duration 03 hours</b>)</p> <ul style="list-style-type: none"> <li>The question paper will have ten questions. Each question is set for 20 marks.</li> <li>There will be 2 questions from each module. Each of the two questions under a module (with a maximum of 3 sub-questions), <b>should have a mix of topics</b> under that module.</li> </ul> <p>The students have to answer 5 full questions, selecting one full question from each module.</p> <p>. Theory paper will be out of 100 marks and will be <b>scaled down to 50 marks.</b></p>	
<p><b>Suggested Learning Resources:</b></p> <p><b>Books</b></p> <ol style="list-style-type: none"> <li>1) Namavathi, Roshan, Professional Practice for Architects and Engineers, Lakhani Book, New Delhi, 2001.</li> <li>2) Krishnamurthy K G and Ravindra S V, Professional Practice, S V Ravindra, 2009, Bangalore</li> </ol>	
<p><b>Web links and Video Lectures (e-Resources):</b></p>	

- <https://ndl.iitkgp.ac.in>
- <https://www.youtube.com/watch?v=nLUU6wcA3qE>
- <https://www.youtube.com/watch?v=tDhcuESzpzU>
- <https://www.youtube.com/watch?v=zw1CFfe64E&list=RDCMUctbDLHGwjicfYiHOUYU6dfw&index=19>
- <https://www.youtube.com/watch?v=rMGIVCgzF58>
- <https://www.youtube.com/watch?v=aGdPq2IATKM>
- <https://www.youtube.com/watch?v=KYw5p5Mklmg>
- <https://www.youtube.com/watch?v=ppchaXYwSxw>
- <https://www.youtube.com/watch?v=LH9cXw6rVgs>
- <https://www.youtube.com/watch?v=0S2T6crurEE>

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

**Activity 1: Decode and read one Act, rule, law:** Divide the class into 3- groups and each group can pick up one law, rule, act, program and study in detail. Interpret its meaning and identify and understand the inclusivity and loopholes. Reflect on the policies that impact holistic architecture design.

**VII Semester**

<b>Estimation &amp; Costing</b>			
Course Code	<b>21ARC75</b>	CIE Marks	50
Teaching Hours/Week (L:T:P: S)	<b>2:1:0:0</b>	SEE Marks	50
Total Hours of Pedagogy	40	Total Marks	100
Credits	03	Exam Hours	3

**Course objectives:**

*To develop the necessary skills for establishing and writing specifications based on proposed materials for the preparation of Bill of Quantities leading to cost estimation of proposed architectural works. To develop the sensitivity and necessary skills for calculating the environmental cost of a building.*

**Teaching-Learning Process (General Instructions)**

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

1. Use of theory, activities, sketches, drawings, assignment and tutorial for teaching.
2. Evaluation by quiz, tests, classroom activities.

**Module-1**

- 1) **Introduction to Estimation:** Need for estimation, relationship between choice of materials, their specifications, Bill of Quantities (BOQ), project costing, project quality/cost/ time management.
- 2) **Specifications:** How to arrive at abstract and detailed specifications for various materials leading to 'items of work' used in construction?. Including influence and impact of local and national building codes on specifications.

<b>Teaching-Learning Process</b>	<ol style="list-style-type: none"> <li>1) The teacher can use PPTs, Videos to discuss the Estimation and Specification.</li> <li>2) The students need to understand different terminologies used.</li> <li>3) Quizzes, journals, seminars from students can be encouraged</li> </ol>
<b>Module-2</b>	
<ol style="list-style-type: none"> <li>3) <b>Bill of Quantities (BOQ):</b> Why and how to build flexibility, resilience and redundancy in BOQ.</li> <li>4) <b>Mandatory tests &amp; Safety Measures in Specifications:</b> Procedures, frequency and submission of results as part of specifications and their inclusion in the BOQ for different materials document. Integrating workers' safety and material security into specifications.</li> </ol>	
<b>Teaching-Learning Process</b>	<ol style="list-style-type: none"> <li>1) The teacher can use PPTs, Videos to discuss the BOQ and Specifications.</li> <li>2) The students need to practice the preparation of BOQ.</li> <li>3) Quizzes, Journals, seminars from students can be encouraged.</li> </ol>
<b>Module-3</b>	
<ol style="list-style-type: none"> <li>5) <b>Introduction to Costing:</b> Why do rates vary? - Study of government rates (CPWD/ Karnataka PWD Schedule of Rates) and market rates. Concept of inflation and its effect on costing.eg. escalation clause, extra items, variations</li> <li>6) <b>Introduction to Life Cycle Costing (Environmental and Financial) of a building:</b> This section will train students how to assess the emissions and cost tradeoffs of increased material use and/or integration of passive design/low-carbon systems features (e.g. increased embodied carbon emissions of concrete in thick-walls vs. conventional walls, increased capital cost of double-glazing versus single-glazing, increased capital cost of radiant cooling vs. conventional air conditioning etc.) to determine the overarching long-term financial and environmental cost benefits of sustainable designs relative to business-as-usual architecture (<b>Activity - Calculate the environmental valuation of any of your studio's design</b>)</li> <li>7) <b>Detailed rate analysis of building:</b> Basic knowledge of items as per current schedule of rates (CSR) of local PWD. Percentages (based on thumb rule calculations) of various bulk materials used in construction like cement, steel, rubble, metal, sand, brick, tiles etc.</li> </ol>	
<b>Teaching-Learning Process</b>	<ol style="list-style-type: none"> <li>1) The teacher can use PPTs, Videos to discuss the Costing and rate analysis.</li> <li>2) The students need to practice the preparation of BOQ.</li> <li>3) Quizzes, Journals, seminars from students can be encouraged</li> </ol>
<b>Module-4</b>	

	<p>8) <b>Introduction to sequence of construction activity:</b> Project time/ labour /materials costing and impact of delay in project on costing.</p> <p>9) <b>Term project 1:</b> Detailed specifications writing and estimation of Bill of Quantities (BOQ) for an RCC framed house with an attached temporary shed.</p> <p>10) <b>Term project 2:</b> Detailed specifications writing and estimation of Bill of Quantities (BOQ) for an office interior work.</p>
<p><b>Teaching-Learning Process</b></p>	<p>1) The teacher can use PPTs, Videos to discuss the construction activity.</p> <p>2) The students need to practice the preparation of specification writing and estimation of BOQ for a given assignment.</p> <p>3) Quizzes, Journals, seminars from students can be encouraged</p>
<p><b>Module-5</b></p>	
	<p>11) <b>Term project 3:</b> Detailed specifications writing and estimation of Bill of Quantities (BOQ) for Water supply and sanitary works including overhead tanks and Sump tanks.</p> <p>12) <b>Term project 4:</b> Detailed specifications writing and estimation of Bill of Quantities (BOQ) for a typical residential layout plan with roads, culverts, pavements, etc.</p> <p>13) <b>Term project 5:</b> Detailed specifications writing and estimation of Bill of Quantities (BOQ) for a typical low cost housing layout plan (a rehabilitated slum) with roads, culverts, pavements, water distribution, power distribution, all basic amenities included etc.</p> <p>14) <b>Billing requirements:</b> Role of the architect in monitoring the specifications follow-up for quality control, the measurement book (MB), RA bills, interim and final checking and certification of works on site based on the BOQ and terms of contracts.</p>
<p><b>Teaching-Learning Process</b></p>	<p>1) The teacher can use PPTs, Videos to discuss the specification writing.</p> <p>2) The students need to practice the preparation of specification writing and estimation of BOQ for a given assignment.</p> <p>3) Quizzes, Journals, seminars from students can be encouraged</p>
<p><b>Course outcome (Course Skill Set)</b></p> <p>1) The students will be able to prepare specifications, Rate Analysis and estimation for a small building.</p> <p>2) The students will be able to follow up quality measures through specifications.</p> <p>3) The students will be able to prepare Bill of quantities.</p>	

### **Assessment Details (both CIE and SEE)**

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 50% of the maximum marks (25 marks). A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/course if the student secures not less than 40% (20 Marks out of 50) in the semester-end examination(SEE), and a minimum of 50% (50 marks out of 100) in the CIE (Continuous Internal Evaluation) and a minimum of 50% (50 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together. Based on this grading will be awarded.

#### **Continuous Internal Evaluation:**

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

First test at the end of 5<sup>th</sup> week of the semester

Second test at the end of the 10<sup>th</sup> week of the semester

Third test at the end of the 15<sup>th</sup> week of the semester

Two assignments each of **10 Marks**

First assignment at the end of 4<sup>th</sup> week of the semester

Second assignment at the end of 9<sup>th</sup> week of the semester

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

At the end of the 13<sup>th</sup> week of the semester

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

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

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

#### **Semester End Examination:**

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

The question paper will have ten questions. Each question is set for 20 marks.

There will be 2 questions from each module. Each of the two questions under a module (with a maximum of 3 sub-questions), **should have a mix of topics** under that module.

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

Theory paper will be out of 100 marks and will be **scaled down to 50 marks**.

#### **Suggested Learning Resources:**

##### **Books**

1. DuttaB.N ,Estimating and Costing in Civil Engineering- Theory and Practice, UBS Publishers, 1993.
2. Rangwala, Estimating, Costing and Valuation, Charotar Publishing House.

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

- <https://ndl.iitkgp.ac.in>
- <https://www.youtube.com/watch?v=7rc-pG3f0DM&list=PLWbmeZJ9qIMae-i-sx9MiIRIHuY0svIsO&index=2>
- <https://www.youtube.com/watch?v=K8swOXombek>
- [https://www.youtube.com/watch?v=Cm4VgLLXtss&list=RDCMUCfk6bln\\_Pp8dYgDk1f5FWCQ&index=9](https://www.youtube.com/watch?v=Cm4VgLLXtss&list=RDCMUCfk6bln_Pp8dYgDk1f5FWCQ&index=9)
- 

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

- 1) Visit to PWD sub division office and observe the preparation of an estimate and specification as per PWD norms.
- 2) Practicing/ making of small building estimation with specification as per PWD norms.
- 3) Practicing/ making rate analysis in the estimation above as per PWD norms.

**VII Semester**

<b>Interior Design</b>			
Course Code	<b>21ARC76</b>	CIE Marks	50
Teaching Hours/Week (L:T:P: S)	0:0:0:3	SEE Marks(VIVA)	50
Total Hours of Pedagogy	40	Total Marks	100
Credits	03	Exam Hours	--
<p><b>Course objectives:</b>  <i>This course aims to introduce the students to the discipline of Interior Design and to develop skills required for handling interior design projects. The course shall equip the students with theoretical, conceptual, practical and creative aspects of Interior Design along with its allied fields with particular emphasis on <b>commercial, habitat [residential &amp; hospitality], educational and public space interiors.</b></i></p>			
<p><b>Teaching-Learning Process (General Instructions)</b>            These are sample Strategies, which teacher can use to accelerate the attainment of the various course outcomes.</p> <ol style="list-style-type: none"> <li>1. Use of theory, activities, sketches, drawings, assignment and tutorial for teaching.</li> <li>2. Evaluation by studio work, quiz, tests, classroom activities.</li> </ol>			
<b>Module-1</b>			
<ul style="list-style-type: none"> <li>● <b>INTRODUCTION:</b>                Definition and process of interior design; difference between interior design and decoration; vocabulary of interior design through elements in interior design like colour, materials, furniture, lighting; aspects of interior design related specifically to typology and function, difference between themes and concepts in interior design.</li> <li>● <b>OVERVIEW:</b>                Overview of history of Interior Design in the Western, Asian and Indian context through the ages relating to contemporary design; theories and design movements in Interior Design; evolution of space planning concepts and design ideas; influence of the vernacular, folk arts and crafts of a region on its Interior Design; role of activity and anthropometrics in Interior Design; design psychology and perception through color, light, scale, proportion, enclosure and fenestration</li> </ul>			
<b>Teaching-Learning Process</b>	<ol style="list-style-type: none"> <li>1) The teacher can use PPTs, Videos to discuss the Interior design.</li> <li>2) The students need to sketch/draw the designs.</li> </ol>		

	3) drawings, models, seminars from students can be encouraged
<b>Module-2</b>	
<ul style="list-style-type: none"> <li>● <b>COMPONENTS OF INTERIOR DESIGN:</b> Functional, aesthetic and psychological aspects of interior space components; design, material choice, method of construction, treatment and finishes of components such as floors, ceilings, walls, partitions, fenestrations; fixtures in relation to space design and construction technology.</li> </ul>	
<b>Teaching-Learning Process</b>	<ol style="list-style-type: none"> <li>1) The teacher can use PPTs, Videos to discuss the Interior design.</li> <li>2) The students need to sketch/draw the designs.</li> <li>3) drawings, models, seminars from students can be encouraged</li> </ol>
<b>Module-3</b>	
<ul style="list-style-type: none"> <li>● <b>INTEGRATION OF INTERIOR SPACE WITH SERVICES:</b> Addressing user specific needs and scope of design of services as fundamental aspects of interior design; enhancement of space experience with integration of supporting services like climatic comfort, air conditioning, plumbing and sanitation, electrical, lighting, air conditioning and acoustics.</li> </ul>	
<b>Teaching-Learning Process</b>	<ol style="list-style-type: none"> <li>1) The teacher can use PPTs, Videos to discuss the designs.</li> <li>2) The students need to sketch/draw the designs.</li> <li>3) drawings, models, seminars from students can be encouraged</li> </ol>
<b>Module-4</b>	
<ul style="list-style-type: none"> <li>● <b>ALLIED FIELDS – FURNITURE DESIGN &amp; PLANTSCAPE:</b> Role of furniture, ergonomic factors of furniture design and materials used; Design and types of furniture based on its style, characteristics and functional application, barrier free and inclusive design; design for the specially abled; materials and methods of construction of furniture, design trends, the concept of reuse and repurpose, innovations and ideas of furniture for specific types of interiors; integration of interior landscaping elements like plants, water, paving, artifacts, etc. and their physical properties and effects on spaces.</li> </ul>	
<b>Teaching-Learning Process</b>	<ol style="list-style-type: none"> <li>1) The teacher can use PPTs, Videos to discuss the designs.</li> <li>2) The students need to sketch/draw the designs.</li> <li>3) drawings, models, seminars from students can be encouraged</li> </ol>
<b>Module-5</b>	
<ul style="list-style-type: none"> <li>● <b>ALLIED FIELDS – LIGHTING DESIGN:</b> Concepts and perceptions in interior lighting design; day lighting natural over artificial, its modulation of lighting [artificial and natural lighting] to develop strategies for interior space and element relationship; quantitative vs. qualitative aspects of lighting design; emphasis of design features like focal points in interior design using lighting; different types of interior lighting fixtures - their effects and suitability in different contexts.</li> </ul>	



**DESIGN PROJECT – MINOR AND MAJOR:**

Interior design is a user centric approach where both the function and aesthetics get their due consideration. The understanding of all the above listed aspects related to interior design will be explored, designed and detailed through two design projects [Minor and Major]. The project will delve into interior design through function, user and aesthetic based space planning and visualizations, material specification and detailing, colours, textures, furniture design and lighting design along with interior landscaping if needed. Design will be explored as a holistic approach of plan, section, details, materials, technology, services integration and views.

The minor project can look at Adaptive re-use of a space intended for completely different uses. Application of basic structural knowledge, ideas and concepts of materials, lighting, services, etc. to be applied in the project.

**ASSESSMENT:**

The design projects will be evaluated as assignments done individually. The assessment will be through presentations, concept / story board, all relevant drawings like plans, sectional elevations, reflected ceiling plans, flooring plans, wall sections, services layout, construction details, views, models, material samples and specification boards.

**Teaching-Learning Process**

Design ideation, desk feedback / crits and juries for design projects that incorporate all the learnings.

**Course outcome (Course Skill Set)**

- 1) The students will be able to learn and compare various styles of Interior Design through history.
- 2) The students will be able to generate schemes for interiors along with various parameters like services, furniture, space requirements, etc.
- 3) The students will be sensitive in using various materials judiciously.

### **Assessment Details (both CIE and SEE)**

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The student has to obtain a minimum of 50% marks individually both in CIE and 40 % marks in SEE to pass. Semester End Exam (SEE) is conducted for 50 marks (Viva-voce) and a minimum of 50% (50 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together. Based on this grading will be awarded

#### **Continuous Internal Evaluation:**

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

First test at the end of 5<sup>th</sup> week of the semester

Second test at the end of the 10<sup>th</sup> week of the semester

Third test at the end of the 15<sup>th</sup> week of the semester

Two assignments each of **10 Marks**

First assignment at the end of 4<sup>th</sup> week of the semester

Second assignment at the end of 9<sup>th</sup> week of the semester

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

At the end of the 13<sup>th</sup> week of the semester

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

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

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

#### **Semester End Examination:**

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

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

#### **Suggested Learning Resources:**

##### **Books**

1. Pile, John.F, "Interior Design", Pearson; 4 edition (2007)
2. Ching, Francis D.K., "Interior Design Illustrated", John Wiley & Sons; 3 edition (2012)
3. Panero, Julius and Zelnik, Martin, "Human Dimension and Interior Space: A Source Book of Design Reference Standards", Watson-Guptill; New edition (1979)
4. DeChiara, Joseph, Panero, Julius and Zelnik, Martin "Time Saver's Standards for Interior Design", McGraw-Hill Professional (2001)
5. Rengel, Roberto J, "The Interior Plan: Concepts and Exercises", Bloomsbury Academic USA; 2nd Revised edition (2016)
6. Mitton, Maureen, "Interior Design Visual Presentation: A Guide to Graphics, Models and Presentation Techniques", John Wiley & Sons; 4 edition (2012)
7. Pile, John.F, "A History of Interior Design Hardcover", John Wiley & Sons Inc (2000)
8. Kurtich, John & Eakin, Garret, "Interior Architecture", John Wiley & Sons (1995)

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

- <https://ndl.iitkgp.ac.in>
- <https://www.youtube.com/watch?v=MCFhn7szorA>
- <https://www.youtube.com/watch?v=3LYNWSyZ720>
- <https://www.youtube.com/watch?v=DVPp2iEYgf0>
- <https://www.youtube.com/watch?v=YIQPIS4uCHc>
- [https://www.youtube.com/watch?v=cTP5hdwdF\\_M](https://www.youtube.com/watch?v=cTP5hdwdF_M)
- <https://www.youtube.com/watch?v=WFXieuIcPdU>
- <https://www.youtube.com/watch?v=6cHGEgW3urw>
- [https://www.youtube.com/watch?v=hlo2\\_rth8NQ](https://www.youtube.com/watch?v=hlo2_rth8NQ)

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

- Presentations and discussions on various concepts and components of interior design, integration of services with interior design and allied fields like furniture design and lighting design.
- Interactions with industry experts like interior designers, lighting designers and service consultants to share their experience and perspective on interior design.
- Visit to interior construction sites to understand the process of construction and prototyping and lighting product manufacturing factory visits.
- Material sample and specification compilation along with vendor input to augment the understanding of material detailing with latest technology.
- Design ideation, desk feedback / crits and juries for design projects that incorporate all the learnings.

## VII Semester

<b>Working Drawing-II</b>			
Course Code	21ARC77	CIE Marks	100
Teaching Hours/Week (L:T:P: S)	0:0:0:4	SEE Marks	--
Total Hours of Pedagogy	50	Total Marks	100
Credits	04	Exam Hours	-
<b>Course objectives:</b> <i>Introduction to 'Good for Construction' drawings; Preparation of Structural, Electrical, Water Supply and Sanitary drawings for the project from previous semester; Comprehensive set of drawings.</i>			
<b>Teaching-Learning Process (General Instructions)</b> These are sample Strategies, which teacher can use to accelerate the attainment of the various course outcomes. 1) The teacher can use PPTs, Videos, and a working drawing portfolio to demonstrate the preparation of working drawing for a building. 2) The students need to observe and practice the preparation of working drawing for a simple building.			
<b>OUTLINE:</b> 1. Project Work: Project continued from previous semester; Preparation of structural and services drawings and details. 2. Structural drawings: Conventions & symbols; Foundations, Columns, Beams, Slab. 3. Electrical drawings: Conventions & symbols; Plans at all levels. 4. Water Supply drawings: Conventions & symbols; Plans at all levels. 5. Sanitary drawings: Conventions & symbols; Plans at all levels; Site Plan, Terrace Plan 6. Mechanical drawings: Conventions & symbols; Plans at all levels; Details of Lift. 7. Complete integration of Architectural, Structural and Services drawings and details			
<b>Teaching-Learning Process</b>	1) The teacher can use PPTs, Videos, and a working drawing portfolio to demonstrate the preparation of working drawing for a building. 2) The students need to observe and practice the preparation of working drawing for a simple building.		
<b>Course outcome (Course Skill Set)</b> 1) The students will be able to produce working drawings along with details for a small project. 2) The students will be able to work in groups and coordinate other consultants like Structural consultants, MEP consultants, Electrical consultants, Networking, fire and other consultants.			

**Assessment Details (CIE)**

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

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

**Continuous Internal Evaluation:**

Methods suggested:

1. Studio discussions, Reviews, Time problems, CIE tests, Seminar or micro project, Quiz, Portfolio preparation etc.
2. The class teacher has to decide the course of learning for the working drawing subject, in the beginning only. The teacher has to announce the methods of CIE for the subject in advance in writing.

**Semester End Examination:**

1. There is no Semester End Exam (SEE) The CIE marks list generated is to be signed by the internal examiners and submitted to VTU as per the procedure through the Principal of the institution.

**Suggested Learning Resources:****Books**

Time saver standards by Callender.  
Time saver standards by E & OE  
Time saver standards by Nuferts.

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

- <https://ndl.iitkgp.ac.in>
- <https://www.youtube.com/watch?v=YDQqMFqjChY>
- <https://www.youtube.com/watch?v=FZiFAAvsJqc>
- <https://www.youtube.com/watch?v=Pyaw8ivOz6Q>

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

- 1) Students to prepare structural and service detailing for working Drawing.
- 2) Individual/ Group work on typical service details in staircases, Lift well, Toilets, etc for working Drawing.

## VII Semester

<b>Elective-5</b>			
Course Code	<b>21ARC78</b>	CIE Marks	100
Teaching Hours/Week (L:T:P: S)	<b>2:0:0:0</b>	SEE Marks	--
Total Hours of Pedagogy	25	Total Marks	100
Credits	02	Exam Hours	-

### **Course objectives:**

- 1) To gain experience in aspects of Architecture not offered in the regular curriculum.
- 2) To study particular areas of the curriculum in greater depth.
- 3) To explore career opportunities in the allied fields.

### **a) CRAFT IN ARCHITECTURE:**

#### **OBJECTIVE:**

- *Awareness of rich traditions of Architectural craft*
- *Ways of imagining the potential of existing systems*
- *Broaden the mind beyond available construction systems*
- *Explore possibilities in Crafting of Architecture*
- *Sustainable practices in Art & Crafts.*

#### **COURSE CONTENT:**

- Introduction
- Case Studies
- Field Trip , Research to identify potential area of interest for participants to focus further on
- Interaction with Craftsmen to understand the function, material and technique
- Design Exercises focusing on crafting certain elements / parts of a Building or the overall.
- Using recyclable materials (like paper Mache), natural materials for building models.

#### **COURSE METHODOLOGY:**

- Lecture Sessions,
- Case Studies,
- Discussions,
- Research,
- Field Trips,
- Short Design Exercises.

#### **COURSE OUTCOME:**

- Appreciate finer nuances of making of Architecture into a reality.
- Overview towards the wealth of traditional / existing practices.
- Insight to potential direction of evolution of making of Architecture.
- Attempts to take forward existing systems.
- Introduction of systems form across the border of the discipline.

- Develop ability to craft making of Architecture.
- Use of sustainable materials for craft.

## REFERENCES:

1. Peter Davey, "Arts & Crafts Architecture", 1997, Phaidon Press, London.
2. Maureen Meister, "Arts & Crafts Architecture", 2014, University Press of New England.
3. Miriam Delaney, "Studio Craft & Technique for Architects", 2015, Laurence King Publishing, London.
4. Brian Mackay-Lyons, "Local Architecture: Building Place, Craft and Community", 2014, Princeton Architectural Press, New York.

## b) ARCHITECTURAL WRITINGS AND JOURNALISM OBJECTIVE:

*This course aims to introduce writing on architecture as a method to study and interpret the built environment through analysis, criticism and review. The course shall equip the students with the fundamentals, relevant skills and techniques of various genres of architectural writing and journalism. The course should support students to write in a way that situates architecture in its social, ecological and economic context. The course shall sensitize students to the need to highlight built space issues through their journalistic endeavours.*

### OUTLINE:

**Introduction:** Overview and objectives of role of writing and journalism in architecture; Writing and Journalism skills: research, writing, editing and criticism.

**Creative Writing:** Techniques and methods of expressing an architectural narrative or description through forms of creative writings such as fiction, poetry, travel writing, blogging which are based on architecture or employ architecture as a context.

**Analytical Writing:** Techniques and methods of researching, analyzing and critiquing formal and informal architecture through forms of analytical writings such as research papers, journal writings and critical essays.

**Documentation and Technical Writing:** Techniques and methods of recording, authenticating and examining architecture through documentation and technical writings.

**Architectural Journalism:** Introduction, scope and constraints of print, audio and visual architectural journalism in the context of newspapers, radio, film, and television. Roles of an architectural journalist in furthering socio-ecological issues in built spaces (activity 1, activity 2) as a reporter, reviewer, cartoonist, interviewer, feature writer and specialist writer.

### **Contemporary Architectural Writing and Journalism: Issues and Potential:**

Role of an architect as a writer and journalist in scripting the narrative of formal and informal architecture; Topics relevant and needed in an architectural journals and current

issues; Mass Media and Public Opinion – critique of architecture through new age journalism and technology; Issues of code of ethics, copyright, royalty, publishing rights and policies; Citation and plagiarism.

**METHODS:**

- Presentations on the techniques of writing different genres
- Discussions of various readings to familiarize and analyze the methods and styles of writing.
- Writing assignments related to the genres culminating in a term paper
- Interactions with architectural writers and journalists to share their experience / perspective
- Visit to Publication / Media house to understand the process of publishing

**Assessment:**

The individual assignments will be assessed via presentations, writings and term paper.

**REFERENCES:**

1. Wiseman, Carter (2014), "Writing Architecture: A Practical Guide to Clear Communication about the Built Environment", Trinity University Press
2. Lange, Alexandra (2012), "Writing About Architecture: Mastering the Language of Buildings and Cities", Princeton Architectural Press
3. Schmalz, Bill (2014), "The Architect's Guide to Writing: For Design and Construction Professionals", Images Publishing Dist Ac
4. Sykes, A. Krista (2007), "The Architecture Reader: Essential Writings from Vitruvius to the Present", George Braziller Inc.
5. Musa, Majd, Al-Asad, Mohammad (2007), "Architectural Criticism and Journalism", Umberto Allemandi & Co
6. Edward Jay Friedlander and John Lee (2000), "Feature Writing for Newspapers and Magazines", 4th edition, Longman.

**Activity based learning:**

Activity 1: Students are asked to critically analyse contemporary architecture media narratives and their representation of architecture in socially marginalized spaces.

Activity 2: Students are asked to visit a slum redevelopment site in the city and write an opinion essay based on their observations and interviews with relevant stakeholders.

**c) BIOMIMICRY:**

**OBJECTIVE:**

1. *To understand 'Bio mimicry' and 'Biophilia'*
2. *Reconnect with nature: learning to observe nature by function*
3. *To understand and explore how biology can be integrated with design*
4. *To examine how the 'bio mimicry approach' can influence sustainable designs and innovations*



## **COURSE CONTENTS:**

- a) Understanding Bio mimicry : theory and case studies
- b) Reconnect with Nature (including a field trip)
- c) Patterns of Biophilia
- d) Life's principles: the universal principles all of life follows to be sustainable
- e) Integrating Biology in Design: the design process along with design exercise to realize the process of discovering biological inspiration and its application

## **METHODOLOGY:**

The course would follow the following modes of teaching:

1. Lectures sessions interwoven with games and activities to understand biomimicry concepts
2. Field trip & outdoor exercises to reconnect and seek inspiration from nature
3. Discussions & presentations
4. Library/ web research & reading
5. Interviewing scientists/ biologists
6. Design exercises (Activity 1)

## **LEARNING OUTCOME:**

The course aims to educate and equip students in the following way:

- a. Appreciate and understand cross disciplinary design practice of Biomimicry
- b. Understanding of Biomimicry and biophilia& its relevance in design
- c. Appreciate the importance of 'reconnection/ connection' with nature
- d. Understanding Life's overarching Principles & how this can inform sustainable solutions
- e. Understanding and being able to 'integrating biology in design'

## **REFERENCES:**

1. Michael Pawlyn, "Biomimicry in Architecture", 2011, RIBA Publishing, London.
2. Dora Lee, "Biomimicry: Inventions Inspired by Nature", 2011, Kids Can Press, Toronto, Canada.
3. Stephen R. Kellert, "Biophilic Design: The Theory, Science and Practice of Bringing Buildings to Life, 2011, John Wiley & Sons, New Jersey.
4. Stephen R. Kellert, "Nature by Design: The Practice of Biophilic Design", 2018, Yale Univ.Press.
5. Benjamin R. Krueger, "Biomimicry: Nature as Designer", 2016, CreateSpace Independent Publishing Platform

Activity Based learning :

Activity 1: Visit an informal settlement and/or rural area and study the built and un built environment. Identify the existing character, forces and challenges of the setting and design

a common community space (anganwadi, community hall, toilets etc) through bio mimicking. .

**` OPEN ELECTIVE:**

The college has the discretion to offer an open elective in the areas/subject/field other than already covered under the syllabus. The college can decide to offer need based electives depending on the availability of the expertise. However, the college will require to submit the title of such electives with the course outline stating learning objectives and mode of delivering the content to the Registrar/ Registrar (evaluation) within the 15 days of the commencement of the semester.

**Assessment Details (CIE)**

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

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

**Continuous Internal Evaluation:**

Methods suggested:

1. Studio discussions, Reviews, Time problems, CIE tests, Seminar or micro project, Quiz, report writing etc.
2. The class teacher has to decide the course of learning for the Elective subject, in the beginning only. The teacher has to announce the methods of CIE for the subject in advance in writing.

**Semester End Examination:**

1. There is no Semester End Exam (SEE) The CIE marks list generated is to be signed by the internal examiners and submitted to VTU as per the procedure through the Principal of the institution.

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

- <https://ndl.iitkgp.ac.in>
- <https://www.youtube.com/watch?v=tKcyrlsQwA&t=51s>
- [https://www.youtube.com/watch?v=a-QGF4p\\_c&t=71s](https://www.youtube.com/watch?v=a-QGF4p_c&t=71s)
- <https://www.youtube.com/watch?v=ztSxjDxGfFI>
- <https://www.youtube.com/watch?v=0fzKAGydTzs>
- <https://www.youtube.com/watch?v=f89x0rEtye8>
- <https://www.youtube.com/watch?v=RtZYxYEz5k>
- [https://www.youtube.com/watch?v=ZzsG\\_AbkmmM](https://www.youtube.com/watch?v=ZzsG_AbkmmM)
- <https://www.youtube.com/watch?v=xwVM3DiEvdU>
  
- <https://www.acedge.in/courses/writings-in-architecture>
- <https://www.archdaily.com/891269/were-hiring-join-our-content-team>
  
- <https://www.youtube.com/watch?v=gRCNvZ55M2A>
- <https://biomimicry.org/next-design-innovation-built-environment-learning-nature/>
- <https://www.youtube.com/watch?v=1BNbXBQnhGg>
- <https://www.youtube.com/watch?v=wwAXzlHpSs8>

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

- 1) Participating in Bamboo construction as a craft.

## VII Semester

### Traffic Awareness & Road Safety

Course Code	21ARC79	CIE Marks	100
Teaching Hours/Week (L:T:P: S)	1:0:0:0	SEE Marks	--
Total Hours of Pedagogy	12	Total Marks	100
Credits	01	Exam Hours	--

#### Course objectives:

To Introduce the concept, principles, tools and aids of Road Safety and Civic Sense to the students of B Arch. To acquaint them with the design and safety standards for roads. Also inculcate the practice of safe road behaviour and civic sense among them.

#### Teaching-Learning Process (General Instructions)

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

1. Use of theory, activities, sketches, drawings, assignment and tutorial for teaching.
2. Evaluation by quiz, tests, classroom activities.

### Module-1

#### 1) Introduction to Road Safety.

Road as an active space, Types of users, User behaviour, Sensory Factors like Vision and Hearing in User Behaviour.

Types of Vehicles: Heavy Vehicles, Light Motor Vehicle, Two Wheelers, Auto- Rickshaw, Bicycles and Cycle Rickshaws, Non Motorised Vehicles.

Vehicle Characteristics: Dimensions, Weight, Turning Radii, Braking Distance, Lighting System, Tyres, etc.

Types of Hazards: Conflicts and Accidents.

<b>Teaching-Learning Process</b>	1) The teacher can use PPTs, Videos to discuss the topic 2) The students need to sketch/draw the technical details. 3) Quizzes, reports, seminars from students can be encouraged
<b>Module-2</b>	
<p><b>2) Typology of Roads: Components and Design</b></p> <p>Road Classification: National Highways, State Highways, District Roads (MDR and ODR), Village Roads.</p> <p>Urban Road Classification: Expressways, Arterial, Sub-Arterial, Collector, Local, Service Roads, One-Way, Two-Way etc. Mountainous Roads. Speed Limits of Road types.</p> <p>Design of Roads: Cross Sectional Elements- Right of Way, Carriageway, Median, Shoulders, Side Walks, Lanes, Cycling Track, Green Strip, Curbs, Camber, etc. Spatial Standards for the Cross-Section Design. Relationship between Road design and Road Safety.</p> <p><b>3) Intersections</b></p> <p>Types of Road Intersections: Basic forms of at-grade Junctions (T, Y, Staggered, Skewed, Cross, Scissors, Rotary, etc. Grade Separated Junctions (with or without interchange): Three -Leg, Four-Leg, Multi-Leg, etc.</p> <p>Design of Intersections: Design and Spatial Standards for Traffic Islands, Turns, Turning Radii, Directional Lanes, Pedestrian Crossings, Median Openings, Traffic Calming Components like Speed Breakers and Table-Top Crossings etc.</p> <p>Design Considerations for Diverging, Merging and Weaving Traffic.</p> <p>Location and Design for Traffic Signals.</p>	
<b>Teaching-Learning Process</b>	1) The teacher can use PPTs, Videos to discuss the topic 2) The students need to sketch/draw the technical details. 3) Quizzes, reports, seminars from students can be encouraged
<b>Module-3</b>	
<p><b>4) Pedestrian Circulation and Barrier Free Design</b></p> <p>Requirement of Pedestrian Infrastructure: Sidewalks and footpaths, Recommended Sidewalk widths, Pedestrian Crossing, Pedestrian Bridges, Subways, Cycle Tracks, etc.</p> <p>Barrier free design: Location and Design Standards for Ramps for wheel Chair Access, Other Provisions like Tactile for Visually Challenged etc.</p> <p>Safety Provisions: Pedestrian Railings, Anti-skid Flooring, Pedestrian Signal, Walk Button, etc.</p>	
<b>Teaching-Learning Process</b>	1) The teacher can use PPTs, Videos to discuss the topic 2) The students need to sketch/draw the technical details. 3) Quizzes, reports, seminars from students can be encouraged
<b>Module-4</b>	

## 5) Traffic Signs and Road Markings

Types of Traffic Signs: Principles and Types of Traffic Signs, Danger Signs, Prohibitory Signs, Mandatory Signs, Informatory Signs, Induction Signs, Direction Signs, Place Identification Signs, Route Marker Signs, etc. Reflective Signs, LED Signs, Static and Dynamic signs.

Standards for Traffic Signs: Location, Height and Maintenance of Traffic Signs.

Types of Road Markings: Centre Lines, Traffic Lane Lines, Pavement Edge Lines, No Overtaking Zone Markings, Speed Markings, Hazard Markings, Stop Lines, Pedestrian Crossings, Cyclist Crossings, Route Direction Arrows, Word Messages, Marking at Intersections, etc.

Material, Colour, and Typography of the Markings.

## 6) Traffic Signals, Traffic Control Aids, Street Lighting

Traffic Signals: Introduction, Advantages and Disadvantages

Signal Indications: Vehicular, Pedestrian and Location of the Signals.

Signal Face, Illustration of the Signals, Red, Amber, Green Signals and its significance, Flashing Signals

Warrant of Signals, Co-ordinated Control of Signals.

Traffic Control Aids: Roadway Delineators (Curved and Straight Sections) Hazard Markers, Object Markers, Speed Breakers, Table Top Crossings, Rumble Strips, Guard Rails and Crash Barriers etc.

Street Lighting: Need for Street Lighting, Type of Lighting, Illumination Standard, Location and Intermediate Distance.

**Teaching-Learning Process**

- 1) The teacher can use PPTs, Videos to discuss the topic
- 2) The students need to sketch/draw the technical details.
- 3) Quizzes, reports, seminars from students can be encouraged

**Module-5**

## 7) Road Accidents

Nature and Types of Road Accidents ( Grievously Injured, Slightly Injured, Minor Injury, Non injury, etc)

The Situation of Road Accidents in India (yearly), Fatality Rates, etc

Factors (and Violations) that cause accidents. Prevention and First Aid to Victims.

Collision Diagrams and Condition Diagram exercises.

Traffic Management Measures and their influence in Accident Prevention.

## 8) Road Safety and Civic Sense

Need for Road Category of Road Users and Road Safety Suggestions.

Precautions for Driving in Difficult Conditions (Night, Rain, Fog, Skidding Conditions, Non Functional Traffic lights, etc.)

Type of Breakdowns and Mechanical Failures. Accident Sign (Warning Light, Warning Triangle, etc.)

Introduction to Concept of Civic Sense and its relationship to Road Safety: Importance of Civic Sense, Road Etiquettes and Road User Behaviour, Rules of Road, Right of the Way. Providing Assistance to Accident Victim. Sensitisation against Road Rage.

## 9) Traffic Regulations, Laws & Legislations

Indian Motor Vehicle Act ( Chapter VIII: Control of Traffic to be discussed in detail)

Regulation Concerning Traffic: Cycles, Motor Cycles and Scooters, Rules for Pedestrian Traffic, Keep to the Left Rule, Overtaking Rules, Turning Rules, Priority Rules, Hand Signals, etc.

Speed and Hazard Management. Penal Provisions.

National Road Safety Policy, Central Motor Vehicle Rules, State Motor Vehicle Rules.

Introduction to Good Practices.

### Teaching-Learning Process

- 1) The teacher can use PPTs, Videos to discuss the topic
- 2) The students need to sketch/draw the technical details.
- 3) Quizzes, reports, seminars from students can be encouraged

### Course outcome (Course Skill Set)

- 1) The students will be able to learn various aspects of road safety.
- 2) The students will be able to apply technical details in design of various types of road and road geometrics.
- 3) The students will be able to understand legislations with respect to road safety.

**Assessment Details (CIE)**

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

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

**Continuous Internal Evaluation:**

Methods suggested:

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

**Semester End Examination:**

1. There is no Semester End Exam (SEE) The CIE marks list generated is to be signed by the internal examiners and submitted to VTU as per the procedure through the Principal of the institution.

**Suggested Learning Resources:****Books**

1. Introduction to Traffic Engineering, R Srinivasa Kumar
2. Traffic Engineering and Transport Planning, L R Kadiyali
3. Book on Road Safety Signage and Signs, Ministry of RoadTransport and Highways, Government of India.
4. MORT&H Pocketbook of Highway Engineers, 2019( Third Revision)
5. Publication by UTTIPEC namely, Street Design Guidelines, UTTIPEC guidelines for Road Marking, UTTIPEC guideline and specification for Crash Barriers, Pedestrian Railing and Dividers, UTTIPEC Standard Type Crossing Design.
6. Street Design Standards as provided in Timesavers, Neuferts etc.
7. Publications by Indian Road Congress.

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

- <https://ndl.iitkgp.ac.in>
- <https://www.youtube.com/watch?v=5sl9kDnFTbg>
- <https://www.youtube.com/watch?v=imtg0SYq5IM>
- <https://www.youtube.com/watch?v=BZQFNvYMAm8>
- <https://www.youtube.com/watch?v=sCXtcXD17qU>

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

1. Visit to Regional Transport office to observe variety of activities and discussion with officials.
2. Participation in Traffic Surveys.
3. Preparation of a street plan and drawings for pedestrian friendly environment.

## VIII Semester

<b>Professional Training</b>			
Course Code	<b>21ARC81</b>	CIE Marks	--
Teaching Hours/Week (L:T:P: S)	--	SEE Marks(VIVA)	200
Total Hours of Pedagogy	16WEEKS DURATION	Total Marks	200
Credits	18	Exam Hours	-
<b>Course objectives:</b> <i>To provide exposure to the various aspects of architectural practice</i>			
<b>Teaching-Learning Process (General Instructions)</b> These are sample Strategies, which teacher can use to accelerate the attainment of the various course outcomes.  Orientation under an architect that would include the process of development of conceptual ideas, presentation skills, involvement in office discussions, client meetings, development of the concepts into working drawings, tendering procedure, site supervision during execution and coordination with the agencies involved in the construction process and to facilitate the understanding of the evolution of an architectural project from design to execution.			
<b>OUTLINE:</b>  The student is expected to be exposed to preparation of working drawing, detailing, preparation of architectural models, computer applications in design and drafting, filing system in respect of documents, drawing and preparation of tender documents. Site experience may be given in respect of supervision of the construction activity, observing the layout on site, study of the stacking methods of various building materials, study of taking measurement and recording.  Students should also acquaint themselves with local building byelaw.			
<b>Monitoring of Training:</b>  A. Submission of Joining report: To be submitted within one week from the date of joining. Students must report for the training from the day of commencement of 9th semester as notified by VTU.  B. Submission of periodical reports: Students shall maintain a day to day record of their engagement for the period of training. This will be recorded in an authorized diary to be counter signed by the architect at the end of each week and the same diary shall be sent to the training co-ordinator once in a month.  C. Completion certificate: At the end of the training period, a student shall produce a certificate of satisfactory completion of training in duplicate.			



**Submission of Portfolio:**

Students shall present a portfolio containing the following works before the examiners for Viva-Voce Examination:

- 1) Training Report: This shall contain copies of only such drawings which have been dealt, drafted or designed by student. It shall also contain a brief description of works handled during the training along with photographs, pencil sketches etc.
- 2) Building Study – This shall include a detailed critical study of a building designed by the architect with whom the student has worked. The study should include of function, aesthetics, context, structure etc., This shall be presented through drawings, photographs, write ups etc.
- 3) Building Material Study – This shall be a detailed study of new or relatively new building materials available in the market. A study of its properties, uses, cost, maintenance etc., is expected to be done. Samples of materials shall also be obtained and presented.
- 4) Detailing study – This shall be a study of interesting details done in the firm where the student has undertaken the training. This shall include sketches and photographs of the detail.

**Note:**

1. Students shall work only in architectural firms functioning over 5 years and headed by an architect registered with Council of Architecture, New Delhi.
2. In case of an architectural firm abroad, the Principal Architect of the firm should hold the title of architect under the law of that country.

**Teaching-Learning Process**

- 1) Students need to observe the technical details and detailing used in the office while preparing drawings.
- 2) Students need to observe the procedures and systems of the office while submitting the drawings, reports etc.
- 3) Students need to be proactive for the assignments given to them.

**Course outcome (Course Skill Set)**

- 1) The students get exposed to the professional work and field work.
- 2) The students will relate the academic work with professional work.
- 3) The students will appreciate the pace of the work in profession and learn to work as a team member.

**Assessment Details (both CIE and SEE)****Continuous Internal Evaluation:**

- 4) There is no Continuous Internal Evaluation Marks for this subject. However students to send their appointment order and joining letter to HOD/Principal as record.
- 5) The students need to update their progress to the institution on monthly basis
- 6) The students need to submit a portfolio of work done by them in an Architect's office as per the details given in the submission portfolio above.

**Semester End Examination:**

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

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

**Suggested Learning Resources:****Books**

Professional Practice by Roshan Namavati

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

- <https://ndl.iitkgp.ac.in>
- <https://www.youtube.com/watch?v=NPj-Jiz2cJk>
- [https://www.youtube.com/watch?v=6ASoSf\\_DaYU](https://www.youtube.com/watch?v=6ASoSf_DaYU)
- <https://www.youtube.com/watch?v=34gw4FfyeUg>
- [https://www.youtube.com/watch?v=0k-ii9vJA\\_0](https://www.youtube.com/watch?v=0k-ii9vJA_0)

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

- 1) The student can visit sites along with office staff and document the learning.
- 2) The student to collect the information on various materials and document the same.
- 3) The student to document a building of the Architect and critically analyse the same.

## IX Semester

<b>ARCHITECTURAL DESIGN -VIII (ARCHITECTURE IN URBAN DESIGN CONTEXT)</b>			
Course Code	<b>21ARC91</b>	CIE Marks	100
Teaching Hours/Week (L:T:P: S)	0:0:0:8	SEE Marks(VIVA)	100
Total Hours of Pedagogy	95	Total Marks	200
Credits	8	Exam Hours	-
<b>Course objectives:</b>			
<p>(a) <i>To introduce the key components &amp; terminology with respect to processes and aspects of urban environment and their inter-relationships; to explore specific themes/issues in the public realm such as public spaces, physical infrastructure, socio-cultural aspects (heritage, gender, urban growth, informality, place identity, collective memory, walkability, livability, zoning regulations) and the role of architecture in shaping the urban fabric.</i></p>			
<p>(b) <i>To learn basic methods/techniques to read, analyse and interpret (mapping, diagramming and theoretical premise) the dynamics and various dimensions of the urban environment.</i></p>			
<p>(c) <i>To create /design Architecture that is linked seamlessly with Urban Planning and Urban design strategies and guidelines</i></p>			
<b>Teaching-Learning Process (General Instructions)</b>			
These are sample Strategies, which teacher can use to accelerate the attainment of the various course outcomes.			
<ol style="list-style-type: none"><li>1. Use of theory, activities, sketches, drawings, assignment and studio works for teaching.</li><li>2. Evaluation by studio discussions, internal and external juries, students seminars, etc.</li></ol>			
<b>INTRODUCTION:</b>			
<p>In an increasingly urbanized world, architecture plays a vital role in shaping and influencing a complex urban environment (the design of cities) and creating meaningful places that enrich the lives of people. It is important to understand the many scales at which architecture can engage with the urban context, from building on the unique local character/form to enhance public spaces to urban development projects (infrastructure/transport interchanges/terminals) that impact larger geographic regions beyond the city. The Studio intent is to introduce the discipline of urban design (interdisciplinary premise, scope, techniques and best practices) and understand architecture as a part of implementing urban design projects, from gathering insights into urban fabric (and critically examining its metabolic relationship with ecological cycles), understanding how communities use spaces, to understanding how policies influence and guide urban design. The studio intends to develop a sense of orientation and a grounding of how to respond and fit in the immediate urban context and how the intervention modifies the quality and character of the urban environment.</p>			

**OUTLINE:**

The studio will be divided into two components

- (a) Rigorous, directed and brief study of an urban context (techniques mapping, diagramming) that will lead to clear understanding of dynamic networks, issues affecting the area and design strategies that build on the strength and opportunities to create meaningful spaces for communities. Various case studies (literature/site visits) will be analyzed at various stages. Developing an understanding of the urban development in India and its role in accelerating ecological imbalance and intensifying the concentration of population in urban areas. Critically reviewing and analyzing current infrastructure projects and the idea of Smart City, AMRUT and HRIDAY cities (Activity1 and 2).
- (b) Suitable design intervention addressing concerns such as the need to create public realm as extension of the private domain of buildings; the impact and relationship of buildings to the larger context. The key ideas informing the selection of the design projects are multi- functional spaces, public access to the majority of spaces, large gathering and event spaces which can be extended to immediate urban context. The probable architectural design projects include urban infill, revitalization and renewal of urban fragments, adaptive reuse, urban waterfront development, transportation nodes/interchanges, multi-use urban complexes including museums, performing arts centres.

**Note:**

- (a) The design shall be sensitive to the needs of differently abled, aged people and children.
- (b) One major project to be tackled in the semester, along with minor research component in the programmes of urban design thinking.
- (c) Design shall address Place making/Sense of Place/ Visual identity/ Character/Socio cultural values etc.

**Course outcome (Course Skill Set)**

- (a) Study and Analysis of an delineated Urban Precinct with respect to Urban renewal/Revitalisation/development/Conservation compiled and presented as drawings, models and report explaining the intent and inferences from the study & Analysis undertaken (25% grade)
- (b) Framing urban design Strategies and Guidelines to link Architectural design project. ( Research work- Minor project) (25% grade)
- (c) Architectural Design within the precinct with drawings and models (Manual/Digital) explaining the design process (50% grade)