VIT®

Vellore Institute of Technology

(Deemed to be University under section 3 of UGC Act, 1956)

V- SPARC: School of Architecture

5-year **B.Arch**. Programme

Curriculum and Syllabus 2018

CONTENTS

VISION STATEMENT OF VELLORE INSTITUTE OF TECHNOLOGY

Transforming life through excellence in education and research

MISSION STATEMENT OF VELLORE INSTITUTE OF TECHNOLOGY

World class Education: Excellence in education, grounded in ethics and critical thinking, for improvement of life.

Cutting edge Research: An innovation ecosystem to extend knowledge and solve critical problems.

Impactful People: Happy, accountable, caring and effective workforce and students.

Rewarding Co-creations: Active collaboration with national & international industries & universities for productivity and economic development.

Service to Society: Service to the region and world through knowledge and compassion.

VISION STATEMENT OF SCHOOL OF ARCHITECTURE

V-SPARC School of Architecture strives to be a Centre of Excellence in Architectural Planning Education and Research focused towards evolving Socially Sensitive Individuals equipped with design, technology process and realization skills to contribute responsibly to the changing needs of natural and built environment.

MISSION STATEMENT OF SCHOOL OF ARCHITECTURE

To be seen as an institution promoting the intents of Indian society particularly its culture and resolving economic challenges through intelligent and responsible thought processes.

To create a vibrant, self-aware and confident student community, capable of independent thinking and analysis and setting targets for achievement borne out of deep self-respect.

Programme Outcomes (POs)

PO_01: Having an ability to apply mathematics and science in architecture applications.
PO_02: Having a clear understanding of the subject related concepts and of contemporary issues.
PO_03: Having an ability to design a component or a product applying all the relevant standards and with realistic constraints.
PO_04: Having an ability to design and conduct experiments, as well as to analyse and interpret data, and synthesis of information
PO_05: Having an ability to use techniques, skills, resources and modern architectural tools necessary for architecture practice
PO_06: Having problem solving ability- to assess social issues and architecture problems
PO_07: Having adaptive thinking and adaptability in relation to environmental context and sustainable development
PO_08: Having a clear understanding of professional and ethical responsibility
PO_09: Having cross cultural competency exhibited by working as a member or in teams
PO_10: Having a good working knowledge of communicating in English
PO_11: Having a good cognitive load management skill related to project management and finance
PO_12: Having interest and recognise the need for independent and lifelong learning

Programme Specific Outcomes

On completion of B. Arch (Bachelor of Architecture) programme, graduates will be able to

PSO1: Understand architecture through the knowledge of building sciences, civil engineering technology, pure and applied arts, and environmental studies, historical, cultural, socio-economic and legal parameters related to the built environment.

PSO2: Analyse and Evaluate built form and environmental needs pertinent to a specific context and apply the knowledge of architecture in providing directions for responsible development intervention.

PSO3: Create sustainable architectural design solution to meet societal needs.

Programme Educational Objectives

PEO1-Ability to apply technological and aesthetic principles in providingsolutions to issues concerning the built environment

PEO2-Ability to engage with other socio- economic and engineering disciplinesin the provisions of architectural solutions

PEO3-Ability to provide sustainable and humane directions in built formdevelopment

Split-up of courses

Sl. No.	Category	Credits
1	University Core	20
2	University Elective	12
3	Programme Core	117
4	Programme Elective	71
	Minimum credits required to qualify	220

Category-wise Breakup of Credits

Category	Number of Credits	Credit Distribution (%)
Architecture / Engineering	145	65%
Sciences	22	10%
Humanities	21	10%
Management	32	15%
Total	**220**	**100%**

NOTE:-

L - Lecture hours per week
T - Tutorial hours per week (utilised for giving the assignment presentations etc.)
L - Lab working hours
J - Project component in any subject
C - Credits per semester
TH - Theory only
LO - Lab only
ETP - Embedded theory and project
ETL - Embedded theory and lab
ELP - Embedded lab and project
PJT - Project

University Core Courses

Course Title	L	T	P	J	C	Area	Prerequisite
Foreign Language (basket)	1	0	2	0	2	Humanities	None
Communicative English	1	0	2	0	2	Humanities	None
Ethics and Values * (EV)	1	0	0	4	2	Humanities	None
Mathematics for Built Environment	3	0	0	0	3	Science	None
Environmental Studies	3	0	0	0	3	Science	None
Soft Skill* [6x1 credit each]	0	0	0	4	1 (6)	Humanities	None
Lean Start-up Management	1	0	0	4	2	Management	None
Total					**20**		

University Elective Courses

Course Title	Credit	Area
Choice of University Elective	12	
Total	**12**	

B. Arch Curriculum

Programme core

Course code	Course title	Course type	Pre-requisite	L	T	P	J	C
ARC1013	Basic Design and Workshop	ELP	None	0	0	12	8	8
ARC1015	Basic Architectural Graphics	LO	None	0	0	6	0	3
ARC1017	Professional Practice	TH	ARC3099	3	0	0	0	3
ARC1019	Principles of Structures	ETP	None	2	0	0	4	3
ARC1023	Building Services - Plumbing & Sanitary	TH	ARC2005	3	0	0	0	3
ARC1025	Environmental Studies - Site Planning, Landscape & climatology	ETP	ARC2005	2	0	0	4	3
ARC2001	Strength of Materials	TH	ARC1019	2	0	0	0	2
ARC2003	Construction Technology - Raw & Processed Natural Materials	ETL	None	1	0	4	0	3
ARC2005	Architectural Design - Spatial Understanding	ELP	ARC1013	0	0	12	4	7
ARC2017	History & Theory of Architecture – Contemporary	ETP	ARC1013/ ARC2020	3	0	0	4	4
ARC3001	Architectural Design - Rural Study	ELP	ARC2005	0	0	12	4	7
ARC3003	Construction Technology -Concrete & Steel	ETL	ARC2003	1	0	4	0	3
ARC3099	Architectural Internship	PJT	ARC5003	-	-	-	-	12
ARC4001	Architectural Design - Community	ELP	ARC3001	0	0	12	4	7
ARC4012	Architectural Design – Complex Typologies	ELP	ARC3099	0	0	12	4	7
ARC5003	Architectural Design - Digital Design	ELP	ARC5014	0	0	12	4	7
ARC5005	Architectural Thesis	PJT	ARC5015	-	-	-	-	17
ARC5014	Architectural Design – Institutions	ELP	ARC4001	0	0	12	4	7
ARC5015	Architectural Design - Urban Transformation	ELP	ARC4012	0	0	12	4	7

ARC3006	History & Theory of Architecture - Ancient	ETP	ARC2005	3	0	0	4	4

Programme elective

Course code	Course title	Course type	Pre-requisite	L	T	P	J	C
ARC1008	Art Forms Appreciation	TH	Nil	3	0	0	0	3
ARC1009	Ideation	LO	Nil	0	0	4	4	3
ARC1014	Visual Arts - Basic SkillDevelopment	LO	Nil	0	0	8	0	4
ARC1016	Study Tour 1	PJT	Nil	-	-	-	-	2
ARC1018	Theory of Landscape Design	ETP	ARC4001	2	0	0	4	3
ARC1020	Human Settlements & VernacularArchitecture	ETP	ARC3099	2	0	0	4	3
ARC1022	Architecture Structural Design -Concrete	TH	ARC2001	3	0	0	0	3
ARC1024	Computer Graphics - SkillDevelopment	LO	Nil	0	0	6	0	3
ARC1026	Interior Design	ELP	ARC4001	2	0	0	4	3
ARC1027	Furniture Design	ELP	ARC3099	0	0	4	4	3
ARC2004	Visual Arts - Advanced SkillDevelopment	LO	ARC 1014	0	0	6	0	3
ARC2006	Advanced Architectural Graphics	ELP	ARC1015	0	0	6	4	4
ARC2016	Study Tour 2	PJT	Nil	-	-	-	-	2
ARC2018	Architecture Structural Design-Composite	TH	ARC1022	3	0	0	0	3
ARC2019	Building Services Mechanical &Electrical	TH	ARC1023	3	0	0	0	3
ARC3004	Design of Services	ELP	ARC3004	2	0	0	4	3

ARC4002	Construction Technology - Aluminium, Glass & Finishes	ETL	ARC 3003	1	0	4	0	3
ARC4004	Housing	ETP	ARC3099	2	0	0	4	3
ARC4005	Urban Design	ETP	ARC4001	2	0	0	4	3
ARC4006	Construction Management	TH	ARC4001	2	0	0	4	3
ARC4007	Urban and Regional Planning	TH	ARC3099	3	0	0	0	3
ARC4008	Architecture Focus Study - Research Skills	PJT	ARC3099	-	-	-	-	2
ARC4010	Advanced Building Construction & Technology	ELP	ARC3099	2	0	0	4	3
ARC1022	Advanced Architectural Structural Design-- Concrete	ETP	ARC2001	2	0	0	4	3
ARC2018	Advanced Architectural Structural Design-- COMPOSITE	ETP	ARC1022	2	0	0	4	3
ARC4014	Theatre & Film Set Design	ETP	ARC3099	2	0	0	4	3
ARC5002	Construction Technology -Interiors & Landscape	ETL	ARC4002	1	0	4	0	3
ARC5006	Architectural Conservation	ETP	ARC4001	2	0	0	4	3
ARC5007	Architectural Photography And Journalism	ETP	ARC3099	2	0	0	4	3
ARC5009	Building Systems Integration	ETP	ARC3099	2	0	0	4	3
ARC5010	Visual Communication	ETP	ARC3099	2	0	0	4	3
ARC5011	Sustainable Architecture	ETP	ARC4001	2	0	0	4	3
ARC5012	Modular Co-ordination	ETP	ARC3099	2	0	0	4	3
ARC1021	History & Theory of Architecture - Medieval	ETP	ARC3006	3	0	0	4	4
ARC2020	History & Theory of Architecture - Industrial Era	ETP	ARC1021	3	0	0	4	4
ARC5016	Architectural Specifications and Estimation	TH	ARC4001	3	0	0	0	3
ARC5017	Accounting for Architects	TH	ARC4001	3	0	0	0	3

ARC4016	Modern Architectural Thought	TH	ARC3099	3	0	0	0	3
ARC2021	Advanced digital graphics – Skill development	ELP	ARC1024	0	0	4	4	3
ARC5018	Advanced digital process for architects	ELP	ARC1024 & ARC5003	0	0	4	4	3
ARC2022	Applied climatology	ELP	ARC 1022	0	0	4	4	3
ARC4017	Architectural Entrepreneurship	TH	ARC3099	3	0	0	0	3
ARC2023	Arts and crafts workshop	ELP	ARC1014	0	0	4	4	3
ARC3007	Architectural illumination and acoustics	TH	ARC2019	3	0	0	0	3
ARC4018	Structural system evolution	ETP	ARC3001	2	0	0	4	3
ARC2024	Urban ecology	ETP	CHY 1002	3	0	0	0	3
ARC1028	Architectural travel studies- 1	PJT	Nil	-	-	-	-	2
ARC1029	Architectural travel studies- 2	PJT	Nil	-	-	-	-	2

University core courses – Syllabus

(As downloaded from students' curriculum view)

Course code	Course title	L	T	P	J	C
ENG1012	Communicative English	0	0	4	0	2
Pre-requisite	Basic English	Syllabus version				
		v. 1.2				

Course Objectives:

1. To help the learners attain high level proficiency in all the four language skills.
2. To make the learners familiar with different types of communication.
3. To help the learners understand the barriers to communication.

Expected Course Outcome:

1. Familiarize learners with basic and fundamental principles of formal communication.
2. Engage the learners in academic, business, formal and informal communications activities.
3. Strengthen the informal, formal and creative writing skills of the learners.
4. Develop skills to comprehend, analyze and review creative works.
5. Enhance the listening skills of the learners by exposing them to documentaries, speeches etc.,

Module:1	**Listening**	**4 hours**
Formal Conversation		
Activity: Listening and responding to questions		
Module:2	**Speaking**	**6 hours**
Formal Situations		
Activity: Small talk		
Module:3	**Writing**	**4 hours**
Paragraph Writing		
Activity: Write a paragraph on your hobby/ interesting incident		
Module:4	**Reading**	**4 hours**
Sports Articles		
Activity: Reading for general information		
Module:5	**Listening**	**4 hours**
Film Clippings/ Documentaries		
Activity: Listening for specific information		
Module:6	**Speaking**	**4 hours**
Short Discussions		
Activity: Speak on issues		
Module:7	**Writing**	**4 hours**
Letter Writing		
Activity: Enquiry Letters, Complaint Letter		
Module:8	**Speaking**	**6 hours**
Interview skills		
Activity: Role play interview situations		
Module:9	**Writing**	**4 hours**
Précis writing		

Activity: Summarize the given passage		
Module:10	**Reading**	**4 hours**
Science articles		
Activity: Reading for factual information		
Module:11	**Listening**	**4 hours**
Speeches of renowned personalities		
Activity: Listen and respond to given task		
Module:12	**Writing**	**4 hours**
Short stories		
Activity: Write the story using given hints		
Module:13	**Speaking**	**4 hours**
Extempore		
Activity: Short speeches on general topics		
Module:14	**Writing**	**4 hours**
Creative writing		
Activity: Writing an essay on general topics		
	Total Lecture hours:	**60 hours**

Text Book(s)	
1.	Scanlon, Jaimie, et al. *Q: Skills for success. Listening and Speaking*.2 Oxford University Press, 2015.
2	Caplan, Nigel A., and Scott Roy Douglas. *Q, Skills for Success: Reading and Writing*.2 Oxford University Press, 2011.
Reference Books	
1.	Joan Maclean & Tony Lynch, Study Speaking, Kenneth Anderson, CUP, 2013
2	**John Thill, Courtland L. Bovee, Excellence In Business Communication, 2016, Edition 12, Pearson,** ISBN-13: 978-0134388175
3	Judith F Olson, Writing Skills: Success in 20 Minutes a Day, 2013, Edition 1, Goodwill Publishing House, ISBN-13: 978-8172452452
4	How to Speak and Write Correctly, Joseph Devlin, 2017, Edition 1, CreateSpace Independent Publishing Platform, **ISBN-13:** 978-1974637218
5.	MeenaAgarwal, English Communication, 2016, Edition 1, ISBN-13: 978-9351676737 Publisher
Mode of Evaluation: Quizzes, Presentations, Role play, Group Discussion, Assignments, Mini Project	

List of Experiments (Indicative)		
1	Listening and responding to questions	4 hours
2	Small talk	6 hours
3	Write a paragraph on your hobby/ interesting incident	4 hours
4	Reading comprehension	4 hours
5	Group discussion	4 hours
6	Letter writing	4 hours
7	Write the story using given hints/Creative writing	4 hours

Recommended by Board of Studies	22-07-2017		
Approved by Academic Council	No. 46	Date	24-08-2017

Course code	Course title	L	T	P	J	C
HUM1021 / HUM1032	ETHICS AND VALUES	2	0	0	0	2
Pre-requisite	Nil	Syllabus version				
		1.1				

Course Objectives:

1. To understand and appreciate the ethical issues faced by an individual in profession, society and polity
2. To understand the negative health impacts of certain unhealthy behaviors
3. To appreciate the need and importance of physical, emotional health and social health

Expected Course Outcome:

Students will be able to:

1. Follow sound morals and ethical values scrupulously to prove as good citizens
2. Understand various social problems and learn to act ethically
3. Understand the concept of addiction and how it will affect the physical and mental health
4. Identify ethical concerns in research and intellectual contexts, including academic integrity, use and citation of sources, the objective presentation of data, and the treatment of human subjects
5. Identify the main typologies, characteristics, activities, actors and forms of cybercrime

Module:1	Being Good and Responsible	5 hours

Gandhian values such as truth and non-violence – Comparative analysis on leaders of past and present – Society's interests versus self-interests - Personal Social Responsibility: Helping the needy, charity and serving the society

Module:2	Social Issues 1	4 hours

Harassment – Types - Prevention of harassment, Violence and Terrorism

Module:3	Social Issues 2	4 hours

Corruption: Ethical values, causes, impact, laws, prevention – Electoral malpractices;
White collar crimes - Tax evasions – Unfair trade practices

Module:4	Addiction and Health	5 hours

Peer pressure - Alcoholism: Ethical values, causes, impact, laws, prevention – Ill effects of smoking - Prevention of Suicides;
Sexual Health: Prevention and impact of pre-marital pregnancy and Sexually Transmitted Diseases

Module:5	Drug Abuse	3 hours

Abuse of different types of legal and illegal drugs: Ethical values, causes, impact, laws and prevention

Module:6	Personal and Professional Ethics	4 hours

Dishonesty - Stealing - Malpractices in Examinations – Plagiarism

Module:7	Abuse of Technologies	3 hours

Hacking and other cyber crimes, Addiction to mobile phone usage, Video games and Social networking websites

Module:8	**Contemporary issues:**		**2 hours**
Guest lectures by Experts			
	Total Lecture hours:	**30 hours**	

Reference Books

1. Dhaliwal, K.K , "Gandhian Philosophy of Ethics: A Study of Relationship between his Presupposition and Precepts,2016, Writers Choice, New Delhi, India.
2. Vittal, N, "Ending Corruption? - How to Clean up India?", 2012, Penguin Publishers, UK.
3. Pagliaro, L.A. and Pagliaro, A.M, "Handbook of Child and Adolescent Drug and Substance Abuse: Pharmacological , Developmental and Clinical Considerations", 2012Wiley Publishers, U.S.A.
4. Pandey, P. K (2012), "Sexual Harassment and Law in India", 2012, Lambert Publishers, Germany.

Mode of Evaluation: CAT, Assignment, Quiz, FAT and Seminar

Recommended by Board of Studies	26-07-2017		
Approved by Academic Council	No. 46	Date	24-08-2017

Course code	Course title	L	T	P	J	C
STS 1121	Introduction to Soft skills and Problem solving	3	0	0	0	1

Pre-requisite	None	Syllabus version
		1

Course Objectives:

- To enhance critical thinking and innovative skills
- To have working knowledge of communicating in English
- To have critical thinking and innovative skills

Expected Course Outcome:

- Enabling students to know themselves and interact better with self and environment

Module:1	Lessons on excellence	10 hours

Ethics and integrity

Importance of ethics in life, Intuitionism vs Consequentialism, Non-consequentialism, Virtue ethics vs situation ethics, Integrity - listen to conscience, Stand up for what is right

Change management

Who moved my cheese?, Tolerance of change and uncertainty, Joining the bandwagon, Adapting change for growth - overcoming inhibition

How to pick up skills faster?

Knowledge vs skill, Skill introspection, Skill acquisition, "10,000 hours rule" and the converse

Habit formation

Know your habits, How habits work? - The scientific approach, How habits work? - The psychological approach, Habits and professional success, "The Habit Loop", Domino effect, Unlearning a bad habit

Analytic and research skills.

Focused and targeted information seeking, How to make Google work for you, Data assimilation

Module:2	Team skills	11 hours

Goal setting

SMART goals, Action plans, Obstacles -Failure management

Motivation

Rewards and other motivational factors, Maslow's hierarchy of needs, Internal and external motivation

Facilitation

Planning and sequencing, Challenge by choice, Full Value Contract (FVC), Experiential learning cycle, Facilitating the Debrief

Introspection

Identify your USP, Recognize your strengths and weakness, Nurture strengths, Fixing weakness, Overcoming your complex, Confidence building

Trust and collaboration

Virtual Team building, Flexibility, Delegating, Shouldering responsibilities

Module:3	Adaptability	10 hours

Theatrix

Motion Picture, Drama, Role Play, Different kinds of expressions

Creative expression

Writing, Graphic Arts, Music, Art and Dance

Flexibility of thought

The 5'P' framework (Profiling, prioritizing, problem analysis, problem solving, planning)

Adapt to changes (tolerance of change and uncertainty)

Adaptability Curve , Survivor syndrome

Module:4	**Quantitative Aptitude**	**14 hours**

Speed Maths

- Addition and Subtraction of bigger numbers
- Square and square roots
- Cubes and cube roots
- Vedic maths techniques
- Multiplication Shortcuts
- Multiplication of 3 and higher digit numbers
- Simplifications
- Comparing fractions
- Shortcuts to find HCF and LCM
- Divisibility tests shortcuts

Algebra and functions

	Total Lecture hours:	**45 hours**	

Text Book(s)

1.	Chip Heath, How to Change Things When Change Is Hard (Hardcover), 2010, First Edition, Crown Business.
2.	Karen Kindrachuk, Introspection, 2010, 1st Edition.
3.	Karen Hough, The Improvisation Edge: Secrets to Building Trust and Radical Collaboration at Work, 2011, Berrett-Koehler Publishers
4.	FACE, Aptipedia Aptitude Encyclopedia, 2016, First Edition, Wiley Publications, Delhi.
5.	ETHNUS, Aptimithra, 2013, First edition, McGraw-Hill Education Pvt. Ltd, Banglore.
6.	SMART, PlaceMentor, 2018, 1st Edition, Oxford University Press.

Reference Books

1.	Gideon Mellenbergh, A Conceptual Introduction to Psychometrics: Development, Analysis and Application of Psychological and Educational Tests, 2011, Boom Eleven International.
2.	Phil Lapworth, An Introduction to Transactional Analysis, 2011, Sage Publications (CA)
	Mode of Evaluation: FAT, Assignments, Projects, Case studies, Role plays,3 Assessments withTerm End FAT (Computer Based Test)

Course code	Course title	L	T	P	J	C
STS 1122	Etiquette and Problem solving	3	0	0	0	1
Pre-requisite		Syllabus version				
		2				

Course Objectives:

- To enhance critical thinking and innovative skills
- To have working knowledge of communicating in English
- To have critical thinking and innovative skills

Expected Course Outcome:

- Enabling students to exhibit appropriate presentation and analytical skills

Module:1	Presentation skills – Preparing presentation and Organizing materials and Maintaining and preparing visual aids and Dealing with questions	7 hours

10 Tips to prepare PowerPoint presentation, Outlining the content, Passing the Elevator Test, Blue sky thinking, Introduction , body and conclusion, Use of Font, Use of Color, Strategic presentation, Importance and types of visual aids, Animation to captivate your audience, Design of posters, Setting out the ground rules, Dealing with interruptions, Staying in control of the questions, Handling difficult questions

Module:2	Analytical Writing – Articulate and support complex ideas	6 hours

30 minute - Analyse an Issue, 30 minute - Analyse an Argument, Construct and Evaluate arguments¸ Focused and Coherent discussion

Module:3	Speed Reading and Things to avoid during speed reading	6 hours

Skimming, Meta guiding, Auditory reading, Visual reading, Eye span expansion, Pareto principle, Applications of Pareto principle, Sub-vocalization, Regression, Pen Tracing

Module:4	Listening and speaking skills	8 hours

Debate, Idea generation, Research, Articulating, Style, Preparation of arguments –Rebuttal, Use of statistics, Practice rounds, Types of Listening, Hearing, Focus, Voice, Verbal and Non-verbal messages

Module:5	PEST Analysis & Lean Concepts	7 hours

PEST Analysis
SLEPT, STEEPLE, 360 Feedback,
Lean Concepts
Product life cycle, Waste reduction, Technology change, Product support

Module:6	Emotional Intelligence	11 hours

Transactional Analysis
Introduction**,** Contracting, Ego states**,** Life positions
Brain storming
Individual Brainstorming, Group Brainstorming, Stepladder Technique, Brain writing, Crawford's Slip writing approach, Reverse brainstorming, Star bursting, Charlette procedure, Round robin brainstorming
Psychometric Analysis
Skill Test, Personality Test
Rebus Puzzles/Problem Solving
More than one answer, Unique ways

	Total Lecture hours:	**45 hours**	

Reference Books

1.	Dale Carnegie,(1936) How to Win Friends and Influence People. New York City. Gallery Books
2.	Joyce Aemstrong and Carroll(1992) Integrated Teaching of Reading, Writing, Listening, Speaking, Viewing and Thinking. Korea. Libraries Unlimited Inc.
3.	Theo Theobald(2011) Develop your Presentation Skills. New Delhi. Kogan Page Limited.

Websites:

1.	**www.chalkstreet.com**
2.	**www.skillsyouneed.com**
3.	**www.mindtools.com**
4.	**www.thebalance.com**
5.	**www.eguru.ooo**

Mode of Evaluation: FAT, Assignments, Projects, Case studies, Role plays,
3 Assessments with Term End FAT (Computer Based Test)

Course code	Course title	L	T	P	J	C
STS 2121	Arithmetic problem solving skills	3	0	0	0	1
Pre-requisite		Syllabus version				
		1				

Course Objectives:

- To challenge students to explore their problem solving skills
- To equip students with effective presentation skills
- To develop essential skills to tackle quantitative and verbal ability questions

Expected Course Outcome:

- To open up the wide area of social interaction and improving business vocabulary.

Module:1	Building personal lexicon	6 hours

Benefits of becoming a logophile, Etymology – Root words, Prefix and suffix, Cue card technique, Mnemonic technique of learning words, word games

Module:2	Social interaction	4 hours

Accountability, Commitment, Interdependency

Module:3	Audit	4 hours

Questioning, IT auditing, System audit, Process audit, Audit cycle, Quality audit

Module:4	Thinking Skills and Introduction to problem solving process and Introduction to decision making and decision making process	4 hours

Steps to solve the problem, Simplex process, Steps involved from identification to implementation, Decision making model

Module:5	Quantitative ability	8 hours

Number System

- Number system
- Power cycle
- Remainder cycle
- Factors, Multiples
- HCF and LCM

Ratio and Proportion

- Ratio
- Proportion
- Variation
- Simple equations

- Problems on Ages
- Mixtures and alligations

Module:6	Logical ability	7 hours

Coding & decoding, Series, Analogy, Odd man out and Visual reasoning

- Coding and Decoding
- Series
- Analogy
- Odd Man Out
- Visual Reasoning

Sudoku puzzles

Solving introductory to moderate level sudoku puzzles to boost logical thinking and comfort with numbers

Module:7	Verbal ability – Strengthening Grammar Fundamentals	6 hours

Essential grammar for placements:

- Nouns and Pronouns
- Verbs
- Subject-Verb Agreement
- Pronoun-Antecedent Agreement
- Punctuations
- Adjectives and Adverbs
- Tenses
- Forms and Speech and Voice
- Idioms and Phrasal Verbs
- Collocations, Gerund and Infinitives
- Articles, Prepositions and Interrogatives

Module:8	Communication and Attitude – Self managing:	6 hours

Concepts of self management and self motivation, Greet and Know, Choice of words, Giving feedback, Taking criticism

	Total Lecture hours:	45 hours	

Reference Books

1.	David Allen(2002) Getting Things done : The Art of Stress -Free productivity. New York City. Simon and Schuster.
2.	M. Tyra(2013) Magical Book On Quicker Maths. New Delhi. BSC Publishing
3.	FACE(2016) Aptipedia Aptitude Encyclopedia. Delhi. Wiley publications
4.	ETHNUS(2013) Aptimithra. Bangalore. sMcGraw-Hill Education Pvt. Ltd.
	Websites:
	www.chalkstreet.com
	www.skillsyouneed.com
	www.mindtools.com
	www.thebalance.com
	www.eguru.ooo

Mode of Evaluation: FAT, Assignments, Projects, Case studies, Role plays,3 Assessments with Term End FAT (Computer Based Test)

Course code	Course title	L	T	P	J	C
STS 2122	Numerical and reasoning ability	3	0	0	0	1
Pre-requisite	None	Syllabus version				
		1				

Course Objectives:

- To challenge students to explore their problem-solving skills
- To develop essential skills to tackle advance quantitative and verbal ability questions
- To have working knowledge of communicating in English

Expected Course Outcome:

- Students will be introduced to basic concepts of Quantitative Aptitude, Logical reasoning and Verbal ability
- Students will develop and apply effective problem-solving skills
- Students will be able to read and demonstrate good comprehension of text in areas of the student's interest

Module:1	Study skills	10 hours

Memory techniques
Relation between memory and brain, Story line technique, Learning by mistake, Image-name association, Sharing knowledge, Visualization
Concept map
Mind Map, Algorithm Mapping, Top down and Bottom Up Approach
Time management skills
Prioritization - Time Busters, Procrastination, Scheduling, Multitasking, Monitoring
6. Working under pressure and adhering to deadlines

Module:2	Emotional Intelligence (Self Esteem)	6 hours

Empathy
Affective Empathy and Cognitive Empathy
Sympathy
Level of sympathy (Spatial proximity, Social Proximity, Compassion fatigue)

Module:3	Business Etiquette	9 hours

Social and Cultural Etiquette
Value, Manners, Customs, Language, Tradition
Writing Company Blogs
Building a blog, Developing brand message, FAQs', Assessing Competition
Internal Communications
Open and objective Communication, Two way dialogue, Understanding the audience
Planning
Identifying, Gathering Information, Analysis, Determining, Selecting plan, Progress check, Types of planning

Writing press release and meeting notes

Write a short, catchy headline, Get to the Point –summarize your subject in the first paragraph, Body – Make it relevant to your audience

Module:4	**Quantitative Ability**	**4 hours**

Percentages, Simple and Compound Interest

- Percentages as Fractions and Decimals
- Percentage Increase / Decrease
- Simple Interest
- Compound Interest
- Relation Between Simple and Compound Interest

Module:5	**Reasoning Ability**	**3 hours**

Interpreting Diagramming and sequencing information

Picture analogy, Odd picture, Picture sequence, Picture formation, Mirror image and water image

Module:6	**Verbal Ability**	**3 hours**

Reading Comprehension for placements

- Types of questions
- Comprehension strategies
- Practice exercises

Para-jumbles

- Fixed jumbles
- Anchored jumbles

Critical Reasoning

- Argument – Identifying the Different Parts (Premise, assumption, conclusion)
- Strengthening statement
- Weakening statement
- Mimic the pattern

Module:7	**Communication and Attitude**	**10 hours**

Writing

Writing formal & informal letters, How to write a blog & knowing the format, Effective ways of writing a blog, How to write an articles & knowing the format, Effective ways of writing an articles, Designing a brochures

Speaking skills

How to present a JAM, Public speaking

	Total Lecture hours:	**45 hours**	

Text Book(s)

1.	FACE, Aptipedia, Aptitude Encyclopedia, 2016, First Edition, Wiley Publications, Delhi.
2.	ETHNUS, Aptimithra, 2013, First Edition, McGraw-Hill Education Pvt. Ltd.

Reference Books	
1.	Alan Bond and Nancy Schuman, 300+ Successful Business Letters for All Occasions, 2010, Third Edition, Barron's Educational Series, New York.
2.	Josh Kaufman, The First 20 Hours: How to Learn Anything ... Fast , 2014, First Edition, Penguin Books, USA.
Mode of Evaluation: FAT, Assignments, Projects, Case studies, Role plays, 3 Assessments with Term End FAT (Computer Based Test)	

Course code	Course title	L	T	P	J	C
STS 3121	Accounting and language skills	3	0	0	0	1
Pre-requisite	None	Syllabus version				
		1				

Course Objectives:

- To challenge students to explore their problem-solving skills
- To develop essential skills to tackle advance quantitative and verbal ability questions
- To have working knowledge of communicating in English

Expected Course Outcome:

- Understanding the various strategies of conflict resolution among peers and supervisors and respond appropriately

Module:1	Social Interaction and Social Media	6 hours

Effective use of social media
Types of social media, Moderating personal information, Social media for job/profession, Communicating diplomatically
Networking on social media
Maximizing network with social media, How to advertise on social media
Event management
Event management methods, Effective techniques for better event management
Influencing
How to win friends and influence people, Building relationships, Persistence and resilience, Tools for talking when stakes are high
Conflict resolution
Definition and strategies , Styles of conflict resolution

Module:2	Non Verbal Communication	6 hours

Proximecs
Types of proximecs**,** Rapport building
Reports and Data Transcoding
Types of reports
Negotiation Skill
Effective negotiation strategies
Conflict Resolution
Types of conflicts

Module:3	Interpersonal Skill	8 hours

Social Interaction

Interpersonal Communication, Peer Communication, Bonding, Types of social interaction

Responsibility

Types of responsibilities**,** Moral and personal responsibilities

Networking

Competition, Collaboration, Content sharing

Personal Branding

Image Building, Grooming, Using social media for branding

Delegation and compliance

Assignment and responsibility, Grant of authority, Creation of accountability

Module:4	**Quantitative Ability**	**10 hours**

Time and work

- Work with different efficiencies
- Pipes and cisterns
- Work equivalence
- Division of wages

Time, Speed and Distance

- Basics of time, speed and distance
- Relative speed
- Problems based on trains
- Problems based on boats and streams
- Problems based on races

Module:5	**Reasoning Ability**	**8 hours**

Analytical Reasoning

Data Arrangement(Linear and circular & Cross Variable Relationship), Blood Relations, Puzzle test, Selection Decision table

Clocks, calendars, Direction sense and Cubes

- Clocks
- Calendars
- Direction Sense
- Cubes

Module:6	**Verbal Ability**	**7 hours**

Vocabulary Building

Synonyms & Antonyms, One word substitutes, Word Pairs, Spellings, Idioms, Sentence completion, Analogies

	Total Lecture hours:	**45 hours**

Text Book(s)

1.	FACE, Aptipedia Aptitude Encyclopedia, 2016, First Edition, Wiley Publications, Delhi.
2.	ETHNUS, Aptimithra, 2013, First Edition, McGraw-Hill Education Pvt.Ltd.
3.	Mark G. Frank, David Matsumoto, Hyi Sung Hwang, Nonverbal Communication: Science and Applications, 2012, 1st Edition, Sage Publications, New York.

Reference Books	
1.	Arun Sharma, Quantitative aptitude, 2016, 7th edition, Mcgraw Hill Education Pvt. Ltd.
2.	Kerry Patterson, Joseph Grenny, Ron McMillan, Al Switzler, Crucial Conversations: Tools for Talking When Stakes are High, 2001, 1st edition McGraw Hill Contemporary, Bangalore.
3.	Dale Carnegie, How to Win Friends and Influence People, Latest Edition, 2016. Gallery Books, New York.
Mode of evaluation: FAT, Assignments, Projects, Case studies, Role plays, 3 Assessments with Term End FAT (Computer Based Test)	

Course code	Course title	L	T	P	J	C
STS 3122	Preparation for Employment	3	0	0	0	1
Pre-requisite	None	Syllabus version				
		1				

Course Objectives:

- To challenge students to explore their problem-solving skills
- To develop essential skills to tackle advance quantitative and verbal ability questions
- To have working knowledge of communicating in English

Expected Course Outcome:

Creating in the students an understanding of decision making models and generating alternatives using appropriate expressions.

Module:1	Impression Management	8 hours

Types and techniques

Importance of impression management, Types of impression management, Techniques and case studies, Making a good first impression in an interview (TEDOS technique) , How to recover from a bad impressions/experience, Making a good first impression online

Non-verbal communication and body language

Dressing, Appearance and Grooming, Facial expression and Gestures, Body language (Kinesics), Keywords to be used, Voice elements (tone, pitch and pace)

Module:2	Group Discussion	4 hours

1.Awareness
2.Information gathering
3.Intuition about speaker
4.Structuring thoughts
5.Articulation

Module:3	Beyond Structure	4 hours

Art of questioning

How to frame questions, Blooms questioning pyramid, Purpose of questions

Etiquette

Business, Telephone etiquette, Cafeteria etiquette, Elevator etiquette, Email etiquette, Social media etiquette

Module:4	**Quantitative Ability**	**9 hours**

Profit and loss, Partnerships and averages

- Basic terminologies in profit and loss
- Partnership
- Averages
- Weighted average

Permutation, Combination and Probability

- Fundamental Counting Principle
- Permutation and Combination
- Computation of Permutation
- Circular Permutations
- Computation of Combination
- Probability

Module:5	**Reasoning Ability**	**11 hours**

Logical reasoning

Logical connectives, Syllogisms, Binary logic, Sequential output tracing, Crypto arithmetic

Data Analysis and Interpretation

Data Sufficiency

Data interpretation-Advanced Interpretation tables, pie charts & bar chats

Word group categorization questions

Puzzle type class involving students grouping words into right group orders of logical sense

Module:6	**Verbal Ability**	**9 hours**

Grammar

Spot the Errors, Sentence Correction, Gap Filling Exercise, Sentence Improvisations, Misc. Grammar Exercise

	Total Lecture hours:	**45 hours**	

Text Book(s)

1.	Micheal Kallet, Think Smarter: Critical Thinking to Improve Problem-Solving and Decision-Making Skills, April 7, 2014, 1st Edition, Wiley, New Jersey.
2.	MK Sehgal, Business Communication, 2008, 1st Edition, Excel Books, India.

3.	FACE, Aptipedia Aptitude Encyclopedia, 2016, First Edition, Wiley Publications, Delhi.
4.	ETHNUS, Aptimithra, 2013, First edition, McGraw-Hill Education Pvt. Ltd, Banglore.
Reference Books	
1.	**Andrew J. DuBrin, Impression Management in the Workplace: Research, Theory and Practice, 2010, 1st edition, Routledge.**
2.	Arun Sharma, Manorama Sharma, Quantitative aptitude, 2016, 7th edition, McGraw Hill Education Pvt. Ltd, Banglore.
3.	M. Neil Browne, Stuart M. Keeley, Asking the right questions, 2014, 11th Edition, Pearson, London.
Mode of Evaluation: FAT, Assignments, Projects, Case studies, Role plays, 3 Assessments with Term End FAT (Computer Based Test)	

Course code	Course title	L	T	P	J	C
MGT1022	Lean Start up Management	1	0	0	4	2
Pre-requisite	Nil	Syllabus version				
		v.1.0				

Course Objectives: To develop the ability to

1. Learn methods of company formation and management.
2. Gain practical skills in and experience of stating of business using pre-set collection of business ideas.
3. Learn basics of entrepreneurial skills.

Expected Course Outcome: On the completion of this course the student will be able to:

1. Understand developing business models and growth drivers
2. Use the business model canvas to map out key components of enterprise
3. Analyze market size, cost structure, revenue streams, and value chain
4. Understand build-measure-learn principles
   Foreseeing and quantifying business and financial risks

Module:1		**2 Hours**
Creativity and Design Thinking (identify the vertical for business opportunity, understand your customers, accurately assess market opportunity)		
Module:2		**3 Hours**
Minimum Viable Product (Value Proposition, Customer Segments, Build- measure-learn process)		
Module:3		**3 Hours**
Business Model Development(Channels and Partners, Revenue Model and streams, Key Resources, Activities and Costs, Customer Relationships and Customer Development Processes, Business model canvas –the lean model- templates)		
Module:4		**3 Hours**
Business Plan and Access to Funding(visioning your venture, taking the product/ service to market, Market plan including Digital & Viral Marketing, start-up finance - Costs/Profits & Losses/cash flow, Angel/VC,/Bank Loans and Key elements of raising money)		
Module:5		**3 Hours**
Legal, Regulatory, CSR, Standards, Taxes		
Module:6		**2 Hours**
Lectures by Entrepreneurs		
	Total Lecture	**15 hours**

Text Book(s)

1. The Startup Owner's Manual: The Step-By-Step Guide for Building a Great Company, Steve Blank, K & S Ranch; 1st edition (March 1, 2012)

2	The Four Steps to the Epiphany, Steve Blank, K&S Ranch; 2nd edition (July 17, 2013)
3	The Lean Startup: How Today's Entrepreneurs Use Continuous Innovation to Create Radically Successful Businesses, Eric Ries, Crown Business; (13 September 2011)
Reference Books	
1.	Holding a Cat by the Tail, Steve Blank, K&S Ranch Publishing LLC (August 14, 2014)
2	Product Design and Development, Karal T Ulrich, SD Eppinger, McGraw Hill
3	Zero to One: Notes on Startups, or How to Build the Future, Peter Thiel, Crown Business(2014)
4	Lean Analytics: Use Data to Build a Better Startup Faster (Lean Series), Alistair Croll& Benjamin Yoskovitz, O'Reilly Media; 1st Edition (March 21, 2013)
5	Inspired: How To Create Products Customers Love, Marty Cagan, SVPG Press; 1st edition (June 18, 2008)
6	**Website References:** 1. http://theleanstartup.com/ 2. https://www.kickstarter.com/projects/881308232/only-on-kickstarter-the-leaders-guide-by-eric-ries 3. http://businessmodelgeneration.com/ 4. https://www.leanstartupmachine.com/ 5. https://www.youtube.com/watch?v=fEvKo90qBns 6. http://thenextweb.com/entrepreneur/2015/07/05/whats-wrong-with-the-lean-startup-methodology/#gref 7. http://www.businessinsider.in/Whats-Lean-about-Lean-Startup/articleshow/53615661.cms 8. https://steveblank.com/tools-and-blogs-for-entrepreneurs/ 9. https://hbr.org/2013/05/why-the-lean-start-up-changes-everything 10. chventures.blogspot.in/ platformsandnetworks.blogspot.in/p/saas-model.html

Mode of Evaluation: Assignments; Field Trips, Case Studies; e-learning; Learning through research, TED Talks

Project		
1.	Project	60 hours
	Total Project	**60 hours**

Recommended by Board of Studies	08-06-2015		
Approved by Academic Council	37	Date	16-06-2015

Programme core courses – Syllabus

ARC1013	BASIC DESIGN AND WORKSHOP	L	T	P	J	C
		0	0	12	8	8
Pre-requisite	**Nil**					

Course Objectives:

The course is aimed at

To facilitate the understanding to basic principles of design and hands-on working with different materials, so as to communicate Design from conception of ideas into forms through various stages of a process.

Expected Course Outcome:

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

[1] Experiment elements of design, and perception of space.

[2] Understand concepts of architecture: space, form, enclosure and quality of space, principles of design like harmony, symmetry etc. and their application.

[3] Develop interrelationship of architectural space to form, structure, and materials to help students develop a visual and tacit structural understanding through models and installations.

[4] Experimental understanding of colours, textures and compositions. To draw inspiration and clues from nature and real world situations

[5]Apply basic design principles to abstract spaces and create product design

[6] Investigate forms and spaces through exercises in geometry and other methods by experimenting with models.

[7] Evaluate the Elements of design and relationships, anthropometrics, human activity and the use of space

Module: 1	Introduction and Exercises with Dots composition design (or through a story line), to sensitize students to delineating space and location.	**24 hours**
Module: 2	Exercises with Line Composition/measurements, using Extension of Dots (or in a story line) to sensitize students to aspects of axis and paths	**12hours**
Module: 3	Exercises with Shapes composition and planar model creation using different materials	**12 hours**
Module: 4	Exercises with form - Creation of a stable structures using sticks	**12 hours**
Module: 5	Shapes to Form creation in drawings and in pop models	**24 hours**
Module: 6	Shapes to Form creation in drawings and in pop models	**12 hours**
Module: 7	Understanding Surfaces - Color and Textures; Drawings and models, Creation of the abstraction and Texture	**12 hours**

	composition from real world situation - Earth, Sky and Horizon	
Module: 8	Abstracting Spaces - (For example - park, etc) Models and drawings	**12 hours**
Module: 9	Product Design (example - abstracting from a movie inspiration, etc)	**12 hours**
Module: 10	Spatial Design and Measurements - (like sculpture/petty shop, etc) - by the typical architectural design process involving the study, documentation of existing space and then designing to a context.	**24 hours**
Module: 11	Design project - Elements and relationships - Wall, column, plinth and roof	**24 hours**
Total Lecture Hours		**180 hours**

Reference Books

1.	Ching Francis.D.K. - Architecture - Form, Space and Order, Phaidon Press, 2014
2.	Leonard Parker, et al. - Basic Design Principles of Architecture, Kindle books, 2014
3.	De. Chiara and Callender, - Time Saver Standards for Building types, McGraw - Hill Co., N.Y, 2014
4.	Neufert's Architects' Data, Wiley-Blackwell Publishing Ltd, 2012

Mode of evaluation: Assignments, Final Assessment Test

List of exercises (Indicative)

1.Investigate the symbiotic relationship between positive and negative spaces in a cubic volume. Represent your findings graphically and through 3D physical models	12 hours
2.Create geometric volumes through combination of lines and planes to simulate a pavilion environment	12 hours
3. Study the effect of light and colours on interior spaces through simulation models and photographic documentation	12 hours

Recommended by Board of Studies	02-06-2016		
Approved by Academic Council	**No. 41**	Date	17-06-2016

ARC1015	BASIC ARCHITECTURAL GRAPHICS	L	T	P	J	C
		0	0	6	0	3
Pre-requisite	**Nil**					

Course Objectives:

The course is aimed at
Learn Basic Architectural Drawing, understand Geometrical drawing and their application / develop visualization skills.

Expected Course Outcome:

At the end of the course the student should be able to
[1] To understand basic architecture drafting principles and techniques.
[2] To understand the meaning of lines and lettering in graphic communication
[3] To produce technical drawings required for architectural representation.
[4] Able to distinguish different geometric shapes and their projections.
[5] To visualize, understand and document spaces using various methods of measure drawing.

Module: 1	Lines and Line types	6 hours
Module: 2	Lettering types And Lettering	6 hours
Module: 3	Scales	6 hours
Module: 4	Diagonal and linear scales	6 hours
Module: 5	Geometric shapes in Architectural implications- Regular Polygon	12 hours
Module: 6	Drawing using of scales in the construction of irregular polygon	6 hours
Module: 7	Ellipse, parabola, hyperbola & an oval	6 hours
Module: 8	Arch, Arch types& Ionic Volute construction	6 hours
Module: 9	Orthographic projections	12 hours
Module: 10	Isometric projections of simple plane geometry &solid geometry	9 hours
Module: 11	Section of Solids	9 hours
Module: 12	Measured Drawings of simple objects	6 hours
Total Lecture Hours		**90 hours**

Reference Books

1.	Morris, I.H. Geometrical Drawing for Art Students.
2.	Bhatt, N.D. and Panchal V.M. Engineering Drawing: Plane and Solid Geometry, 42nd ed. Charotar Pub., Anand, 2000

List of exercises (Indicative)			
1. Select a famous building from internet sources. Identify the primary geometric shapes and forms which constitute the building mass using technical drawing method			6 hours
2. Select a neighbourhood region of abour 2sq.km from google earth. Sketch the schematic layout of the neighbourhood to suitable scale using linear and diagonal methods.			6 hours
3. Create a 3D volumetric composition using simple geometric forms such as cube,cylinder, sphere, cone etc. Represent the volume through conventional orthographic drawings.			6 hours
Recommended by Board of Studies	02-06-2016		
Approved by Academic Council	**No. 41**	Date	17-06-2016

ARC1017	PROFESSIONAL PRACTICE	L	T	P	J	C
		3	0	0	0	3
Pre-requisite	**ARC3099**					

Course Objectives:

The course is aimed at

[1] To create awareness regarding the various activities involved in the practice of architecture and the role of professional and statutory bodies including legalities, interdisciplinary relationships and the implications of globalization.

Expected Course Outcome:

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

[1]Understand the uniqueness of architectural profession, ethics and associated services

[2]Get familiarized with the various roles and responsibilities of COA and IIA and various Architectural Design competitions

[3]Understand the fee structure and legal legislation that are associated with architectural practice

[4]To demonstrate understanding of legal and documentation practices as applicable to the architectural profession.

[5]To provide understanding of globalization and relationship with allied professionals.

Module: 1	**Introduction to Architectural Profession**	**3 hours**

Role of Architects in Society, Registration as an Architect, Role of the Council of Architecture and the Indian Institute of Architects and salient features of their roles and responsibilities.

Module: 2	**Professional & Regulatory Bodies For Architectural Practice In India, Code Of Conduct And Ethics**	**9 hours**

Various stages in the execution of a project and scope of architect's services, fee structures, terms and conditions of engagement.

Module: 3	**Architectural Competitions**	**6 hours**

Types of Architectural Competitions-single and multiple stage, national and international, with case studies.

Module: 4	**Tenders**	**3 hours**

Understanding tenders, open and closed, conditions, tender documents, tender analysis and recommendations, e-tendering.

Module: 5	**Contracts and Current Trends in project formulation**	**9 hours**

Understanding contracts, Articles of Agreement, Terms and Conditions,Bills of Quantities , Specifications, Special conditions. New trends in project formulation, different types of execution(BOT, DBOT, etc.), process of execution-expression of interest, Request for proposal, mode of bid evaluation, award of work.

Module: 6	**Legal Aspects, Important Legislations**	**6 hours**

Legal Aspects of Practice, Arbitration-definition, advantages, conduct of arbitration proceedings,

arbitration clause in contract agreements. Easements, copyrights and patenting, Consumer Protection Act, Liabilities of Architects under different statutes			
Module: 7	**Globalization & Architectural Profession**		**6 hours**
Important legislations and current trends, role of administrative bodies, salient legislation such as Factories Act, Person with Disabilities Act, Coastal regulation Zone, Heritage Act. Globalisation and its impact on the profession, International collaborations, Information Technology and its impact on architectural practice, emerging specializations,			
Module: 8	**Architects and allied professionals.**		**3 hours**
Knowledge sharing by Architects and allied professionals.			
Total Lecture Hours			**45 hours**
Reference Books			
	1. Architects Act, 1972, Universal Law Publishing - An imprint of LexisNexis (2016) 2. Publications on Handbook on Professional Practice by IIA, Self-Published 3. Publications of Council of Architecture-Professional Conduct, Architectural Competitions 4. Architectural Practice and Procedure by V.S.Apte, 2008 5. Consumer Protection Act , 2011 6. Personalities with Disabilities Act, 1995 7. Arbitration Act, 2005		
Mode of evaluation: Continuous Assessment Test, Quizzes, Assignments, Final Assessment Test			
Recommended by Board of Studies	02-06-2016		
Approved by Academic Council	**No.41**	Date	17-06-2016

ARC1019	PRINCIPLES OF STRUCTURES	L	T	P	J	C
		2	0	0	4	3
Pre-requisite	**Nil**					

Course Objectives:

The course is aims to impart foundation knowledge on structural principles for application in subsequent modules of structural design.

Expected Course Outcome:

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

[1] Understand principles related to physics, relevant to structural design.

[2] Determine simple stresses and strains

[3] Apply structural principle to real time analogies.

[4] Understand the Types of structures and structural loads

[5] Analyse trusses and frames

[6] Evaluate various building materials that can be used for various components of buildings

Module: 1	**Basics of behavior of structure**	**5 hours**
Fundamental Principles - Vectorial Representation of Forces and Moments, Coplanar forces - Resolution and Composition of forces and equilibrium of particles - Free body diagram		
Module: 2	**Centre of gravity and Moment of Inertia**	**4hours**
Centre of gravity and Moment of Inertia- Radius of gyration- section modulus		
Module: 3	**Stress and Strain**	**5 hours**
Stress and strain - Hooke's law -tension -compression and shear Stress strain diagram for mild steel-Elastic constants- Applications		
Module: 4	**Stresses in composite sections**	**4 hours**
Principal stresses and strains-Stresses in composite sections- Thermal stresses		
Module: 5	**Types of structures and structural loads**	**4 hours**
Types of loads on structures-support and support reactions- Types of structures-analysis of beams		
Module: 6	**Truss and frames**	**4 hours**
Analysis of plane truss-Stresses in truss and frames		
Module: 7	**Components of buildings**	**2 hours**
Modern Construction Materials-Various components of buildings- Bricks- Stone- Structural Steel and Aluminum – Roofing Materials- Flooring		
Module: 8	**Latest/Emerging technology**	**2 hours**
Total Lecture Hours		**30 hours**

Reference Books

1.	Timoshenko.S, Young.D.H, J V Rao, Sukumar Pati (2013), Engineering Mechanics, McGraw Hill International Edition		
2.	Gere & Thimoshenko (2004), Mechanics of Materials, CBS Publishers & Distributors.		
3.	R.K.Bansal (2005), Strength of Materials, Laxmi Publications		
4.	S.S.Bhavikatti (2012), Engineering Mechanics, New Age International Publishers.		
5.	S.Ramamrutham & R.Narayanan (2005), Strength of Materials, Dhanpat Rai publications.		
Mode of evaluation: Continuous Assessment Test, Quizzes, Assignments, Final Assessment Test			
Recommended by Board of Studies	02-06-2016		
Approved by Academic Council	**No. 41**	Date	17-06-2016

ARC1023	BUILDING SERVICES - PLUMBING AND SANITARY	L	T	P	J	C
		3	0	0	0	3
Pre-requisite	**ARC2005**					

Course Objectives:

The course is aimed at

[1] To create a knowledge base relating to water supply, plumbing and sanitation services for application in architectural and site design

[2] Imparting knowledge on drinking water treatment and its distribution for public use and different equipment and systems involved in the water supply.

[3] To impart knowledge on sanitation, it sources and methods of disposal in urban and rural settings and also, its treatment.

[4] To equip students with the knowledge of sanitary requirements for different building typologies as per buildings codes.

Expected Course Outcome:

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

[1] Understand the different water resources, their qualitative and quantitative aspects and types of water recharge and drainage phenomenon occurring in nature.

[2] Understand the numerous aspects associated with water treatment and its distribution for public use and selected mechanical equipment's for water distribution in buildings.

[3] Analyse the arrangement of sewerage systems and relate the Rural and Urban Sanitation systems. Understand the Sources of generation, methods of collection, its treatment and disposal, Sanitary requirements and regulations as per building codes.

[4] Apply the knowledge in evolving Plumbing layout, fire fighting system layouts for buildings as to know the intricacies involved in planning and design services

Module: 1	**Water Supply**	**6 hours**

Water Supply – Introduction, sources of water supply, qualitative and quantitative aspects, availability, the importance of water conservation. Storm water collection, drain design, regulators, filtration beds and ground water recharge systems, surface drainage and subsoil drainage

Module: 2	**Water Treatment**	**6 hours**

Water treatment-Conceptual understanding of public water distribution system. Sources of water pollution and preventive measures. Filtration, disinfection, water softening , standards for various uses, especially for potable use and in construction.

Module: 3	**Water Distribution**	**6 hours**

Principles of hydro pneumatic systems in water supply. Control systems including valves and metering devices, user end controls such as angle valves, shower panels, jacuzzi systems.

Module: 4	**Sewage Disposal**	**6 hours**

Introduction, importance and purpose of sanitation, types of refuse, collection and disposal of refuse, systems of drainage, methods of sewage and effluent disposal, re-cycling of sewage water, understanding of sewer sections and invert levels ,inspection chambers		
Module: 5	**Rural Sanitation**	**6 hours**
Rural sanitation, aqua privies, biogas principles and systems		
Module: 6	**Sanitation in buildings**	**6 hours**
Environmental impacts, detailed study of septic tanks and sewage treatment plants and their various components .Sanitary requirements for various types of buildings as per the National Building Code		
Module: 7	**Fire fighting**	**6 hours**
Fire fighting services		
Module: 8	**Industry guest lecture**	**3 hours**
Total Lecture Hours		**45 hours**

Reference Books	
1.	RS Deshpande “Sanitary Engineering – (Vol I and II)” 2011
2.	S Birdi,DhanapatRai and Sons “Water supply and Sanitary Engineering”
3.	P.N. Khanna ,Indian Practical Civil Engineers Hand Book, Engineers Publishers New Delhi 2005

Mode of evaluation: Continuous Assessment Test, Quizzes, Assignments, Final Assessment Test

Recommended by Board of Studies	09-08-2017		
Approved by Academic Council	**No.47**	Date	05-10-2017

ARC1025	ENVIRONMENTAL STUDIES SITE PLANNING, LANDSCAPE & CLIMATOLOGY	L	T	P	J	C
		2	0	0	4	3
Pre-requisite	**ARC2005**					

Course Objectives:

The course is aimed at

[1] Understanding the environmental factors affecting the Architecture of a particular site or region with emphasis on their inter relationship and methods used for data collection.

[2] Analysis of data and evolution of conceptual design ideas

Expected Course Outcome:

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

[1] Developing the ability to perceive, analyse and represent basic site data required during the design process.

[2] Understand the vegetation types and landscape services

[3] Understand the various climatic factors and their influence in building design

[4] Analyse the different design parameters and characteristics of built environment that have to be practiced for different climatic zones of India.

[5]Summarize various types of survey and the technologies for site planning and landscaping

Module: 1	**Introduction to Site Planning, Landscape and Climatology**	**2 hours**
Module: 2	**Site planning process**	**4hours**
Aspects of site planning - understanding site dimensions - understanding topography - DCR rules if applicable - accessibility / movement types within site and its effective planning - soil types detrimental of building structure		
Module: 3	**Site Zoning**	**4 hours**
Zoning of buildings - function vis-a-vis circulation with-in and with-out of buildings - privacy - security concerns		
Module: 4	**Landscape Services**	**6 hours**
Landscaping: vegetation types - characteristics - services - drainage - water supply - STP location		
Module: 5	**Elements of climate**	**4 hours**
Climatology - sun path movement - wind characteristics - orientation - various climatic conditions		
Module: 6	**Climate responsive design strategies in India**	**4 hours**
Climatology - types of climate - in India and how it changes the characteristics of design and culture and planning		
Module: 7	**Surveying**	**4 hours**
Surveying - need for surveying – chain survey and campass survey - Plane Table and Theodolite surveys - various equipment used -theory only		
Module: 8	**Latest technologies for site planning and landscape**	**4 hours**

Latest GIS - technologies that help in site planning, landscaping - features and future scope			
Total Lecture Hours			**30 hours**
Reference Books			
1.	Kevin Lynch and Gary Hack, Site planning, MIT Press, Cambridge, 2005		
2.	Punmia B.C, Surveying, Volume1, Standard Book House, New Delhi, 2005		
3.	Charles W. Harris, Nicholas T. Dines, Time Savers standards for Landscape Architecture, 2000		
4.	Koenigsberger O.H., Ingersol T.G., Mayhew A. and Szokolay S.V., Manual of Tropical Building and Housing, Orient Longman Pvt. Ltd, 2004		
5.	Arvind Krishan, Nick Baker, Simons Yannas, Szokolay S.V., Climatic Responsive Architecture - A Design Handbook for Energy Efficient Buildings, Tata Mc Graw Hill Publishing Company Ltd, New Delhi, 2001		
6.	Richard Hyde, Climate Responsive Design: A study of buildings in moderate and hot humid climates, E & FN Spon, London, 2000		
Mode of evaluation: Continuous Assessment Test, Quizzes, Assignments, Final Assessment Test			
List of exercises (Indicative)			
1.Using digital tools, study the importance of building orientation in improving the day lighting and energy optimisation			6 hours
2.Select the site of about 2-3 acres and analyse the site towards providing indicators for built form positioning and zoning.			6 hours
Recommended by Board of Studies	02-06-2016		
Approved by Academic Council	**No. 41**	Date	17-06-2016

ARC 2001	STRENGTH OF MATERIALS	L	T	P	J	C
		2	0	0	0	2
Pre-requisite	**ARC1019**					

Course Objectives:

The course is aimed at

This course deals with the concept of forces, force systems and moments under static condition. It also introduces the concept of simple stresses and strains subjected to axial force, bending and shear to understand the behaviour of member of a structure. It introduces various concepts and simple analysis techniques of structural components.

Expected Course Outcome:

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

[1] Practice shear force and bending moment computations and construct shear force and bending moment diagrams

[2] Compute bending stresses and deflection in determinate beams

[3] Evaluate theories to design columns and understand effect of eccentric loading.

[4] Analyse the structural concept of indeterminate structures and Combined loading

[5]Understand the Theories of failure

Module: 1	**Concept of shear forces and Bending Moment**	**5 hours**
Concept of shear forces and Bending Moment-shear force and bending Moment diagrams for cantilever and simply supported beams subjected to point load, uniformly distributed loads and their combinations		
Module: 2	**Theory of bending stress**	**4 hours**
Theory of simple and pure bending-Bending equation- Section modulus (only for Rectangular, hollow rectangular)- Shear stress distribution for rectangular beam section- Torsion		
Module: 3	**Slope and deflection**	**5 hours**
Slope and deflection at a section - Double Integration and Macaulay's method for simply supported and cantilever beams		
Module: 4	**Theory of columns**	**4 hours**
Short and long columns - Euler's method and its limitation - Rankine's formula for columns- effect of eccentric loading.		
Module: 5	**Introduction to indeterminate structures**	**4 hours**
Introduction to indeterminate structures-Static and kinematic indeterminacies-Energy theorems		
Module: 6	**Bending and torsion**	**4 hours**
Combined loading- bars with axial load- bending and torsion- torsion and tension- bending and shear		
Module: 7	**Theories of failure**	**2 hours**
Theories of failure- Strain energy in bending		
Module: 8	Latest/Emerging technology	**2 hours**

Total Lecture Hours			**30 hours**
Reference Books: 1. Timoshenko,S.P..and D.H. Young, Elements of Strength of Materials, Fifth Edition, East West Press 2. Gere & Thimoshenko (2004), Mechanics of Materials, CBS Publishers & Distributors. 3. R.K.Bansal (2005), Strength of Materials, Laxmi Publications 4. S.S.Bhavikatti (2012), Engineering Mechanics, New Age International Publishers. 5. S. Ramamrutham & R.Narayanan (2005), Strength of Materials, Dhanpat Rai publications			
Mode of evaluation: Continuous Assessment Test, Quizzes, Assignments, Final Assessment Test			
Recommended by Board of Studies	02-06-2016		
Approved by Academic Council	**No. 41**	Date	17-06-2016

ARC 2003	CONSTRUCTION TECHNOLOGY – RAW AND PROCESSED NATURAL MATERIALS – EMBEDDED THEORY	L	T	P	J	C
		1	0	0	0	1
Pre-requisite	**ARC1015**					

Course Objectives:

The course is aimed
To understand properties, manufacture and application of raw and natural building construction materials.

Expected Course Outcome:

At the end of the course the student should be able to
[1] Identify building's primary, physical, structural and functional aspects.
[2] Students will be able to understand naturally occurring materials and their properties for application in building construction.
[3]Evaluate various types of natural building materials and construction techniques.
[4] Appraise vernacular building materials and construction techniques

Module: 1	**Introduction to material science**	**1 hours**

Explanation of various core building components and their function-the concepts of foundations, support systems like walls and columns, exterior skins of buildings, roofing, protection from and integration with natural elements, openings for lighting and access.

Module: 2	**Soil based Design and construction techniques**	**2hours**

Foundations design details, Base courses, walls, Design of openings, arches vaults, floors and roofs. Design of buildings using rammed earth
Mud Blocks: Stabilised mud blocks, Soil and its properties. Properties of construction quality soil, additives in stabilised soil blocks.

Module: 3	**Vernacular Materials:**	**2 hours**

Mud and lime, bamboo and casuarinas as construction materials. Different kinds of thatch, use of palm trunks, palm rafters. Description of usage of these materials.

Module: 4	**Stone as a construction material**	**3 hours**

Types of construction stone and their properties and use in building construction. Nature of stone wall construction in various building components like foundations, walls, buttresses, arches and roofing
Mortars -Mortars and their applications. Study of sand and aggregate.

Module: 5	**Brick as a construction material**	**3 hours**

Brick composition, sizes, strength, and method of manufacture, properties and types. Study of bonds and mortars of different types.

Bricks and their usage Bricks in different building components like foundations, walls (conventional and cavity walls), arches, staircases, cladding, copings, flooring, brick jalis, decorative brickwork, Madras terrace roofing.		
Module: 6	**Terracotta products**	**1 hours**
Hollow bricks, jalis, weathering tiles, Mangalore tiles, hollow clay roofing blocks.		
Module: 7	**Timber**	**2 hours**
Quality of timber used in buildings, defects, seasoning and preservation, popular timber varieties used in India, properties, strengths. **Typical usages of timber in building components Timber Construction** Timber in joinery, light weight roofing structures, staircases, interior walls, flooring, details of galvalinice roofs, wooden staircases.		
Module: 8	Interaction with alternate construction experts.	**1 hour**
Total Lecture Hours		**15 hours**

Reference Books

1.	S.P Arora and S.P. Bindra, Text book of Building Construction, GanpatRai publications (P) Ltd New Delhi - 110002, 2005.
2.	S.K.Sharma, "A Text book of Building Construction", S.Chand& Co Ltd., New Delhi, 1998
3.	KlansDukeeberg, Bambus – Bamboo, Karl Kramer verlag Stuttgart Germany, 2000
4.	Barry, the construction of buildings Affiliated East West press put Ltd New Delhi 1999.
5.	Francis D.K. Ching Building Construction illustrated John Wiley & Sons 2000

Mode of evaluation: Continuous Assessment Test, Quizzes, Assignments, Final Assessment Test

Recommended by Board of Studies	02-06-2016		
Approved by Academic Council	**No. 41**	Date	17-06-2016

ARC2003	CONSTRUCTION TECHNOLOGY – RAW AND PROCESSED NATURAL MATERIALS- Embedded lab	L	T	P	J	C
		0	0	4	0	2
Pre-requisite	**ARC1015**					

Course Objectives:

To understand and Impart drawing skills for the application of construction materials in architectural practice.

Expected Course Outcome:

[1] Demonstrate graphical representation of building components (Apply)
[2] Demonstrate the construction techniques of various building components using natural and vernacular building materials (Apply)
[3] Produce technically correct architectural details in construction of simple built form elements (Create)

Module: 1	Graphical representation of building components	4 Hours
Module: 2	Mud wall construction, compacted earth, stabilised mud blocks, roofing using thatch, damp proofing.	4 Hours
Module: 3	Bamboo in architectural construction	4 Hours
Module: 4	Stone Construction - Walls, Arch, Flooring, Lintel & Cladding	8 Hours
Module: 5	Brick – Brick bonding, Walls, Arches.	8 Hours
Module: 6	Brick – Staircase, Cladding, Decorative Brickwork, creative Jali pattern using bricks, Rat trap bond	4 Hours
Module: 7	Clay block partition walls, screen walls, terracotta flooring	4 Hours
Module: 8	Mangalore Tile works, Hollow clay roofing blocks, Weathering tiles on roofs.	8 Hours
Module: 9	Typical details of timber usage in door frames & window frames, door & window shutters, louvered windows, ventilators.	4 Hours
Module: 10	Wooden flooring, wood composites, fibre boards, pre-laminated.	4 Hours
Module: 11	Ventilators: top hung, bottom hung, louvered, glazed	4 Hours
Module: 12	Construction using natural timber in various structural components of the building.	4 Hours
Total Lecture Hours		**60 hours**

Reference Books				
1.	S.P Arora and S.P. Bindra, Text book of Building Construction, GanpatRai publications (P) Ltd New Delhi - 110002, 2005.			
2.	S.K.Sharma, "A Text book of Building Construction", S.Chand & Co Ltd., New Delhi, 1998			
3.	Reference books -			
4.	KlansDukeeberg, Bambus – Bamboo, Karl Kramer verlag Stuttgart Germany, 2000			
5.	Barry, the construction of buildings Affiliated East West press put Ltd New Delhi 1999.			
6.	Francis D.K. Ching Building Construction illustrated John Wiley & Sons 2000			
Mode of evaluation: Continuous Assignments, Final Assessment				
List of exercises (Indicative)				
1. Study the structural properties of bamboo and propose a outdoor seating area of 20sq.m. Provide technical drawings showing the method of construction.				8 hours
2. Design a brick jally using 200 bricks. Construct a live model of the same.				8 hours
3. Demonstrate the construction details of simple terracotta tiles in 20sq.m. terracotta tiled store rom supported by random rubble stone masonry. Sketch the foundation walls and roof details.				8 hours
Recommended by Board of Studies	02-06-2016			
Approved by Academic Council	**No. 41**	Date	17-06-2016	

ARC 2005	ARCHITECTURAL DESIGN-SPATIAL UNDERSTANDING	L	T	P	J	C
		0	0	12	4	7
Pre-requisite	**ARC1013**					

Course Objectives:

The course is aimed
To sensitize the studio to the basic principles of architectural design through understanding human dimensions, elements and their relationships synthesized for basic human needs.

Expected Course Outcome:

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

1. To understand anthropometrics and built form configuration as relevant to application related to personal space and concepts of positive and negative space and elements which define them.
2. Evaluating existing examples correlating human anthropometrics and spatial relationship using visual tools like drawing and models.
3. Designing personal spaces using architectural elements and anthropometric principles

Module: 1	**24 hours**

Exercises given to document and understand the human dimensions Anthropometrics in a space. Models and drawings.

Module: 2	**36 hours**

Spaces are documented to understand the various relationships and elements of Architecture in the context of earth, sky and horizon. Drawings and Models.

Module: 3	**48 hours**

An innovative Design project with a broader outline to evolve a spatial design through creating a design brief specific to the context that is broadly specified. Lateral integration with Structures and Materials, Technologies. Through Models and drawings.

Module: 4	**48 hours**

Furniture layout understanding and creation of furniture designs, Inside outside relationship, environment, Models, sections, etc.

Module: 5	**24 hours**

Time problem design projects – resolving a particular aspect pertinent to the context.

Total Lecture Hours	**180 hours**

Reference Books

1	Ching Francis.D.K. - Architecture - Form Space and Order, Phaidon Press, 2012
2	Mark Jarzombek, et.al. - A Global History of Architecture, John Wiley and Sons, 2015

3	Documentation of Kerala's Domestic Architecture, MCF, Dakshinchitra, 1995		
4	Vernacular Architecture of Tamilnadu - MCF, Dakshinchitra, 2014		
5	René Kolkman, Stuart Blackburn, Tribal Architecture in Northeast India, Brill, 2014		
Mode of evaluation: Continuous Assignments, Final Assessment Test			
List of exercises (Indicative)			
1. Measure a road side convenience store of about 30sq.m. Study and detail the anthropometric aspects of various components.			
2. Design a residential kitchen of about 15 sq.m. area. Provide a schematic drawing showing the spatial planning, materials, interior furnishing, sizes and other details			
3.Create a pavilion of 100 sq. area to an appropriate scale and spatially study the internal volumes using a digital hand held smart phone camera. Write a short report on spatial quality.			
Recommended by Board of Studies	02-06-2016		
Approved by Academic Council	**No.41**	Date	17-06-2016

ARC2017	HISTORY AND THEORY OF ARCHITECTURE - CONTEMPORARY	L	T	P	J	C
		3	0	0	4	4
Pre-requisite	**ARC1007**					

Course Objectives:

The course is aimed at
[1] Providing an introduction to contemporary architecture both Indian and international
[2] Using historical information from previous course the students will analyse the influence upon contemporary styles
[3] Enhancing the grasp of basic architectural concepts and ways of discussing and presenting them
[4] Understanding the design philosophies of selected contemporary architects.

Expected Course Outcome:

At the end of the course the student should be able to
[1] understand towards evolution of architecture in today's context
[2] understand the methods available to analyse the social, economic, geographic and technological influence on architecture
[3] Recognise the style depending on the school of design or architect that has been designed by.
[4] Complete knowledge about pioneer architects and their design approach

Module: 1	**Industrial Revolution in Europe**	**2 hours**

Introduction, Industrial Revolution in Europe, New Institutions (The Railways, Mass housing, etc),colonial rule in India-Indo Sarcenic, Robert Chisholm, Growth of Madras, Calcutta, and Bombay

Module: 2	**American Modernism**	**6 hours**

American Modernism and Wright, Lutyens and New Delhi,

Module: 3	**Modernism in Europe**	**6 hours**

Modernism in Europe and around the globe, Le Corbusier, Aalto, Bauhaus, etc, Chennai pre-independence

Module: 4		**6 hours**

- Indian freedom movement, Chandigarh, Ahmedabad,
- Europe Mies Van der Rohe et al, Kahn etc.
- Japanese Metabolism Tange et al

Module: 5	**The Indian Pioneers**	**10 hours**

The Indian Pioneers- A.Kanvinde, Correa, B.V.Doshi, Raje, Raj Rewal, etc. Indian Architecture, Laurie Baker, Hasan Fathy

Module: 6	**Critical Regionalism**	**6 hours**

Critical Regionalism-Alvaro Siza, Tadao Ando Post-Modern architecture, Deconstruction, Zaha Hadid, Rem Koolhaas et al.

Module: 7	**The new moderns**	**6 hours**

The new moderns - Peter Zumthor, Murcutt, The Indian sub-continent,

Module: 8	Invited Guest Lectures with Practicing Architectural Historians etc. Emerging trends, Parametric Architecture, bio-mimicry, complex collaborative Practices-	**3 hours**
Total Lecture Hours		**45 hours**

Reference Books

1. Nikolaus Pevsener, "Sources of modern architecture and design", Themes and Hudson, 1989.
2. William J.R., Curtis, "Modern architecture since 1900", Prentice hall, New Jercy USA, 1983.
3. Peter Scriver and Amit Srivastava, Modern Indian Architecture, Reaktion books, 2015
4. Rahul Mehrotra, Architecture in India since 1990, GmbH & Company KG, 2011
5. Kenneth Frampton, Modern Architecture - A Critical History, Thames & Hudson, 2007
6. Harnessing the intangible, NIASA, ed. B V Doshi, Durganand Balsavar, N H Chhaya, et al. Council of Architecture, 2014

Mode of evaluation: Continuous Assessment Test, Quizzes, Assignments, Final Assessment Test

Recommended by Board of Studies	02-06-2016		
Approved by Academic Council	**No. 41**	Date	17-06-2016

ARC 3001	ARCHITECTURAL DESIGN - RURAL STUDY	L	T	P	J	C
		0	0	12	4	7
Pre-requisite	**ARC2005**					

Course Objectives:

[1] To understand/engage with the basic issues of socio-cultural and physical context of built environment and experiencing rural contexts of diverse typologies and in transformation.
[2] To abstract the various elements of the village and their relationships, which influence design.
[3] To study basic materials, technologies in design and question the notion of sustainability

Expected Course Outcome:

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

[1] Understanding the rural ecosystem through anthropocentric surveys and architectural documentation
[2] Analyzing the physical, socio-economic, environmental, visual and spatial characteristics of rural settlements towards identifying problems and potentials requiring strategic goals and objectives for implementation.
[3] Providing appropriate architectural design solution to solve identified problems and harness available potentials.

Module: 1	Drawings Project to Rural studio exploring elements of a village - with brief report - on Contemporary challenges, villages in transformation, typologies of villages.	**12 hours**
Module: 2	Documentation Project (in-situ- travel to site and in Studio) - Drawings to understand dwelling typologies, materials, way of life, technologies, community spaces and natural resources. Drawings Analysis of the rural settlements - based on social, cultural, history, occupation, bio-diversity, institutions, settlement layout, dwelling typologies, local materials and technologies. With brief Report. character of institution, growth, materials and structure	**24 hours**
Module: 3	Design Project to explore an innovative rural institution/ or a cluster of dwellings/ rural community center /cottage industry/sanitation/ women's self-help groups/, of an appropriate scale and area, etc.	**36 hours**
Module: 4	Explorations with models/materials/ hands-on workshops with innovative technologies	**24 hours**

Module: 5	Time problem exploring a specific issue/ inhabitation /Interaction with rural NGO	**12 hours**
Module: 6	Design exercises exploring organization/cluster, scale, structural module, functions	**36 hours**
Module: 7	Exercises detailing Sections and elevation studies	**24 hours**
Module: 8	Final Charrette/ Juries/ practicing architects/ Possible Live Project Constructed - based on village community participation.	**12 hours**
Total Lecture Hours		**180 hours**

Reference Books

1	NIASA Document – Rural Studies Program, Council of Architecture Publication, 2015
2	David Robson, Geoffrey Bawa: Complete Works, Thames & Hudson (November 17, 2002)
3	Elizabeth Baker, The other side of Laurie Baker, DC Books Pvt. Ltd, 2007
4	Dr Parr, New Directions in sustainable Design, Routledge Press, 2012
5	Daniel Williams "Sustainable Design: Ecology, Architecture & Planning", John Wiley & sons,2007

Mode of evaluation: Projects and Continuous Assessment, Final Assessment

List of exercises (Indicative)

1. Conduct a socio – economic survey of a rural settlement and correlate the statistical data to interpret built form needs.
2. Study the local construction methods in a rural fabric and investigate their utility for varied building types
3. Outline the future development plan for a village incorporating the implementation of current government rural development schemes.
4. Create necessary scaled models to support the design process and for final design studio proposals.

Recommended by Board of Studies	02-06-2016		
Approved by Academic Council	**No. 41**	Date	17-06-2016

ARC 3003	CONSTRUCTION TECHNOLOGY -CONCRETE & STEEL -EMBEDDED THEORY	L	T	P	J	C
		1	0	0	0	1
Pre-requisite	**ARC 2003**					

Course Objectives:

To acquaint the students with contemporary construction practices primarily pertaining to the usage of cement concrete, ferrous and non-ferrous metals in various core building components and some important interrelationships and to create familiarity to apply this knowledge.

Expected Course Outcome:

Students will be able

[1] An understanding of the concepts of cement and concrete as a building construction material.

[2] Ability to use concrete as a versatile material in different contexts and innovatively in simple projects.

[3] Knowledge of properties of ferrous and non-ferrous metals as materials for buildings.

[4] An understanding of possibilities of steel as an important building construction material.

[5] Ability to use metal innovatively in building projects.

Module: 1	**Cement**	**1 hours**

Brief overview of cement manufacture, functions of cement ingredients, field tests for cement, uses of cement, varieties of cement, specifications of ordinary cement

Module: 2	**Cement Concrete**	**2hours**

Understanding plain cement concrete and its uses, ingredients and properties of cement concrete, effects of concrete additives, concrete proportioning, water cement ratio, workability and slump, concrete mixing, transportation, placement, consolidation, vibration, curing.

Module: 3	**Special types of Concrete**	**2 hours**

Types of concrete, precast concrete, ready mix concrete, batching plants. Ferro cement

Module: 4	**Ferrous Metals In Building Construction**	**2 hours**

Ferrous metals, brief review of pig iron, cast iron, wrought iron

Module: 5	**Steel in Building Construction**	**2 hours**

Brief review of steel manufacture process, its properties and uses, various forms of architectural steel

Module: 6	**Non-Ferrous Metals In Building Construction**	**2 hours**

Non-ferrous metals -aluminium, copper, lead, zinc, tin, nickel. Alloys of aluminium copper and steel , galvanised iron, gal volume

Module: 7	**Stainless steel and structural steel**	**2 hours**

Stainless steel and structural steel in architectural construction

Module: 8	Industry specialist lectures		**1 hour**
Total Lecture Hours			**15 hours**
Reference Books			
1	S.C.Rangwala, Engineering Materials-Material Science, Charotar Publishing House Pvt. Ltd.2014		
2	P.C.Varghese, Building Materials- Prentice Hall of India Pvt.Ltd. New Delhi 2005		
Mode of evaluation: Continuous Assessment Test, Quizzes, Assignments, Final Assessment Test			
Recommended by Board of Studies	02-06-2016		
Approved by Academic Council	**No. 41**	Date	17-06-2016

ARC3003	CONSTRUCTION TECHNOLOGY -CONCRETE & STEEL – Embedded Lab	L	T	P	J	C
		0	0	4	0	2
Pre-requisite	**ARC 2003**					

Course Objectives:

To understand and impart drawing skills for the application of Steel and Concrete in architectural practice.

Expected Course Outcome:

[1] Ability to design and detail the basic components of a building as well as specific components in concrete where there is scope for architectural design.

[2] Ability to design and detail structural and non-structural components of simple buildings using metals.

Module: 1	Study of principles and methods of construction of RCC elements in buildings- a) foundations and columns– Raft foundations, Isolated footings, piles, grillage foundations, beams and slabs, porticos, sunshades, post tensioned slabs, prestressed beams in RCC construction.	**12 Hours**
Module: 2	RCC in staircases-spiral, helical, waist slab, folded plate, review of formwork	**12 Hours**
Module: 3	Structural steel in construction – steel columns, truss works, staircases, sheet metal cladding and roofing in industry	**12 Hours**
Module: 4	steel windows, doors, collapsible gates, rolling shutters, mechanical gate systems, detailing of masonry, concrete, metal systems, high strength fasteners	**16 Hours**
Module: 5	Field visits and discussions on creative detailing	**8 Hours**
Total Lecture Hours		**60 hours**

Reference Books

7.	A Text Book of Building Construction by B.C.Punmia, Laxmi Publications Pvt.Ltd. New Delhi 2005
8.	Construction of Buildings by Barry, Vol.1 and 2, Blackwell Publishing House, Oxford 2005

Mode of evaluation: Assignments, Final Assessment Test

List of exercises (Indicative)

1. Document and sketch the plan of existing residential building of 100 sq. Draft the indicative reinforcement layout of foundation, columns, beams, slabs and staircases of the building.	8 hours
2. Document a steel staircase such as railway station platform roof, industrial ware house, bus shelter etc and sketch the construction details of steel columns, truss work, jointing systems and roofing details.	8 hours

3 Design asteel security grill for an aluminum sliding window opeing of size 2.4m wide x 1.2m height. Provide construction drawings of the same.			8 hours
Recommended by Board of Studies	02-06-2016		
Approved by Academic Council	**No. 41**	Date	17-06-2016

ARC3099	ARCHITECTURAL INTERNSHIP	L	T	P	J	C
		-	-	-	-	12
Pre-requisite	**ARC 5003**					

Course Objectives:

To expose students to the management of execution of projects in a real-time professional working environment from conceptualization to realization through a process of involvement with concept processes, working drawings, documentation of works and realization of construction goals.

Expected Course Outcome:

Students will be able to

[1] Apply the nomenclature, graphics symbols, formats, conventions and compositional clarity associated with architectural drawings, models and reports.

[2] Understanding statutory documentation pertinent to architectural projects

[3] Understand office administrative practices and protocols.

[4] Develop collaborative working skills.

[5] Understand the relationships between architectural design and site execution.

Module: 1	
Adhere to regulated office management practices.	
Module: 2	
Carry out instructions related to drawing preparation	
Module: 3	
Contribute to team activities.	
Module: 4	
Participate in client and vendor meetings and discussions.	
Module: 5	
Understand site activities and contribute in supervisory exercises.	

Module: 6			
Learn to prepare minutes of meetings and reports.			
Total Lecture days			**100**
Mode of evaluation: Continuous Assessment , Final Assessment Test			
Recommended by Board of Studies	09-08-2017		
Approved by Academic Council	**No.47**	Date	5-10-2017

ARC4001	ARCHITECTURAL DESIGN – COMMUNITY	L	T	P	J	C
		0	0	12	4	7
Pre-requisite	**ARC3001**					

Course Objectives:

[1] To explore a basic housing/ community project as a process and the role of an architect.

[2] To understand the needs of privacy, habitation, sense of comfort and belonging, community spaces, efficiency of open spaces and ideas of extended living areas

[3] To differentiate and understand the nature of organic and planned communities.

[4] To recognize indigenous housing and role of climate and history.

[5] To investigate the concept of sustainability.

Expected Course Outcome:

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

[1] Understanding the community ecosystem through research work, field visits and seminars.

[2] Analyzing the physical, socio-economic, environmental, regulatory, visual and spatial characteristics of housing design.

[3] Providing context-specific architectural design solution to meet specific community needs.

Module: 1	Introduction to Community and Housing within a historic and contemporary context. Interactive seminar.	**12 hours**
Module: 2	Case Studies of indigenous housing (historic overview) and modern housing complexes to understand relationship of design and way of life, privacy, habitation, community spaces, and ideas of extended living areas.	**36 hours**
Module: 3	Design Project of appropriate scale to emphasize design exploration of dwellings, relationship in clusters, nature of community spaces, amenities and parking.	**36 hours**
Module: 4	Exploration of site plan, to understand organisation, zones, hierarchies, public-private spaces relationships and transitions, hierarchies of path and community spaces.	**36 hours**
Module: 5	Brief time-problem to explore response to climate and way of life in the design of the peripheries and elements/ or any specific issues/ specific elements design like verandah, thresholds, shading devices, children's play areas, elderly, etc.	**24 hours**
Module: 6	Detailed models to explore materials, structural systems and concepts for services and sustainability.	**24 hours**
Module: 7	Final charrete and juries./ practicing architects	**12 hours**
Total Lecture Hours		**180 hours**

Reference Books :

1. Time Saver Standards for Building types" ,De. Chiara and Callender, McGraw – Hill Co., N.Y., 2010
2. "Sustainable Design: Ecology, Architecture & Planning", Daniel Williams, John Wiley & sons, 2007
3. Charles Correa - Housing and Urbanisation - Thames & Hudson, 2010
4. Adrian Parr, New Directions in Sustainable Design, Routledge Press, 2015
5. Aranya Housing, Vastu-Shilpa Foundation, Ahmedabad, (Reprint 2015)

Mode of evaluation:, Assignments, Final Assessment Test

List of exercises (Indicative)

1. Conduct the case study of residential layout, both traditional and modern, Compare and contrast the qualitative features.	**16 hours**
2. Conduct the site analysis of a residential township of about 2to 3acres.Provide digital rendition of the same.	**16 hours**
3. Use digital gaming tools to understand the client- architect relationship for arriving at residential built form solution.	**24 hours**

Recommended by Board of Studies	2-06-2016		
Approved by Academic Council	**No.41**	Date	17-06-2016

ARC4012	ARCHITECTURAL DESIGN - COMPLEX TYPOLOGIES	L	T	P	J	C
		0	0	12	4	7
Pre-requisite	**ARC3099**					

Course Objectives:

[1] To learn about complex typologies of projects and their relationship to surrounding context/ urban or peri-urban - multi-speciality hospitals, high-rise, research laboratories, conservation revitalisation, pre-fab, etc.

[2] To understand the integration of architectural design expression and structure and services in complex typologies. The collaborative role of architect.

[3] The emphasis shall be on the design of the building, integrating systems, sustainable practices, flexible and open planning, while exploring architectural expression.

Expected Course Outcome:

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

[1] Analyze a contemporary urban development need and formulate a building program in a specific context.

[2] Analyze sites and develop built forms incorporating physical, environmental, regulatory, visual and spatial requirements.

[3] Generate architectural project drawings and models using advanced design communication tools.

Module: 1	Introduction to new typologies. Charrette on contemporary transformations and the changing collaborative role of the architect in society.	**12 hours**
Module: 2	Site visit and case studies, discussions with architects, structural and mep engineers, emerging technologies, infrastructure and policy makers.	**24 hours**
Module: 3	Exercises and form Studies with Research on development control regulations, services, structural systems, functional needs, car-parking etc. Lateral integration in Studio.	**12 hours**
Module: 4	Design brief in specific urban/ peri-urban context	**24 hours**
Module: 5	Exercises and Design development - programmatic needs and their relationships, open- planning principles. Study models/new technologies, etc.	**48 hours**
Module: 6	Appropriate time problem to highlight specific issue	**12 hours**
Module: 7	Drawings of Detailed sections. elevations, with idea of services and infrastructure.	**36 hours**
Module: 8	Charrette/juries with practicing architects	**12 hours**
Total Lecture Hours		**180 hours**

Reference Books

1.Time Saver Standards for Building types" ,De. Chiara and Callender, McGraw – Hill Co., N.Y., 2017

2. Hijacking Sustainability, Dr Adrian Parr, MIT University Press, 2012

3. Typologies of Industrial buildings, Bernd Becher, MIT Press, 2012

4.New Directions in Sustainable Design, Dr Parr, Routledge Press, 2012			
Mode of evaluation: Projects - Continuous Assessment, Final Assessment			
List of exercises (Indicative)			
1. Conduct the case study related to services integration into design, both traditional and modern, Compare and contrast the qualitative features.			**16 hours**
2. Conduct the analysis on planning principles for specific uses. Provide digital rendition of the same.			**16 hours**
3. Use digital gaming tools to understand the client- architect relationship for arriving at ideal services and infrastructure solution.			**24 hours**
Recommended by Board of Studies	02-06-2016		
Approved by Academic Council	**No. 41**	Date	17-06-2016

ARC5003	ARCHITECTURAL DESIGN - DIGITAL DESIGN	L	T	P	J	C
		0	0	12	4	7
Pre-requisite	**ARC4001**					

Course Objectives:

[1] To understand the translation of design into built reality and the predicament of real site conditions.
[2] To understand the tangible integration of design, structure, services, etc.
[3] To explore concepts of architectural detailing and working drawings

Expected Course Outcome:

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

[1] Understanding the nomenclature, graphics symbols, formats, conventions and compositional clarity associated with working drawings.

[2] Understanding architectural detailing and planning refinements including engineering systems integration

[3] Produce construction drawings for a specific project.

Module: 1	Introduction to Working drawings - Stages of the design process - from idea to built reality.	**12 hours**
Module: 2	Presentations on history of technology, materials and design of detail. Studies of working drawings and digital technologies.(eg CAD, Revit, etc)	**12 hours**
Module: 3	Case studies and site visits to Institutions to explore structure, finishes, details, growth, building failures and maintenance, occupation, responses to climate and comfort, etc. Rigorous study and integral analysis.	**12 hours**
Module: 4	Refinement of schematic drawings of Institution semester to create a detailed drawing. / plan types, sections, elevations.	**12 hours**
Module: 5	Structures integration, etc.	**24 hours**
Module: 6	Services integration. lighting layout etc.	**36 hours**
Module: 7	Stair, joineries, etc.	**36 hours**
Module: 8	Accessories and details, landscape details, gates etc.	**36 hours**
Total Lecture Hours		**180 hours**

Reference Books

1	RIBA Working Drawings Handbook, Keith Styles, 2014,
2	Campus Planning, University Planning - The search for prefection - Jonathan Coulson, 2015

Mode of evaluation: Projects and Continuous Assessment, Final Assessment			
List of exercises (Indicative)			
1. Transformation of design into built form			**16 hours**
2. Conduct Case studies and site integral analysis			**16 hours**
3. Use digital gaming tools to understand the relationship between design and structural integration			**24 hours**
Recommended by Board of Studies	02-06-2016		
Approved by Academic Council	**No. 41**	Date	17-06-2016

ARC5005	ARCHITECTURAL THESIS	L	T	P	J	C
		-	-	-	-	17
Pre-requisite	**ARC5015**					

Course Objectives:

Objective

[1] Analyze a contemporary architectural or planning development need and formulate a development program in a specific context.

[2] Choose a focus area, tangible or intangible, for implementation within the realm of the project

[3] Analysis of sites and building programs including the physical, environmental, regulatory, visual and spatial requirements for designing specific projects.

[4] Generate architectural project drawings and models using advanced design communication tools

Expected Course Outcome:

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

[1] Understanding the gamut of institutional buildings through research work, field visits and seminars and identifying sites for specific typologies.

[2] Analysis of sites and building programs including the physical, environmental, regulatory, visual and spatial requirements for designing specific institutions.

[3] Providing context-specific architectural design solution to meet specific institutional needs.

Module: 1	Introduction and Choice of projects chosen by Student and approved by Faculty - program, site observations, regional climate, local resources, historic and socio-economic context, feasibility of project, sustainability and significance.	**12 hours**
Module: 2	Site visits, case studies, interviews, observations, documentation, literature studies and research methodologies to investigate and formulate program and requirements. Research on project.	**24 hours**
Module: 3	Exercises in Formulation of detailed program and area statement etc. Site-planning and thematic conceptual ideas.	**36 hours**
Module: 4	Digital Drawings and Detailing of cluster of buildings (if large site) Sustainability of design and climatic responses - passive and active.	**24 hours**
Module: 5	Models, digital drawings, presentation techniques charrette for the different stages of design - conceptual to schematic.	**24 hours**

Module: 6	Exercise - Time problem - detailing one section of project - in terms of services, wall sections, idea of materials, structure, etc.	**24 hours**
Module: 7	**Final presentation Models/Charrette/Juries/Project report- digital presentations drawings/videos/multi-media etc. Appropriate presentation techniques.**	**36 hours**
Total Lecture Hours		**180 hours**

Reference Books	
6.	References Appropriate to the Project selected by the student

Mode of evaluation: Continuous Assessment, Final Assessment			
Recommended by Board of Studies	09-08-2017		
Approved by Academic Council	**No. 47**	Date	5-10-2017

ARC5014	ARCHITECTURAL DESIGN – INSTITUTIONS	L	T	P	J	C
		0	0	10	4	6
Pre-requisite	**ARC 4001**					

Course Objectives:

Objective

[1] To understand the notion of institutions and their architectural expression through history.

[2] To understand creating precincts and spaces for learning - formal, informal and interactive processes of learning and role of the built environment.

[3] To understand the role of built environments in therapeutic and nurturing institutions, etc or/and institutions of similar scale and complexity.

[4] To initiate a basic integration and understanding of technologies and services.

[5] To investigate the role of historic, philosophic, aesthetic, and thematic abstractions influencing contemporary architecture and emerging trends in practice. (supportive lectures and charrettes)

Expected Course Outcome:

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

[1] Understanding the gamut of institutional buildings through research work, field visits and seminars and identifying sites for specific typologies.

[2] Analysis of sites and building programs including the physical, environmental, regulatory, visual and spatial requirements for designing specific institutions.

[3] Providing context-specific architectural design solution to meet specific institutional needs.

Module: 1	Project and ideation exercises on - Introduction to the idea of human institutions, history and interactive charrette. Narratives on building institutions - histories and meanings. Sketches, drawings, photographs, study models	**12 hours**
Module: 2	Exercises to record site though drawings, photo-documentation etc. Site Visit and Analysis of case studies/meeting architect and client/ and literature studies with an emphasis on typologies, program, areas, character of institution, growth, materials and structure.	**24hours**
Module: 3	Ideation on the nature of institutions - Sketches, drawings with case studies and interactive discussions.	**12 hours**
Module: 4	Design Project of appropriate scale - educational institution, cultural institution etc. Conceptual evolution and program studies.	**36 hours**

Module: 5	Drawings and Models to explore - site planning and context, program, areas and form, zoning and connections, structural systems principles, etc. Organisation and relationship of functions - brief report.	**36 hours**
Module: 6	Time problem/ small project to evoke specific issues - like the design of a community court etc	**12 hours**
Module: 7	Project and schematic drawings - Integration of services, structure, furniture layouts with detailed sections and elevations. Detailed drawing of a specific area in the institution	**36 hours**
Module: 8	Charrette and final jury/ discussion with practicing architects and related disciplines	**12 hours**
Total Lecture Hours		**180 hours**

Reference Books

1	De. Chiara and Callender, Time Saver Standards for Building types" , McGraw – Hill Co., N.Y., 2017
2	The Dynamic Decade, Campus Planning, David Godchalk, 2012
3	"Sustainable Design: Ecology, Architecture & Planning", Daniel Williams, John Wiley & sons,2007

Mode of evaluation: Continuous Assessment ,Final Assessment

List of exercises (Indicative)

1. Conduct case studies of different institutional campuses and buildings and record the qualitative and quantitative features.	**16 hours**
2. Choose sites and conduct their analyses as relevant to chosen institutional functions of the studio projects.	**16 hours**
3. Create building programs and alternative zoning options to meet institutional campus requirements.	**24 hours**

Recommended by Board of Studies	02-06-2016		
Approved by Academic Council	**No. 41**	Date	17-06-2016

ARC5015	ARCHITECTURAL DESIGN - URBAN TRANSFORMATION	L	T	P	J	C
		0	0	12	4	7
Pre-requisite	**ARC3099**					

Course Objectives:

[1] To explore and analyze, experience and document urban contexts and to understand the notion of public space and streets.
[2] To appreciate the difference between urban design as opposed to urban development and planning.
[3] To understand the role of architecture in shaping urban fabric.
[4] To discuss tangible factors like DCR, CRZ, etc. and other policy frameworks that impact urban intervention design.

Expected Course Outcome:

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

[1] Understanding the morphology of city structure through history and analyzing the factors influencing city growth.

[2] Choosing urban precincts for development interventions through a series of field studies and analysis.

[3] Providing urban design and development solution to meet context-specific needs.

Module: 1	Exercises based on concept of City in History. Socio-economic Challenges and Possibilities.(overview). Collaborative role of architect.	**12 hours**
Module: 2	Site Visit and recording of observations - urban intervention in traditional or new city. Urban issues and expression. Drawings, Digital modelling, photography and brief report.	**24hours**
Module: 3	Analysis and inferences from Observations, drawings, context models etc. Charrette and dialogue on urban themes and regulations. Digital modeling	**12 hours**
Module: 4	Exercises and Drawings - Project brief for urban intervention of appropriate scale to evoke the architectural expression, public spaces etc.	**36 hours**

Module: 5	Exercises and Drawings - on Broad contextual interventions, site, location, historic significance, transport patterns, densities, etc,. Exploration of variations and their impact.	**48 hours**
Module: 6	Design refinement - internal review with planners, urban designers, community and architects, Models and digital modeling of options.	**36 hours**
Module: 7	Final jury/Charrette/policy makers/architects/urban designers	**12 hours**
Total Lecture Hours		**180 hours**

Reference Books

1	Charles Correa, A Place in the Shade, Penguin Books India, 2010
2	Aranya, VSF Publications, Ahmedabad, 2009
3	Vibhuti Sachdev, Tillotson, The making of an Indian City- Building Jaipur, Reaktion Books, 2012
4	Vibhuti Sachdev, Tillotson, The making of an Indian City- Building Jaipur, Reaktion Books, 2012
5	Balsavar Durganand, An Understanding of a City as a Process in Time, CEPT Published Thesis, 2015

Mode of evaluation: Projects - Continuous Assessment, Final Assessment

List of exercises (Indicative)

1. Conduct urban studies at marco level to understand city planning forms and parameters governing the growth.	**36 hours**
2. Identify districts which pose unique problems and potentials and conduct and analyse contextual urban surveys relating to physical, infrastructural, socio economic and environmental parameters	**48 hours**
3. Provide conceptual design solutions for district development and related detailed architectural desigs solutions	**24 hours**

Recommended by Board of Studies	02-06-2016		
Approved by Academic Council	**No. 41**	Date	17-06-2016

ARC3006	HISTORY AND THEORY OF ARCHITECTURE - ANCIENT	L	T	P	J	C
		3	0	0	4	4
Pre-requisite	**ARC2005**					

Course Objectives:

To develop skills of observation, critical appreciation, discussion and writing, complementing the experience of buildings, precincts and settlements across space and time. To appreciate the broad Changing complexities and aspirations (cultural, social, economic, Technological etc.) in society impacting architecture.

Expected Course Outcome:

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

[1] **Understand** about the earlier type of settlement patterns and different ancient civilizations across the world that emerged during the period of 3500-1500BC.

[2] **Understand** about the developments of architecture in India, Babylon, Greece , Rome and China during 1000BC-200AD time period through the study of prominent structures build in respective geography.

[3] **Understand** about the selective monuments of sacred architecture across Europe, India and Japan.

[4] **Understand** about the selective monuments constructed during byzantine period and Rock cut architecture.

Module: 1		**3 hours**

Introduction with theoretical framework: The nomadic people, Early cultures, Neolithic, and rural settlements, agrarian.

Module: 2		**9 hours**

Themes and variations - 3500-1500 BC River Valley Civilisations -Indus Civilisation, Egypt, Mesopotamia, China, Early Americas, South India – Sangam

Module: 3		**9 hours**

1. 1000 BC - Muziris, Arikmedu, Sangam, Varanasi, Etruscan, Greece, Babylon, New findings.
2. 500 BC to 0 BC - Alexander in India, Greece, Parthenon, Rome, Buddhist, China. Themes etc

Module: 4		**10 hours**

1. 0 BC - Syncretic Indian cultures (Buddhism, Sanskritic, Jainism) Takshila, Rome Republic, Colloseum, Pompei, Great Wall of China, Petra and Sanchi stupa.etc. 2. 200 AD - Roman Empire , Karli Chaitya Hall, Pantheon, Hadrian's villa, China, etc.3. Nazca and Teotihuacan

Module: 5		**6 hours**

1. Early Basilica St Peters (330 AD) and Constantine, 2. Gupta period temples, Ajanta Caves, Kailashnath, 3. Japan Ise Shrine, etc.

Module: 6		**3 hours**

Hagia Sophia, Ravenna, Byzantine		
Module: 7		**3 hours**
Mahabalipuram, Elephanta, Nalanda University,		
Module: 8		**2 hours**
Interactions with architectural historians		
Total Lecture Hours		**45 hours**

Text Book	
1.	Understanding Architecture: Its Elements, History and Meaning, Leland M Roth,Craftsman,House,2004
Reference Books	
1.	"Brown, Percy "Indian Architecture (Budhist, Hindu, Islamic period), , DB Taraporevala Sons & Co, Mumbai, (reprint 2011)
2.	The History of Architecture in India from the Dawn of civilization to the End of the Raj, ChristoperTadgell, Longman Group U.K.Ltd., London, 1990.
3.	Master Handbook of Acoustics, Sixth Edition,
4.	INTACH Publications
5.	Madras Craft Foundation Publications
6.	Benevolo, The History of the City, MIT Press 2010 (reprint)
7.	Bannister Fletcher, A History of Architecture, 20th Edition, Architectural Press, 2011(reprint)

Mode of evaluation: Continuous Assessment Test, Quizzes, Assignments, Final Assessment Test			
Recommended by Board of Studies	9.8.2017		
Approved by Academic Council	**No.47**	Date	05.10.2017

Programme elective courses - Syllabus

ARC1008	ART FORMS APPRECIATION	L	T	P	J	C
		3	0	0	0	3
Pre-requisite	**Nil**					

Course Objectives:

The course is aimed to create an overview and understanding of various art forms that exists from Ancient to modern times and between East and West.

Expected Course Outcome:

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

[1] Appreciate of aesthetic qualities beyond the architecture

[2]To comprehend the relationship between the arts and built environment

[3]Analyse the techniques, art forms and styles

[4]Evaluate the various forms of art and the works of Artists and appreciate them in the context of culture and sociological perspective

Module: 1	**An introduction to understanding of art forms**	**2 hours**
Understanding the various art forms in the society and in different cultures.		
Module: 2	**Films / Documentaries**	**9hours**
Understanding and Appreciating **Films / Documentaries** from past to present times to Modern times & between East and West		
Module: 3	**Music/ Poetry**	**6 hours**
Understanding and Appreciating **Music/ Poetry** from Ancient times to Modern times & between East and West.		
Module: 4	**Dance / drama**	**6 hours**
Understanding and Appreciating **Dance / drama** from Ancient times to Modern times & between East and West.		
Module: 5	**Painting/Sculpture**	**12 hours**
Understanding and Appreciating **Painting/Sculpture** from Ancient times to Modern times & between East and West.		
Module: 6	**Folk/ indigenous art**	**6 hours**
Understanding and Appreciating **Folk/ indigenous art** from Ancient times to Modern times & between East and West.		
Module: 7	**Sociological perspective of Art and Culture**	**2 hours**
Art and Culture and Well-being - a sociological perspective		
Module: 8	**Interaction with contemporary artistes**	**2 hours**
Total Lecture Hours		**45 hours**

Reference Books

1.	Creative Authenticity:16 principles to clarify and deepen your artistic vision by Ian Roberts.		
2.	The Writer: A Concise Complete and Practical Text Book of Rhetoric, Designed to Aid in the Appreciation as well by George Lansing Raymond.		
Mode of evaluation: Continuous Assessment Test, Quizzes, Assignments, Final Assessment Test			
Recommended by Board of Studies	02-06-2016		
Approved by Academic Council	**No. 41**	Date	17-06-2016

ARC1009	IDEATION	L	T	P	J	C
		0	0	4	4	3
Pre-requisite	**Nil**					

Course Objectives:

The course is aimed at
[1] To explore the manifestation of diverse and innovative ideas into tangible, concrete reality.

Expected Course Outcome:

At the end of the course the student should be able to
[1] Understanding the qualities of Design problems and solutions
[2]Evaluate ideas in the realms of music, art, sciences into physical manifestations through a process of inspired thinking and interpretation.
[3] create solutions to real world problems by thinking laterally

Module: 1	**Idea to Form**	**4 hours**

Introduction and exercises - Idea to Form: What makes a Design - Various aspects of Design - Various areas of Design resolution methods through mini projects. Exercises that encompass the understanding of Idea to Form;

Module: 2	**New ideas in furniture design**	**8 hours**

Projects to understand the new ideas in furniture design and human occupation/ seating, study, etc; along with brief report.

Module: 3	**Spatial design**	**8 hours**

A Spatial design project that would have light and shade as major thrust area;

Module: 4	**Impact of colour in a environment**	**4 hours**

Projects to showcase the impact of colour in a environment;

Module: 5	**Recycling materials**	**8 hours**

Projects to explore recycling materials into new products

Module: 6	**Flexible functions**	**8 hours**

Projects to explore flexible functions and multi-functionality and versatility

Module: 7	**Nature as a Design Inspiration**	**8 hours**

Projects that has Nature as a Design Inspiration

Module: 8	**Fractals and design in nature**	**4 hours**

Projects to demonstrate Fractals and design in nature.

Module: 9	**Design inspiration from Nature**	**8 hours**

Projects to be facilitated with inspiration from Nature. Animals, Plants, Drawings, models along with brief report.

Total Lecture Hours			**60 hours**
Reference Books			
1.	Edward De Bono - Lateral Thinking- Creativity, Penguin, 2009		
Mode of evaluation: Continuous Assessment, Final Assessment			
List of exercises (Indicative)			
1. Metaphoric Interpretation - Design a pavilion of 150 sqm. using inspirational design elements from the products being displayed within.			
2. Media Transformation - Represent a piece of music in graphic visual mode.			
3. Modular Flexibility – Choose a classic geometry form and use multiple sized modules to demonstrate utilisable assemblies.			
Recommended by Board of Studies	02-06-2016		
Approved by Academic Council	**No. 41**	Date	17-06-2016

ARC1014	VISUAL ARTS-BASIC SKILL DEVELOPMENT	L	T	P	J	C
		0	0	8	0	4
Pre-requisite	**Nil**	**V.1.1**				

Course Objectives:

To encourage students for free expression and creativity - Understanding the basic characteristics of different techniques, mediums and its practical applications. - To develop an insight towards sensibility and aesthetic appreciation.

Expected Course Outcome:

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

[1] Obtain the skill of observation.

[2] Understand the basic technical skills in the visual formats of drawing, colour and design and acquire the skill of visual communication.

[3] Understand concepts of colour, scale, proportion, composition and related attributes of visual imagery.

[4] Identify and explain the various mediums and methods/processes used in the creation of two-dimensional and three-dimensional artworks

[5] Be competent with a variety of common illustration media and develop hand-mind coordination

[6] Think and create innovative designs.

Module: 1	Pen rendering & Pencil colour's	8 hours
Module: 2	Landscape in pencil and colour & Trees	8 hours
Module: 3	Water colour techniques & Water colour monochromatic techniques	16 hours
Module: 4	Geometrical forms& Photos	16 hours
Module: 5	Still life - I (Books and geometric forms)	8 hours
Module: 6	Still life - II (Material implication)	8 hours
Module: 7	Tints and Shades	8 hours
Module: 8	Still life - II (Water colour's)	8 hours
Module: 9	Outdoor - IV (Off Campus)	8 hours
Module: 10	Outdoor - V (Off campus)	8 hours
Module: 11	Outdoor - VI (In Campus)	8 hours

Module: 12	Poster design (Theme)	16 hours
Total Lecture Hours		**120 hours**

Reference Books	
1.	Wucius, Wong. Principles of two Dimensional Design. Wiley 2009.
2.	Ching Francis.D.K. - Architecture - Form, Space and Order, John Wiley & Sons, 2014
3.	Art Fundamentals Theory & Practice by Ocvirk, Stinson, Wigg, Bone, Cayton, Mc Graw Hill, 2012
4.	Foundations of Art and design by Alan Pipes, Lawrence King Publishing limited, 2008.

Mode of evaluation: Continuous Assessment, Final Assessment

List of exercises (Indicative)

1. **Studio renditions of compositional volumes**
2. **Outdoor light and shade studies of natural elements.**
3. **Textural studies and analyses.**

Recommended by Board of Studies	09-08-2017		
Approved by Academic Council	**No.** 46	Date	24.08.2017

ARC1016	STUDY TOUR 1	L	T	P	J	C
		0	0	0	0	2
Pre-requisite	**Nil**					

Course Objectives:

[1] To travel to a site of historic/social or cultural significance in order to observe, evolve drawing skills appreciate the place and undertake basic documentation.
[2] To complement the on-campus architecture subjects by providing direct personal experiences of built environments, which is an integral part of architectural education
[3] To experience buildings in their context, meet architectural practitioners, visit other architecture programs, and engage in other off-campus activities both nationally and internationally in order to support the undergraduate architecture curriculum and inspire design excellence

Expected Course Outcome:

At the end of the course the student should be able to
[1] Develop knowledge, awareness and understanding of contexts of architectural development from a theoretical and historical standpoint.
[2] Develop the ability to critically evaluate and contribute to any discussion on architectural theory/history.
[3] Develop knowledge, understanding and awareness of historical development of structures, construction systems and elements leading to contemporary concerns.
[4] Ability to apply understanding of historical precedent toward contemporary issue.
[5] Display an ability to analyse built form in respect of historic context and display an understanding of research methodologies and the ability to communicate/display findings.

Module: 1	Discussion of experience of observations	6 Hours
Module: 2	Basic documentation of way of life.	18 Hours
Module: 3	Basic documentation of proportion and elements (Drawing and or photography)	18 Hours
Module: 4	Record of materials and technology	12 Hours
Module: 5	Interviews with community.	12 Hours
Module: 6	To prepare a set of basic drawings and project reports with photographs recording the social, cultural, historic context.	54 Hours
Total Lecture Hours		120 **hours**

Reference Books

1.	Morris, I.H. Geometrical Drawing for Art Students.
2.	Bhatt, N.D. and Panchal V.M. Engineering Drawing: Plane and Solid Geometry, 42nd ed. Charotar Pub., Anand, 2000

Recommended by Board of Studies	02-06-2016		
Approved by Academic Council	**No. 41**	Date	17-06-2016

ARC1018	Theory of Landscape Design	L	T	P	J	C
		2	0	0	4	3
Pre-requisite	**ARC4001**					

Course Objectives:

The course is aimed at
[1] Providing an experiential understanding of practical Landscape design challenges.
[2] Design solutions which empower the students to develop a holistic perspective towards Landscape Design.

Expected Course Outcome:

At the end of the course the student should be able to
[1] Understand the evolution of gardens and Landscape design theory with examples from around the globe.
[2] apply design theory to solve practical issues along with achieving proficiency in producing conceptual designs & basic design detailing.
[3] Provide knowledge about the industry standards in the use of digital presentation means for Analysis and designing purposes.

Module: 1	**Landscape design and its theoretical design**	**2 hours**

Introduction to understanding of landscape design and its theoretical design aspects to be considered.

Module: 2	**Hard and Soft Landscape**	**9 hours**

Hard and Soft Landscape, Material of Construction, Types of vegetation
- color - scale - proportion - light and shade effect - and its image ability creation / user - experience factors

Module: 3	**Cultural aspects of the landscape architecture**	**6 hours**

Cultural aspects of the landscape architecture with contextual understanding - history of landscape architecture and its theoretical aspect behind its design.

Module: 4	**Scenic beauty of landscape design**	**3 hours**

Scenic beauty of landscape design and its various theoretical aspects.

Module: 5	**Urban & regional landscape**	**3 hours**

Urban & regional landscape characteristics

Module: 6	**landscape setting**	**2 hours**

The characteristics of landscape setting and its intended outdoor activities and experience

Module: 7	**Sustainability and landscape Architecture**	**3 hours**

Sustainability and landscape Architecture - the indigenous aspect of landscaping

Module: 8	**simulation technologies in landscape design**	**2 hours**

Simulation and simulation technologies available for user experience during design stage and the latest best practices in profession to showcase landscape design.			
Total Lecture Hours			**30 hours**
Reference Books			
	1. Bradley Cantrell & Wes Michaels,Digital Drawing for Landscape Architecture John Wiley & Sons Inc Hoboken, New jersey 2015 2. Robert Holden & Jamie Liversedge,Landscape Architecture:An Introduction,Laurence King Publishing, 2014 3. Elizabeth Boults & Chip Sullivan, Illustrated History of Landscape Design, John Wiley & Sons,2010 4. Charles Harris & Nicholas Dines, Time Saver standards for Landscape Achitecture, Mc Graw Hill Education, 2017		
Mode of evaluation: Continuous Assessment Test, Quizzes, Assignments, Final Assessment Test			
Recommended by Board of Studies	02-06-2016		
Approved by Academic Council	**No. 41**	Date	17-06-2016

ARC1020	HUMAN SETTLEMENTS AND VERNACULAR ARCHITECTURE	L	T	P	J	C
		2	0	0	4	3
Pre-requisite	**ARC3099**					

Course Objectives:

[1] Familiarity with key concepts and current theories within the field of housing and sustainable settlement development.
[2] Formulate and understand concepts relevant to vernacular architecture and understand the political, economic and environmental impact upon architecture
[3] To introduce major human settlements issues and problems at all scale levels (from the global to the very local i.e. dwelling level)

Expected Course Outcome:

At the end of the course the student should be able to
[1] Understand and appreciate of vernacular architecture.
[2] Understand of the methods available to analyse and date vernacular houses and spatial arrangement
[3] Recognise the style, form and period to which the architecture of a house relates.
[4] Analyse the evolution of human settlements through history and conclude solutions towards sustainable settlement

Module: 1	**Introduction to Vernacular settlements**	**2 hours**
Introduction to Vernacular settlements - Definitions and classifications, typologies and way of life. - socio-cultural and anthropological context and construction practices. Global and national perspectives and research		
Module: 2	**Vernacular Architecture and Concepts**	**4hours**
Spatial organisation, planning principles, elements and passive sustainability		
Module: 3	**Vernacular architecture in North India**	**4 hours**
Settlements of Rajasthan and the north east and other regions.		
Module: 4	**Vernacular Architecture of South India**	**4 hours**
Towns of Kerala- Padmanabhapuram Palace and Tamilnadu, etc.		
Module: 5	**Vernacular Architecture of Gujarat**	**4 hours**
Rural and urban Gujarat and other regions		
Module: 6	**British Bungalow**	**2 hours**
The emergence of the British Bungalow		
Module: 7	**Vernacular Architecture as a Design Tool**	**4 hours**
Inspirations from the vernacular - Reinterpretations - Alvaro Siza, B V Doshi, Gian Carlo Di Carlo, Charles Correa, et al.		
Module: 8	**Interactions with Practicing architects and**	**2 hours**

	communities		
Total Lecture Hours			**30 hours**
Sample Projects Abstract the elements of an indegenous dwelling (any region) and explore its relation to climate and way of life.			
Reference Books			
1.	Oliver, Paul, "Encyclopedia of vernacular Architecture of the world (3 Vol. Set)", Cambridge University Press, U.K., 2007		
2.	Spiro Kostoff, City assembled, City shaped, Phaidon, 2005 r		
3.	Charles Correa, A Place in the Shade. Penguin Books, 2010		
4.	Aranya, Vastu-Shilpa Foundation, Ahmedabad, 2015 (reprint)		
Mode of evaluation: Continuous Assessment Test, Quizzes, Assignments, Final Assessment Test			
Recommended by Board of Studies	02-06-2016		
Approved by Academic Council	**No. 41**	Date	17-06-2016

ARC1022	ARCHITECTURAL STRUCTURAL DESIGN - CONCRETE	L	T	P	J	C
		3	0	0	0	3
Pre-requisite	**ARC2001**					

Course Objectives:

This course's main purpose is to understand the relationship between structural design and Architectural design. The course aims to impart foundation knowledge on structural principles for application in subsequent modules of structural design.

Expected Course Outcome:

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

[1] Understand principles related to physics, relevant to structural design and the different concepts of RCC structural elements and their role in building design.

[2]Analyse different structural design depending on various theories of load mechanism.

[3]Evaluate and optimize the suitable structural elements for design.

[4] Design different structural elements including beams, columns, footing and slabs.

[5] To equip students with skills in evaluating the usability of Thumb rules and standard design codes in designing structural systems and building components

[6] Evaluating the load bearing capacity of the structural elements.

Module: 1	**Design principles of structural components**	**4 hours**

Introduction to statically and kinematically determinate and indeterminate structures –Overview and design principles of structural components- Beams, Columns, Roofs, Slabs, Arches, cables.

Module: 2	**Structural Design of beams**	**4hours**

Theory and analysis of singly and doubly reinforced beam (no design), Neutral axis of Beam section, Lever arm, Moment of resistance, Balanced, unbalanced under reinforced and over reinforced section, Introduction to R.C.C (W.S.M and L.S.M)

Module: 3	**Design of Reinforcement**	**4 hours**

Detailing of Reinforcement -Introduction, Requirement or good detailing, Cover for reinforcement. spacing for reinforcement, reinforcement requirements-splicing

Module: 4	**Structural Design codes**	**4 hours**

Thumb rules based on standard design codes- Causes of failures of the structural components- classification of buildings and codal provisions – Introduction to structural systems- Structure System Studies

Module: 5	**Structural Design of Staircase**	**4 hours**

Principles of staircase construction and its elements- Details of various stair cases in wood, stone, steel and RCC- Design principles of one way and two way slabs

Module: 6	**Structural Design of slabs**	**4hours**
Concepts of design for Balconies, shop fronts, false and suspended ceilings, free standing stair cases, pergolas and covered walkways.		
Module: 7	**Design of footings**	**4 hours**
Introduction to types of soils-Characteristics of soil-Bearing capacity of soil-Types of Structure (load bearing and framed), Types of foundations and footings- Method of stabilization of soil		
Module: 8	Industry guest lecture	**2 hours**
Total Lecture Hours		**30 hours**
Mode of evaluation: Continuous Assessment Test, Quizzes, Assignments, Final Assessment Test		

Recommended by Board of Studies	09-08-2017		
Approved by Academic Council	**No.47**	Date	05-10-2017

ARC1024	COMPUTER GRAPHICS - SKILL DEVELOPMENT	L	T	P	J	C
		0	0	6	0	3
Pre-requisite	**Nil**					

Course Objectives:

[1] Equipping students with significant understanding of relevant digital software
[2]. Instil the role and importance of digital technologies in architectural design process
[3]. Developing familiarity of interface of different software programme and their applications.

Expected Course Outcome:

At the end of the course the student should be able to
[1] convert architectural ideas into drawings using digital software
[2].Understand and evaluate the spatial quality of a building using digital simulation tools
[3] compose and present architectural ideas in an effective format.

Module: 1	**Introduction to architectural simulation**	**4 hours**
Introduction to computers - getting hands on familiarity with software's related to architectural simulation - the need and scope of using computers in architectural simulation.		
Module: 2	**Digital Software**	**16 hours**
Digital Software like AUTOCAD - understanding various aspects of line, shapes, commands, layers, printing color codes		
Module: 3	**Visualisation software**	**4 hours**
Visualisation software like sketchup - understanding 3d creation		
Module: 4	**Building Information modelling**	**16 hours**
Building Information modelling software like REVIT - introduction - commands description - hands on with various plans - services plan – basic simulation		
Module: 5	**Presentation software**	**4 hours**
Presentation software including -GIMP & rendering plugins		
Module: 6	**Options in visualisation software**	**12 hours**
Options in visualisation software		
Module: 7	**Best practices in computer graphics.**	**4 hours**
Professional inputs on best practices in computer graphics.		
Total Lecture Hours		**60 hours**

Mode of evaluation: Continuous Assessment, Final Assessment

List of exercises (Indicative)

1.Design and draftthe technical drawings of a 3 BHK house for a plot area of 240sqm with proper line weights and standards.

2. Design a 3BHK house for a plot area of 240 sqm, prepare 3D views, walk throughs and marketing drawings.			
Recommended by Board of Studies	09-08-2017		
Approved by Academic Council	**No.47**	Date	05-10-2017

ARC1026	**INTERIOR DESIGN**	**L**	**T**	**P**	**J**	**C**
		0	0	4	4	3
Pre-requisite	**ARC4001**					

Course Objectives:

[1] Familiarise the student with key concepts and current interior design practices within the field of housing and commercial spaces

[2] To equip students with skills essential for client - designer presentation in a professional context

[3] To make students understand the importance of specification of materials, furniture layout and barrier free design with respect to context.

Expected Course Outcome:

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

[1] Analyse an interior space through its user requirement and propose design based solutions

[2] Apply elements and principles of visual design (in 2D and 3D problems) using a wide range of illustration and drawing techniques.

[3] Understand the principles of sustainability in interior design.

Module: 1	**History and Theory of Interior Design**	**16 hours**

Introduction, History and Theory of Interior Design

Psychology and Perception of Interior space, Barrier Free Design.

Design Project-1Complete design, detailing, furniture layout, specification for the materials, and their application. The projects shall relate to interiors of residential, commercial, educational or other public spaces.

Module: 2	**Interior Lighting: Acoustic Design**	**6 hours**

Architectural/Interior Lighting: Acoustic Design

Module: 3	**Systems Integration**	**6 hours**

Indoor Air Quality/Ventilation: Systems Integration (HVAC, Plumbing, Electrical etc.)

Module: 4	**Furniture Design and fixture layout**	**4 hours**

Furniture Design and Layout, Fixtures & Equipment:

Module: 5	**Interior Landscaping**	**3 hours**
Materials & Finishes: Interior Landscaping		
Module: 6	**Sketchup for Interior Design**	**16 hours**
Design Project – 2 Sketchup for Interior Design		
Module: 7	**Sustainability in Interior Design**	**3 hours**
Module: 8	Introduction to LEED for ID or Green Associate	**6 hours**
Total Lecture Hours		**60 hours**

Reference Books

1. Joseph D.Chiara, Julius Panero, Martin Zelnik: Time Saver Standards for Interior Design & Space Planning, 2nd Edition.2001.
2. Julius Panero, Martin Zelnik:Human Dimension & Interior Space: A source book of Design Reference Standards"1979
3. SSusan M.Winchip: Fundamentals of Lighting, 2nd Edition.
4. Louise Jones: Environmentally Responsible Design - Green & Sustainable Design for Interior Designers
5. Francis D.K.Ching: Interior Design Illustrated.3rdEditionV.N.R.Pub. NY 2012
6. SyanneSlesin and Stafford Ceiff- Indian Style, Clarkson N.Potter, New york, 1990.
7. Periplus Editions, Michael Freeman, India Modern, 2005

Mode of evaluation: Continuous Assessment ,Final Assessment

List of exercises (Indicative)

1. **Design the interior of a 3 bed room house. Deliverables include layout plans, 3D views and details of furniture and finishes.**
2. **Choose an office space of about 150 sqm. create an interior layout program to cater to a start-up company of your choice. Deliverables include layout plans, 3D views and details of furniture and finishes.**

Recommended by Board of Studies	09-08-2017		
Approved by Academic Council	**No. 47**	Date	05-10-2017

ARC1027	FURNITURE DESIGN	L	T	P	J	C
		0	0	4	4	3
Pre-requisite	**ARC3099**					

Course Objectives:

[1] Familiarise with key concepts and current styles in furniture design
[2] To equip students with skills essential for client - designer presentation in a professional context.
[3] To make students understand the importance of specification of materials, furniture usage and barrier free design with respect to context.

Expected Course Outcome:

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

[1] Analyse and design furniture through its various components such as material, structure and style.
[2] Understand and implement sustainable concepts in furniture design.
[3] Develop skills to understand the process of furniture design production.

Module: 1	**Ergonomics and Human Anthropometrics**	**3 hours**
Exercise to understand Ergonomics and Human Anthropometrics.		
Module: 2	**Furniture Designers/Style**	**3 hours**
Introduction to Furniture Designers/Style: Antique, Traditional, Modern, Contemporary, Classical etc. Current trends in furniture design.		
Module: 3	**Types of Furniture**	**4 hours**
Types of Furniture – Built-in (cabinetry etc.), Modular, Manufactured, Systems Office furniture, Premade, Custom-made, Seating, Storage, Children's, Sleeping, Street Furniture (outdoor).		
Module: 4	**Materials in Furniture**	**8 hours**
Materials in Furniture – Wood (hardwoods, softwoods), Plywood, Bent wood, Bamboo/Cane, Metal, Plastics, Polyurethane, Glass. Upholstery Materials – Leather, Rexin, Fabrics (naturals, synthetics). Finishes – Laminate, Veneer, Lacquer, Varnish, Stains, Polish. Adhesives.		
Module: 5	**Furniture Selection**	**2 hours**
Selection of Furniture, Cost and Longevity.		
Module: 6	**Furniture design**	**18 hours**
Furniture design, technology (structure & stability). Wood joinery, Sections, Framework, Detailing. Design of furniture using found object.		
Module: 7	**Furniture layout**	**16 hours**
Design Project - Furniture layout – relationship to context and Design of Furniture (Standalone or Built-in).		
Module: 8	Guest faculty – Innovations in Furniture Design – Workshop	**6 hours**

Total Lecture Hours			60 hours
Reference Books			
References: 7. Francis Ching - Form Space and Order, Phaidon, 2012r 8. John F. Pile,Interior Design, Harry N. Abrams, Inc., Publishers. 9. Amin Jaffer, Furniture from British India and Ceylon, Peabody Essex Museum; First Edition (2001) 10. Stuart Lawson, Furniture Design: An Introduction to Development, Materials and Manufacturing,Laurence King Publishing (October 1, 2013)			
Mode of evaluation: Continuous Assessment, Final Assessment			
List of exercises (Indicative) **1. Design a comprehensive sleeping and studying unit for children in the age group 9 to 12 years** **2. Design a comfortable single lounge sofa using natural material finishes and provided with reading light and data/charging plugging facilities. The unit must provide for a surface to use a compact laptop.**			
Recommended by Board of Studies	02-06-2016		
Approved by Academic Council	**No.41**	Date	17-06-2016

ARC2004	VISUAL ARTS-ADVANCED SKILL DEVELOPMENT	L	T	P	J	C
		0	0	6	0	3
Pre-requisite	**ARC 1014**					

Course Objectives:

The course is aimed at

[1] To encourage students for free expression and creativity

[2] Understanding the basic characteristics of different techniques in sketching and its practical applications.

Expected Course Outcome:

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

To facilitate effective visual communication and visual design aspects.

[1] Obtain the skill of observation.

[2] Understand the basic technical skills in the visual formats representation

[3] Understand concepts of colour, scale, proportion, composition and related attributes of visual imagery.

[4] Identify and explain the various mediums and methods/processes used in the creation of three-dimensional artworks

[5] Be competent with a variety of common illustration media and develop hand-mind coordination

Module: 1	Basic Art exercise	6 hours
Module: 2	Drawing measurements exercise	12 hours
Module: 3	Object drawing with perspective exercise	6 hours
Module: 4	Stick drawings exercise	6 hours
Module: 5	Human sketching exercise	6 hours
Module: 6	Portrait study exercise	6 hours
Module: 7	Indoor and Outdoor study exercise	12 hours
Module: 8	Shading exercise	6 hours
Module: 9	Pen and Ink exercise	12 hours
Module: 10	Still life exercise	6 hours
Module: 11	Colours exercise	6 hours
Module: 12	Story boarding exercise	6 hours
Total Lecture Hours		**90 hours**

Reference Books

1.	Art Fundamentals Theory & Practice by Ocvirk, Stinson, Wigg, Bone, Cayton, Mc Graw Hill, 2012.
2.	Foundations of Art and design by Alan Pipes, Lawrence King Publishing limited, 2008.

Mode of evaluation: Continuous Assessment, Final Assessment

List of exercises (Indicative)

1. **Generate a story board using graphic visual imagery.**
2. **Choose a prominent visual element – fountain, statue etc. and develop an urban scenario around this focal point.**

Recommended by Board of Studies	02-06-2016		
Approved by Academic Council	**No. 41**	Date	17-06-2016

ARC 2006	ADVANCED ARCHITECTURAL GRAPHICS	L	T	P	J	C
		0	0	6	4	4
Pre-requisite	**ARC1015**					

Course Objectives:

The course is aimed at to familiarize the student with techniques of Architectural representation

Expected Course Outcome:

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

[1] Prepare plan, elevations and sections of a building with proper representation of building elements.

[2] Prepare different types of views such as isometric, axonometric and 1 2 and 3 point outdoor and indoor perspectives.

[3] Draw sciography for different types of forms, vertical and horizontal surfaces.

[4] Draw shadows on plan and elevation of a building based on sun-angles.

[5] Prepare a perspective view with sciography

[06] Prepare architectural presentation drawings.

Module: 1	**Representation of building elements, terminology and abbreviation**	6 Hours
Module: 2	**Preparation of plans, elevations & sections**	6 Hours
Module: 3	**Preparation of elevations & sections details (understanding the surrounding)**	6 Hours
Module: 4	**Isometric and Axonometric view. Introduction of Perspective**	12 Hours
Module: 5	**Two point exterior and Thee point exterior perspective**	9 Hours
Module: 6	**One point interior perspective**	6 Hours
Module: 7	**Introduction of Sciography - Simple and composite forms - shadows on horizontal, vertical planes and on surface**	9 Hours
Module: 8	**Groups of various forms in understanding of sciography**	6 Hours
Module: 9	**Shade and shadow techniques - Sun angle, time, building height**	6 Hours
Module: 10	**Implication of sciography into Perspective**	6 Hours

Module: 11	**Introduction of live example and draft plan, elevation, section and view**	12 Hours
Module: 12	**Architectural representations - integration to presentation drawings**	6 Hours
Total Lecture Hours		90 hours

Reference Books	
1.	Claude Batley - Design Development of Indian Architecture Sage Publications 2002
2.	Thoms, E. French. Graphic Science and Design, New York: MC Graw Hill.
3	Bhatt, N.D. and Panchal V.M. Engineering Drawing: Plane and Solid Geometry, 42nd ed. Charotar Pub., Anand, 2000
4	Shah, M.G., Kale, C.M. and Patki, S.Y. Building Drawing: with an integrated approach to built environment, 7th ed. Tata McGraw Hill Pub., Delhi, 2000
5	Ellen Lopton and Jennefer Cole Phillips, Graphic Design The New Basics, Princton Arch. Press

Mode of evaluation: Continuous Assessment, Final Assessment

List of exercises (Indicative)

1.Preparation of measured drawings of the prominent building in the vicinity.

2.Incorporating visual skills into technical drawings.

Recommended by Board of Studies	02-06-2016		
Approved by Academic Council	**No. 41**	Date	17-06-2016

ARC 2016	STUDY TOUR 2	L	T	P	J	C
		0	0	0	0	2
Pre-requisite	**Nil**					

Course Objectives:

The course is aimed at to travel to a site of historic/architectural, social or cultural significance in order to observe, evolve drawing skills appreciate the place and undertake basic documentation.
(Maximum duration 20 days)

Expected Course Outcome:

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

[1] Develop knowledge, awareness and understanding of contexts of architectural development from a theoretical and historical standpoint.

[2] Develop the ability to critically evaluate and contribute to any discussion on architectural theory/history.

[3] Develop knowledge, understanding and awareness of historical development of structures, construction systems and elements leading to contemporary concerns.

[4] Ability to apply understanding of historical precedent toward contemporary issue.

[5] Display an ability to analyse built form in respect of historic context and display an understanding of research methodologies and the ability to communicate/display findings.

Module: 1	Related study program – Travel to sites, precincts or settlements of historic and architectural significance. Observation and documentation (with INTACH, etc.)	10
Module: 2	Discussion of experience of observations	10
Module: 3	Basic photo- documentation of way of life of communities, inhabitants,	20
Module: 4	Basic documentation of proportion and elements, plan types etc. (Drawing and or photography)	40
Module: 5	Record of materials and technology	10
Module: 6	Interviews with community.	10
Module 7	To prepare a set of basic drawings and brief project reports with photograph's recording the social, cultural, historic context	20
Total Lecture Hours		120 **hours**

Recommended by Board of Studies	02-06-2016		
Approved by Academic Council	**No. 41**	Date	17-06-2016

ARC2018	ARCHITECTURAL STRUCTURAL DESIGN – COMPOSITE	L	T	P	J	C
		3	0	0	0	3
Pre-requisite	**ARC1022**					

Course Objectives:

This course will help the student to design the structural components of steel and reinforcement of structural components such as beams, columns, trusses as per the recommendations of BIS codal provisions.

Expected Course Outcome:

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

[1] Evaluate and optimize the suitable structural materials and elements for design

[2] Design different structural components like steel columns, girders, Steel and Timber Trusses

[3] Design reinforcement for various structural components simple beams, columns, trusses

[4] Evaluate force systems to create structure systems

[5] Analyse the architectural applications of prestressed concrete

Module: 1	**Properties of Structural Materials:**	**2 hours**

Properties of Structural Materials: Steel, masonry and B.I.S. specifications, Design loads as per B.I.S. codes- Types of connections and joints- Design principles of Steel beams and built-up sections

Module: 2	**Design of steel columns and girders**	**2hours**

Design of Steel columns- Design principles of girders

Module: 3	**Steel Trusses**	**4 hours**

Introduction to Steel Trusses and Industrial Buildings – Framed structures- Behaviour of structures under wind and seismic loads.

Module: 4	**Timber trusses**	**2 hours**

Timber trussed roofs-Timber Design requirements from National Building Code, Design principles

Module: 5	**Detailing of Reinforcement**	**4 hours**

Detailing of Reinforcement -Design and drawings of simple beams, columns, trusses in steel and timber

Module: 6	**Synthesis of force systems**	**6 hours**

Synthesis of force systems to create structure systems- Vector active, surface-active and built-active systems- High-rise and large-span structures

Module: 7	**Prestressed concrete**	**6 hours**

Introduction of prestressed concrete- Classification and Types of prestressing system, End anchorage, Advantages and disadvantages of prestressed concrete, Advantages of prestressed concrete over reinforced concrete construction

Module: 8	**Expert Lectures**	**4 hours**

Total Lecture Hours		**30 Hours**	
Books			
1.Design of Steel Structures, S.S. Bhavikatti (Fifth Edition, By Limit State method as per IS:800-2007) I K International Publishing House Pvt. Ltd			
2. Design of Wood Structures ASD Donald E. Breyer, Kenneth J. Fridley, Kelly E. Cobeen			
3. Fourth Edition, McGraw-Hill Publication			
4. Prestressed Concrete, N.Krishna Raju Sixth Edition, Mc Graw Hill Publications			
Reference Books			
1. Structural Engineering for Architects: A Handbook by Peter Silver, Will McLean, and Peter Evans, Laurence King Publishing Ltd, 361–373 City Road London			
Mode of evaluation: Continuous Assessment Test, Quizzes, Assignments, Final Assessment Test			
Recommended by Board of Studies	09-08-2017		
Approved by Academic Council	**No. 47**	Date	05-10-2017

ARC2019	BUILDING SERVICES- ELECTRICAL AND MECHANICAL	L	T	P	J	C
		3	0	0	0	3
Pre-requisite	**ARC1023**					

Course Objectives:

The course aims to expose students to the basics of Electrical and Mechanical Engineering Services including distribution substations and low voltage power distribution requirements, illumination systems. Security systems, HVAC systems, mechanical transportation systems and acoustics

Expected Course Outcome:

[1] Summarize knowledge on various services like, electrical, lighting and security systems involved in buildings
[2] Identify the basics of electrical systems and various electrical installations, lighting principles, security systems and their installations needed to coordinate the different services involved in construction as designer
[3] Apply the knowledge of air conditioning in calculating air conditioning loads for different spaces and working out air distribution systems for building typologies
[4] summarize the knowledge of vertical transportation systems to design the vertical services like elevators, escalators and travelators for varied building typologies
[5] Choose appropriate design strategies of acoustics to achieve optimum standards of comfort within a built environment
[6] compare and comprehend the integration of various services like, electrical, lighting ,Heating , Ventilation ,Air Conditioning, vertical transportation, acoustics and security systems involved in buildings

Module: 1	Electricity Basics	**4 hours**

:Ohms and Kirchhoff's Laws, Single phase and three phase supply, power and different types of power measurement, Power Factor, Earthing, Substations, Low-Voltage Power Distribution Systems Requirements, Dimensions of power distribution systems, low voltage switchboards, bus bar system and types.

Module: 2	Electrical System Design	**4hours**

Wires and cables, Electrical Load Estimation – Preparation of Electrical Scheme and the electrical load calculations for building, Power handling equipment: Switch board, panel boards, lighting conductors, Captive Power Generation, Un-interrupted power supply, Emergency service, Inverters, Phase change over and methods

Module: 3	Illumination	**4 hours**

Nature of radiation, definition, laws, photometry, lighting calculations, design of illumination systems types of lamps, energy efficiency lamps.		
Module: 4	Security System	**2 hours**
Introduction to security systems – Access control, Public Address systems, CCTV, fire detection and their interconnected role in protection. (Method of teaching to include pictorial representation).		
Module: 5	Mechanical / Artificial Ventilation	**8 hours**
Rate of ventilation, Methods and equipment, Air Conditioning – Definition to psychrometric process, air cycle and refrigeration cycle, Calculation of air conditioning loads, Zoning: Purpose and advantages. Air-distribution systems, Air-conditioning methods and equipment, energy conservation techniques, concept of "Clean Room".		
Module: 6	Elevators, escalators and travellators	**4 hours**
Types of Elevators-Traction, sky lobby, lift lobby, Provision of elevators for a building, planning considerations - location in building, Recommendations of the National Building Code, etc. Safety features and codes. Service requirements: Quality of service, quantity of service, time, passenger handling capacity, space and physical requirements, machine room spaces and their typical layout. Design of typical lift banks. Escalators, Application - Location and arrangement in buildings. Space requirement, travelators.		
Module: 7	Introduction of acoustics	**2 hours**
Nature of sound, basic terminology, Behaviour of sound in enclosed spaces, Absorption of sound, sound absorption coefficient, reverberation, Use of Sabine's and Eyring's formulae, sound absorbents. Auditoria, seminar and multipurpose hall design		
Module: 8	Lectures from MEP and associated Experts	**2 hours**
Total Lecture Hours		**30 hours**
Projects		
1.	Study in a small residence the installation of HVAC, lighting and electrical systems and present in a drawing sheets	
2.	Design conceptual drawings for HVAC, lighting and electrical systems	
3.	How to optimize the use of artificial and natural lighting	
Reference books		
1.	Electrical Technology, Seventh Edition, H.Cotton,CBS publications, 2003	
2.	Indian Practical Civil Engineers Hand Book By P.N. Khanna, Engineers Publishers New Delhi 2005	
Mode of evaluation: Continuous Assessment Test, Quizzes, Assignments, Final Assessment Test		

Recommended by Board of Studies	08-09-2017		
Approved by Academic Council	**No. 47**	Date	05-10-2017

ARC3004	DESIGN OF SERVICES	L	T	P	J	C
		2	0	0	4	3
Pre-requisite	**ARC2019**					

Course Objectives:

The course is aimed at

[1] To expose students to the analytical and quantifying methods in the designing of different building services.

Expected Course Outcome:

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

[1] Holistic understanding of how different building systems (plumbing, sanitary firefighting, electrical, lighting, transport system and acoustical treatment) are integrated into architectural design process based on the standards and empirical analysis.

[2] Analyse a case study and garner information on how different services are integrated in building which will aid in designing of services for buildings.

[3] Understand sustainable and green rating standards stipulated for building services as per National and international building codes and apply them in the designing of services.

Module: 1		**4 hours**
Introduction to engineering services in the built environment and their manifestations in architectural planning		
Module: 2		**4hours**
Review of plumbing, sanitary and firefighting systems and review of standards pertaining to these applications for various building uses.		
Module: 3		**4 hours**
Review of electrical, illumination and acoustic performance in buildings. Design of sustainable installations including studies in energy efficiency. Thumb rule design methods.		
Module: 4		**2 hours**
Review of movement systems-escalators, elevators, travelators, motors and pumps. Case studies with numerical review methods.		
Module: 5		**2 hours**
Review of electronic security and building management systems. Case studies of planning requirements and parameters for consideration.		

Module: 6		**4 hours**
Green building standards for building services as laid down by different agencies. References from the National Building Code 2005 pertaining to design of services. Overview of international practices.		
Module: 7		**6 hours**
Analysis of case studies in design of services for different building typologies.		
Module: 8	**Expert lectures by MEP and other service consultants.**	**2 hours**
Total Lecture Hours		**30 hours**

Projects			
1.	Study in a small residence the installation of HVAC, lighting and electrical systems and present in a drawing sheets		
2.	Design conceptual drawings for HVAC, lighting and electrical systems		
3.	How to optimize the use of artificial and natural lighting		
Reference books			
1.	Electrical Technology, Seventh Edition, H.Cotton,CBS publications, 2003		
2.	Indian Practical Civil Engineers Hand Book By P.N. Khanna, Engineers Publishers New Delhi 2005		
Mode of evaluation: Continuous Assessment Test, Quizzes, Assignments, Final Assessment Test			
Recommended by Board of Studies	02-06-2016		
Approved by Academic Council	**No. 41**	Date	17-06-2016

ARC4002	CONSTRUCTION TECHNOLOGY -ALUMINIUM, GLASS & FINISHES- EMBEDDED THEORY	L	T	P	J	C
		1	0	0	0	1
Pre-requisite	**ARC 3003**					

Course Objectives:

[1] To understand properties, manufacture and application of Aluminium and glass in building construction.
[2] To study various construction Finishes employed in architecture practice.

Expected Course Outcome:

Students will be able
[1] To understand Aluminium and glass as construction materials and their properties for application in building construction.
[2] To demonstrate application knowledge of Finishing and speciality materials.
[3] Choose materials for wall cladding, Acoustic and thermal insulation based on specific purposes
[4] Identify different types of Paints, varnishes, adhesives and sealants for varied uses

Module: 1	**Manufacturing of glass**	**1 hours**
Brief review of glass manufacture, composition , properties and uses of glass		
Module: 2	**Types of Glass**	**2hours**
Types of glass, treatment of glass		
Module: 3	**Finishing materials**	**2 hours**
Finishing materials for walls and floors-wall putties, textures, cementitious floor finishes, tiles and natural stones , speciality floors, grouts, etc		
Module: 4	**Wall cladding**	**2 hours**
Wall cladding on exteriors-composite panels, structural glazing, marble, granite and other cladding materials		
Module: 5	**Acoustic and thermal insulation**	**2 hours**
Acoustic and thermal insulation materials, plastics, fibre glass		
Module: 6	**Paints**	**2 hours**
Paints, varnishes and distempers		
Module: 7	**Adhesives and sealants**	**2 hours**
Speciality chemicals, sealants, adhesives		
Module: 8	Industry specialist lecture	**1 hour**
Total Lecture Hours		**15 hours**

Reference Books

7.	Engineering Materials-Material Science by S.C.Rangwala, Charotar Publishing House Pvt. Ltd.2014 ed.
8.	Building Materials by Duggal S.K., New Age international, New Delhi 2009

9.	Materials and Construction by Reshpande B, Oriental Watchman Publishing House, Poona-2, 2007 Construction Technology-Embedded Lab		
Mode of evaluation: Continuous Assessment Test, Quizzes, Assignments, Final Assessment Test			
Recommended by Board of Studies	02-06-2016		
Approved by Academic Council	**No.41**	Date	17-06-2016

ARC4002	CONSTRUCTION TECHNOLOGY -ALUMINIUM, GLASS & FINISHES -EMBEDDED LAB	L	T	P	J	C
		0	0	4	0	2
Pre-requisite	**ARC 3003**					

Course Objectives:

[1] To understand and Impart drawing skills for the application of Aluminium and Glass in architectural practice.

[2] To study various construction Finishes employed in architecture practice.

Expected Course Outcome:

[1] Demonstrate the construction details and application of Glass and Aluminium for various building components

[2] Demonstrate the application of different materials for wall cladding and flooring

[3] Analyse and demonstrate the suitability of different acoustic and thermal insulation materials and their application in building construction.

Module: 1	Glass, aluminium and UPVC in partitions, windows, doors, handrails, balusters	12 Hours
Module: 2	Glass and aluminium in frameless glass systems, structural glazing	12 Hours
Module: 3	Wall cladding and flooring details of various kinds	12 Hours
Module: 4	Waterproofing of basements, roofs, toilets, expansion joints, sealant details, acoustic panelling, thermal insulation	16 Hours
Module: 5	Field visits and discussions on creative detailing	8 Hours
Total Lecture Hours		**60 hours**

Reference Books

1.A Text Book of Building Construction by B.C.Punmia, Laxmi Publications Pvt.Ltd. New Delhi 2005

2. The Text Book of Building Construction by S.P.Arora and S.P.Bindra

Mode of evaluation: Continuous Assessment Test, Final Assessment

List of exercises (Indicative)

1. **Measure and document the construction details of curtain walled building in your locality.**
2. **Create a memorial to commemorate an important event. Provide details of suitable cladding and other finish options.**

Recommended by Board of Studies	02-06-2016		
Approved by Academic Council	**No. 41**	Date	17-06-2016

ARC4004	HOUSING	L	T	P	J	C
		2	0	0	4	3
Pre-requisite	**ARC3099**					

Course Objectives:

To understand the history and evolution of housing across space, time and different context.

Expected Course Outcome:

At the end of the course the student should be able to
[1] Understand about different types of housing.
[2] Understand about development principles and movements post world war.
[3] Understand about how sustainable principles, technologies and materials are applied in housing design.
[4] Understand about large scale housing, institutional housing development and the issue related with informal settlements.

Module: 1		**4 hours**
Introduction/Context of urban and rural housing - Indigenous /traditional vernacular settlements – Typologies way of life technologies and materials		
Module: 2		**4 hours**
Industrial Revolution and workers housing – Industrial Townships		
Module: 3		**4 hours**
Post world war socialist housing – Housing in Russia and Vienna, Modern Moment in housing.		
Module: 4		**4 hours**
Critical Regionalism - Experiments in housing by Charles Correa, B.V.Doshi, Laurie Baker, Giancarlodicarlo, Ralph Erskine.		
Module: 5		**4 hours**
Sustainable Housing principles/ emerging technologies – Recycle, reuse renewable energy like Auroville Etc.		
Module: 6		**4 hours**
Large Scale housing/ Mega townships and informal settlements – Issues possibilities and concerns/ stake holders.		
Module: 7		**4 hours**
Institutional Housing – IIT, NIT, VIT Etc		
Module: 8		**2 hours**
Interaction with Practicing Architects, Planners, Builders, NGO’s etc.		
Total Lecture Hours		**30 hours**

Reference Books

1.	B.V. Doshi - Aranya low cost housing case study. Vastu shilpa Foundation Ahmedabad, 2014 (reprint)
2.	Charles Correa, Housing and Urbanisation, Thames and Hudson 2012 (reprint)
3.	Joseph De Chiara , Time-Saver Standards for Housing and Residential Development 2, Sub Edition.
4.	Heinrich Engels, The Japanese House, A Tradition for Contemporary Architecture, Tuttle, 2009
5.	Gautam Bhatia, Laurie Baker - Life, works and writings, Penguin Books, 2003

Mode of evaluation: Continuous Assessment Test, Quizzes, Assignments, Final Assessment Test			
Recommended by Board of Studies	02-06-2016		
Approved by Academic Council	**No. 41**	Date	17-06-2016

ARC4005	URBAN DESIGN	L	T	P	J	C
		2	0	0	4	3
Pre-requisite	**ARC4001**					

Course Objectives:

The course is aimed at

[1]. To create awareness of the position of architecture in the larger context of the city and understand how built form impacts infrastructure, spatial quality and sensorial perception.

[2] Generating creative design solutions which appeal to a great majority of the target group and learning to deal with objective perspectives which drive our society.

Expected Course Outcome:

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

[1] To understand the scope, nature of urban design as a discipline, components of a city and the factors affecting urbanism.

[2] To analyze the evolution of historic urban form and space in various national and international context.

[3] Understanding evolution of cities and Contemporary Practices in Urban Design through examples from world renowned urban design theorists and planners.

[4] Analyze qualities of spaces across different urban contexts at multiple scales.

[5] Understanding the concept of Urban renewal, Urban design schemes from statutory and non-statutory bodies, models by prominent designers for Urban revitalization projects.

Module: 1	**Introduction to urban design**	**2 hours**
Introduction to urban design, relationship to architecture and town planning, nomenclature and common terminology, applications		
Module: 2	**Urbanism**	**4hours**
Factors affecting urbanism-built form, transport, land use, density, grain, texture, heritage, etc.		
Module: 3	**Historic Urban form -International Context**	**4 hours**
Historic Urban Form and Analysis in Greek, Roman civilizations, medieval towns, industrialization and city growth from the 18th through the 20th century.		
Module: 4	**Historic Urban form -National Context**	**4 hours**
Historic urbanism in the Indian subcontinent –Temple towns, Mughal towns, other settlements, colonial urbanism.		
Module: 5	**Contemporary Practices in Urban Design**	**6 hours**
Modern cities and place making in the 20th and 21st centuries, designers and their philosophies.		
Module: 6	**Articulation of urban spaces**	**4hours**

Analysis of public and private spaces across cultures, role of architecture in defining and articulating space		
Module: 7	**Urban renewal**	**4 hours**
Concepts of redevelopment, renewal and conservation, socio economic issues relating to urban growth, smart cities, statutory bodies		
Module: 8	Talks by professional architects and planners	**2 hours**
Total Lecture Hours		**30 hours**

Reference Books	
1.	Edmund Bacon, “Design of Cities”, Pernguin,2001
2.	Gordon Cullen, “The Concise Townscape”, The Architectural Press
3.	“Time Saver Standards for Urban Design”, Donald natson, McGraw Hill,2017
4.	Kevin Lynch, “The Image of the City”, MIT Press

Mode of evaluation: Continuous Assessment Test, Quizzes, Assignments, Final Assessment Test			
Recommended by Board of Studies	09-08-2017		
Approved by Academic Council	**No. 47**	Date	05-10-2017

ARC4006	CONSTRUCTION MANAGEMENT	L	T	P	J	C
		2	0	0	4	3
Pre-requisite	**ARC3099**					

Course Objectives:

The course is aimed at
[1]. To create awareness of how to manage construction process.
[2] To sensitize the students to the processes involved in managing construction projects.

Expected Course Outcome:

At the end of the course the student should be able to
[1] Understand the components involved in the management of construction
[2] Understand about the monitory issues, mandatory safety precautions and procedures involved in the construction projects.
[3] Overview of the different project financing types involved in the construction projects
[4] Understand the process of estimation the quantities and cash flow associated with construction projects.
[5] Create a basic network diagrams and project scheduling using CPM and PERT

Module: 1	**Principles of Management**	**3 hours**

Definition - Importance – Functions of Management - Relevance to government and Quasi Government departments - Private Contractors - Contracting firms - Organizational structure. Construction safety measures.

Module: 2	**Construction Planning and Labour Welfare**	**4hours**

Factors affecting urbanism-built form, transport, land use, density, grain, texture, heritage, etc.

Module: 3	**Projects**	**4 hours**

Tendering - Arbitration - International projects - Detailed Project Reports (DPR) / Build Own Operate (BOO) / Build Own Operate Transfer (BOOT) Projects / Build Operate and Transfer (BOT) - case studies.

Module: 4	**Accounts and Stores**	**4 hours**
Measurements of work - Checking - Types of bills - Mode of payment - Claims - Banking settlements - Types of accounts - Cash book - Storing - Maintenance Inspection - Inventories - Transfer of surplus and accounting of shortage stores - Procedures adopted in PWD and CPWD.		
Module: 5	**Network element and development of Network**	**4 hours**
Introduction - Event - Activity - Dummy - Network rules - Graphical guidelines for network - Common partial situations in network - Numbering the events - Cycles Problems - Planning for network construction - Modes of network construction - Work breakdown structure Hierarchies.		
Module: 6	**CPM**	**4hours**
Introduction - Slack - Critical Path - Example problem - Activity time estimate - Earliest event time - Latest allowable occurrence time - Combined tabular computations for TE and TL - Start and finish time of activity - Float - Critical activity and Critical path - Problems.		
Module: 7	**PERT**	**4 hours**
Introduction - Use of PERT - Time estimate - Frequency distribution - Mean, Variance and standard deviation - Probability distribution - Expected time problem - Example problems		
Module: 8	Current Technology / Contemporary Issues / Guest Lectures	**2 hours**
Total Lecture Hours		**30 hours**

Reference Books	
1.	Chitkara, K.K " Construction Project Management Plan, Se (English) 2nd Edition, Tata Mcgraw Hill Education Private Limited, 2010.
2.	Sharma, J.L, "Construction Management and accounts" Satya Publications, 2013
3.	Prasad, L.M "Principles of Management", Sultan Chand & sons, New Delhi, 2012
4.	Stephen Robbins, "Organizational Behavior", Pearson Education, New Delhi, 2011
5.	Joseph.L, "Essential of Management", Prentice Hall of India, 2007.

Mode of evaluation: Continuous Assessment Test, Quizzes, Assignments, Final Assessment Test			
Recommended by Board of Studies	2-06-2016		
Approved by Academic Council	**No. 41**	Date	17-06-2016

ARC4007	URBAN AND REGIONAL PLANNING	L	T	P	J	C
		3	0	0	0	3
Pre-requisite	**ARC3099**					

Course Objectives:

[1] The course aims to give an introductory and over all understanding of the relationship between Architecture and urban and regional planning.
[2] Various aspects involved in the planning and development of cities and regions.

Expected Course Outcome:

At the end of the course the student should be able to
[1] Understand how town planning evolved from ancient to industrial era.
[2] Understand evolution of town planning models evolved in India and also town planning models proposed by several prominent researchers and planners.
[3] Understand about different essential aspects related to town planning such as land-use, road network, urban nodes and their respective issues.
[4] Understand different types of urban development's associated with urban planning
[5] Understand about planning institutional frame work, types of planning, regulatory mechanisms and laws applicable in developing urban area.

Module: 1		**4 hours**

Origin & evolution of human settlements – Relevance of study of evolution of human settlements – Human settlements as an expression of civilization – Town planning in ancient- Mesopotamia, Greece, Rome, Industrial and Postindustrial age, typologies of human settlements.

Module: 2		**4 hours**

Vistara and Indian traditions in town planning, Contribution of Ebenezer Howard, Le Corbusier, Clarence Stein, Patrice Geddes, C.A. Doxiadis, Planning concepts related to garden city

Module: 3		**4 hours**

Urban environmental problems –land use, traffic and road network, Urban land use – CBD, urban nodes

Module: 4		**4 hours**

Fringe area and suburbs, satellite towns and ribbon development

Module: 5		**4 hours**

Development plans – Town planning schemes – Neighborhood planning – Area planning – Regional planning, infrastructure, transportation planning.

Module: 6		**4 hours**

The planning components, elements like land use, zoning, floor area ratio, land development techniques, surveys.

Module: 7		**4 hours**

Urban Development Authorities, its setup and functions, Land Acquisition Act ,74th Amendment, Coastal Regulation Zone Act, SEZ, JNNURM, Sustainable regional planning principles, conservation of forests and wet lands		
Module: 8		**2 hours**
Guest Lectures by Renowned Planners and Architects		
Total Lecture Hours		**30 hours**
Reference Books		
6.	The City in History: Its Origins, Its Transformations, and Its Prospects by Lewis Mumford (1997)	
7.	The Image of the City by Kevin Lynch (2003)	
8.	Traffic Engineering and Transport Planning by L. R. Kadiyali (2013)	
9.	The architecture of cities: Rossi, Aldo.(1982)	
10	The Concise Townscapes: Collen, Garden.(2012)	
11	Town Planning by Rangwala (28th Revised and Enlarged Edition: 2015)	
Mode of evaluation: Continuous Assessment Test, Quizzes, Assignments, Final Assessment Test		
Recommended by Board of Studies	09-08-2017	
Approved by Academic Council	**No. 47**	Date 05-10-2017

ARC4008	ARCHITECTURE FOCUS STUDY - RESEARCH	L	T	P	J	C
		-	-	-	-	2
Pre-requisite	**ARC3099**					

Course Objectives:

[1] To evolve a critical thought process, to equip students with fundamental research skills and Communication.
[2] To develop a systematic process of abstraction, with a rigor of scientific and qualitative analysis.
[3] To recognize inter-disciplinary research methods and develop a foundation for thesis and future research.

Expected Course Outcome:

At the end of the course the student should be able to
[1] Formulate a specific research study, an integral part of architectural thesis project by analyzing architectural case studies by applying research methods.
[2] Evolve an outline of research study by critically analyzing pertinent architectural case studies with the help of models and drawings.
[3] Present the analysis and the outcomes of the research study through models and a short report exhibiting standards of technical writing.

Module: 1		**16 hours**
Exercises in analysis with case studies		
Module: 2		**24 hours**
Selection of project		
Module: 3		**16 hours**
Exercises in drawings and documentation and evolve critical framework.		
Module: 4		**16 hours**
Exercises in models and drawings - to critically analyse case studies and test framework. etc.		
Module: 5		**16 hours**
Group work project -		
Module: 6		**16 hours**
Inferences and final models/ drawings with short report		
Module: 7		**16 hours**
External Architect jury and interactions – along with presentations on emerging trends		
Total Lecture Hours		**120 hours**

Reference Books

12	Noberg Shulz, Intentions in Architecture - MIT Press, Reprint - 2010		
13	Linda Groat, Architecture Research Methods, Wiley, 2015		
Mode of evaluation: Continuous Assessment, Final Assessment			
Recommended by Board of Studies	02-06-2016		
Approved by Academic Council	**No. 41**	Date	17-06-2016

ARC4010	ADVANCED BUILDING CONSTRUCTION AND TECHNOLOGY	L	T	P	J	C
		2	0	0	4	3
Pre-requisite	**ARC3099**					

Course Objectives:

To enhance technical skills in the field of construction technology through an understanding of specialized applications and processes.

Expected Course Outcome:

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

[1] Understand different typologies of special construction techniques employed in buildings and built environments.

[2] Comprehend advance construction techniques using concreted and steel.

[3] Understand several types of equipment used in the preparation, transportation of materials used in different types of construction.

[4] Understand and analyzed types of construction techniques used in improving the lifespan of the old buildings.

[5] Understand different steps involved and measures required in the management of constructions.

[6] Understand different aspects and technologies involved in the construction of High-rise buildings, impact of construction on environment and cost effective strategies adopted.

Module: 1	**2 hours**

Advanced materials in construction, concepts of tensile fabrics, metal lattice structures, special structural envelopes, smart materials.

Module: 2	**4 hours**

Concepts behind prestressed, post-tensioned concrete, pre cast concrete structures. Studies on large span structures, multi-storeyed buildings, marine structures, special application steel structures, special technologies such as tunneling.

Module: 3	**4 hours**

Material handling equipment and machinery management, batching plants, transit mixers, ready mix concrete systems, guniting equipments, cranes, hoists, concrete mixers, choice of equipment for different kinds of works.

Module: 4	**4 hours**

Rehabilitation of old buildings, retrofitting of structures, strengthening of structures test framework. etc.

Module: 5	**4 hours**

Construction planning, scheduling and control, inventory management, quality control, safety management, introduction to construction project management.

Module: 6	**6 hours**

Studies on high rise structures including structural implications, effects of wind and climate, services integration, safety, typical floor construction cycle, construction techniques, National Building Code references.

Module: 7	**4 hours**

Environmental issues in construction, disaster management technologies, emergency structures, cost reduction technologies for mass construction.

Module: 7		**2 hours**
Current trends in construction- industry view.		
Total Lecture Hours		**30 hours**
Reference Books		
14	Construction Technology by R. Chudley, Pearson, 2005	
15	Building, Planning and scheduling by Gurcharan Singh, Standard Publication, 2009	
Mode of evaluation: Continuous Assessment Test, Quizzes, Assignments, Final Assessment Test		
Recommended by Board of Studies	02-06-2016	
Approved by Academic Council	**No. 41**	Date 17-06-2016

ARC5008	THEATRE & FILM SET DESIGN	L	T	P	J	C
		2	0	0	4	3
Pre-requisite	**ARC3099**					

Course Objectives:

This course emphasizes practical application of and experiences in technical theatre, including scene design, set construction, color and texture, lighting, sound, and the use of stage materials.

Expected Course Outcome:

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

[1] Understand the process and techniques for the production, performance of theatre arts and the principles and elements of theatre arts

[2] Understand Theatre arts in historical and cultural context

[3]Evaluate the perceptions about and evaluations of works in theatre arts.

[4] Understand the Techniques, technology and trends in constructing Theatre Design and actual sets

Module: 1	Introduction to theatre & film set design	**2 hours**
Module: 2	Technology and innovation in theatre & set designs from concept to execution	**4 hours**
Module: 3	Trends and techniques adopted with a historical context to present day context	**4 hours**
Module: 4	Theatre design:- analysis of any given theatre design - understanding of the division of layers (like background - props - costumes - lighting - actors & their DSposition - and / or any other elements) to create an pre-determined impact.	**4 hours**
Module: 5	Theatre design - techniques and usage of materials - texture - color- and other innovations in theatre design vis-a-vis the impact achieved	**4 hours**
Module: 6	Theatre design - techniques and usage of materials - texture - color- and other innovations in theatre design vis-a-vis the impact achieved	**4 hours**
Module: 7	Set design:- technology, techniques, innovation and material aspects - adopted- for various typologies of set designs -	**4 hours**
Module: 8	Latest trends in theatre& film set design - computer simulation technologies (software's) / techniques - presentation by set designers	**4 hours**
Total Lecture Hours		**30 hours**

Reference Books

1.	Neumann D., Film Architecture: Set Designs from Metropolis to Blade Runner, Prestel, 1997
2.	Filmcraft: Production Design 1st Edition by Fionnuala Halligan
3.	Behind the scenes - PHOEBE ADLER
4.	site and sound - VICTORIA NEWHOUSE
5.	The Theatre Art of Boris Aronson -- FRANK RICH
6.	What If...?: The Architecture and Design of David Rockwell

Mode of evaluation: Continuous Assessment Test, Quizzes, Assignments, Final Assessment Test

Recommended by Board of Studies	02-06-2016		
Approved by Academic Council	**No. 41**	Date	17-06-2016

ARC5002	CONSTRUCTION TECHNOLOGY -INTERIORS & LANDSCAPE -EMBEDDED LAB	L	T	P	J	C
		0	0	4	0	2
Pre-requisite	**ARC4002**					

Course Objectives:

Study of construction details of various interior elements pertaining to interior types – Infrastructure, False Ceiling, partitions, Lose and fitted furniture, Wall and floor finishes, Window coverings, Paneling, incidentals.

Expected Course Outcome:

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

[1] Understand different types of materials, their application in the designing of interiors and design interiors for residential buildings.

[2] Understand different types of materials, their application in the designing of interiors and design interiors for commercial buildings.

[3] Understand different types of materials, their application in the designing of interiors and design interiors for Industry, Healthcare, and Educational buildings.

[4] Understand different types of materials, their application in the designing of Exterior /landscape projects.

Module: 1	**Residential Environment**	**12 hours**
Module: 2	**Commercial (retail, mercantile) environment**	**16hours**
Module: 3	**Industry, Healthcare, Education environment**	**12 hours**
Module: 4	**Exterior/landscape environment**	**12 hours**
Module: 5	**Field visits and exercises on creative detailing**	**8 hours**
Total Lecture Hours		**60 hours**

Reference Books

1.	De. Chiara and Callender, Time Saver Standards for Building types" , McGraw – Hill Co., N.Y., 2017
2.	B.C.Punmia, A Text Book of Building Construction, Laxmi Publications Pvt.Ltd. New Delhi, 2005

Mode of evaluation: Continuous Assessment, Final Assessment

List of exercises (Indicative)

1. **Choose a retail outlet of your choice and document the plan and construction details of prominent furniture elements and surface finishes.**
2. **Document an existing external landscape through photographs and measurements. Provide the construction details for the chosen landscape area.**

Recommended by Board of Studies	02-06-2016		
Approved by Academic Council	**No.41**	Date	17-06-2016

ARC5002	CONSTRUCTION TECHNOLOGY -INTERIORS & LANDSCAPE EMBEDDED THEORY	L	T	P	J	C
		1	0	0	0	1
Pre-requisite	**ARC4002**					

Course Objectives:

To create awareness of materials used in interior design and site development

Expected Course Outcome:

At the end of the course the student will

[1] be able to understand different types of interior elements in a building.

[2] be able to understand and analyze the type of materials which are used in the interior design of residential buildings.

[3] be able to understand and analyze the type of materials a good understanding of type of materials which are used in the interior design of buildings used for mercantile activities.

[4] be able to understand and analyze the type of materials used in the interior design of core industry, healthcare, and educational buildings.

[5] Have a good understanding of infrastructure required for washrooms, server rooms, control rooms, security systems, and service rooms.

[6] Have a good understanding of the materials used in exterior infrastructure elements such as roads, pathways, yards, street furniture, drains, and ducts and also in landscape.

Module: 1	**Interior elements- introduction to furniture, partitions, floors, walls, ceilings, openings, soft furnishing, infrastructure, spatial considerations**	**2 Hours**
Module: 2	**Materials for various interior elements in core residential use**	**2 Hours**
Module: 3	**Materials for various interior elements in core retail and mercantile commercial use**	**2 Hours**
Module: 4	**Materials for various interior elements in core industry, healthcare, education**	**2 Hours**
Module: 5	**Overview of infrastructure in interiors- review of washrooms, server rooms, control rooms, security systems, service rooms**	**2 Hours**
Module: 6	**Materials in exterior infrastructure elements-roads, pathways, yards, street furniture, drains, ducts, etc**	**2 Hours**
Module: 7	**Materials in landscape**	**1 Hours**
Module: 8	**Industry lectures**	**2 Hours**
Total Lecture Hours		**15 hours**

Reference Books

1.	Engineering Materials-Material Science by S.C.Rangwala, Charotar Publishing House Pvt. Ltd.2014 ed.
2.	Building Construction by Francis D.K.Ching, John Wiley and Sons, 2008

Mode of evaluation: Continuous Assessment Test, Quizzes, Assignments, Final Assessment Test

Recommended by Board of Studies	02-06-2016		
Approved by Academic Council	**No. 41**	Date	17-06-2016

ARC5006	ARCHITECTURAL CONSERVATION	L	T	P	J	C
		2	0	0	4	3
Pre-requisite	**ARC4001**					

Course Objectives:

The course is aimed at

[1] To sensitise the student to heritage as an integral part of the built and social environment

[2] Equip students to propose solutions which are pragmatic in contemporary time period.

[3] Introduce to the importance of conservation in terms of sustainability and urban development

[4] Introduce to the work, rules and regulations of conservation/ planning organisations (govt/ NGO) which function at local, national and international level.

Expected Course Outcome:

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

[1]Understand the concepts of heritage and conservation

[2] Understand the role of various national agencies in Architectural conservation

[3] Analyse the components and concepts of conservation in various national and international case examples

[4] Apply the skills in conserving, restoring a building; apply adaptive reuse principles to bring the structure back to life

[5] Experiment design solution which shall be socially relevant on the character of the city. Develop awareness and sensitivity towards heritage and value of structures.

Module: 1	**Introduction to Architectural Conservation**	**2 hours**
Introduction to concepts of heritage and conservation, defining preservation, adaptive reuse, international and domestic agencies and their roles in conservation.		
Module: 2	**Role of National agencies in Architectural Conservation**	**4hours**
Museums, monument preservation, role of ASI and INTACH, central and state government policies and regulations, projects.		
Module: 3	**Architectural Conservation – National case examples**	**6 hours**
Case studies in conservation such as Hampi and Mamallapuram		
Module: 4	**Components in Architectural Conservation:**	**4 hours**
Listing of monuments, documentation, assessing architectural character, structural condition, techniques for preservation and adaptive reuse.		
Module: 5	**Adaptive reuse**	**4 hours**
Case studies in adaptive reuse- museums, hospitality centres, heritage hotels, etc		
Module: 6	**Conservation planning**	**4 hours**
Conservation planning, incentivisation, transfer of development rights, examples of developments in historic precincts.		
Module: 7	**Architectural Conservation – International case examples**	**4 hours**
Conservation practices in the international context.		
Module: 8	Lectures by experts	**2 hours**
Total Lecture Hours		**30 hours**

Project:			
1.	Identify a heritage structure which is in a stage of neglect and provide strategies for rejuvenation.		
2.	Compare the effect of urbanisation on heritage site in two precincts.		
Reference Books			
1	Conservation Manual by BemardFlelden, Intach Publication		
2	Robert E, Stipe, A Richer Heritage: Historic Preservation in the Twenty-First Century Univ. Of North Carolina Press		
Mode of evaluation: Continuous Assessment Test, Quizzes, Assignments, Final Assessment Test			
Recommended by Board of Studies	09-08-2017		
Approved by Academic Council	**No. 47**	Date	05-10-2017

ARC4013	ARCHITECTURAL PHOTOGRAPHY AND JOURNALISM	L	T	P	J	C
		2	0	0	4	3
Pre-requisite	**ARC3099**					

Course Objectives:

To develop a critical appreciation of buildings, precincts, public space and settlements in the context of society and environment and architectural theory and principles, through photography and journalistic writing.

Expected Course Outcome:

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

[1] Understand how building environment could be presented and described through photography and journalism as mediums.

[2] Understand how to critically appraise the works of renowned architectural photographers and journalists.

[3] Develop skills on writing articles about architecture for different genre of media such as national newspapers, Television, films, architectural journals, interviews and biographies, thematics.

[4] Understand how present social media and digital technologies could be utilized for architectural photography and journalism.

Module: 1		**2 hours**
Interactive exercises - Introducing to architectural photography and journalism as inter-related as well as distinct disciplines Nature of architectural photography - architectural photographers		
Module: 2		**4 hours**
Photography - Methodologies of critical observation and writing brief report.		
Module: 3		**4 hours**
Exercises and project based on evolution of architectural photography - with case studies and critical appraisal - GA, Futogawa, Dinesh Mehta, et al		
Module: 4		**4 hours**
Field visit to precincts in Chennai and Bangalore		
Module: 5		**4 hours**
Project report writings - based on kinds of architectural journalism – for national newspapers, Television, films, architectural journals, interviews and biographies, thematics.		
Module: 6		**2 hours**
Photography, Projects, Readings and discussions – interactive		
Module: 7		**4 hours**
Project - Social Media, Digital technology, projects - Emerging directions		
Module: 8		**6 hours**
Interactions with Architectural photographers and journalists		
Total Lecture Hours		**30 hours**

Reference Books

16	Adrian Schulz, Architectural Photography: Composition, Capture, and Digital Image Processing, Reilly Publications, 2009
17	Anthony White, Yokio Futagawa, Vance Bibliographies, university of California, Digitized 2009
18	MIT University Architecture Journals
19	The Journal of Architectural Historians

Mode of evaluation: Continuous Assessment Test, Quizzes, Assignments, Final Assessment Test			
Recommended by Board of Studies	02-06-2016		
Approved by Academic Council	**No. 41**	Date	17-06-2016

ARC5010	VISUAL COMMUNICATION	L	T	P	J	C
		2	0	0	4	3
Pre-requisite	**ARC3099**					

Course Objectives:

The course is aimed at

[1] To enable students to have overall view of Visual communication and understand the history of Graphic design.

[2] To understand and practice Design thinking in Graphic Design.

[3] To understand the materials and techniques involved in design and application of different branches of visual communication.

Expected Course Outcome:

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

[1] Understand the various aspects of Visual communication and Typography

[2] Classify types of signages

[3] Analyse the role of Advertising in visual communication

[4] Analyse the aspects of Visual communication design through case examples

[5]To translate ideas to graphic design solutions through a process of inspired thinking and interpretation

[6] Evaluate the scope and market trends of visual communication

Module: 1	**Visual Communication types**	**4 hours**

Introduction to Visual Communication - requisite drawing skills - understanding various facets of visual communication like logo design - letter head design, visiting card design, calendar design - poster design

Module: 2	**Typography**	**4hours**

Typography - Historical perspective - Design of Typography to context - various examples in advertisement - titles of movies - building names - typography and logo design

Module: 3	**Signages Design**	**4 hours**

Signages Design - Architecture / building specific design of signages - out door signages - indoor signages - public signages -

Module: 4	**Advertising and visual communication**	**4 hours**

Advertising and visual communication - Print media- Historical perspective to various advertisement designs - New media ie., web media communication design - Animation and Photography as visual communication tools

Module: 5	**Visual Communication design**	**6 hours**

Principles of Visual Communication design - Analysis and understanding of visual communication design through examples - cultural aspect of Visual communication design - Historical perspective of communication design

Module: 6	**Graphics**	**2 hours**

Product design graphics - packaging graphics - with examples - analysis and understanding

Module: 7	**Scope of Visual communication**	**4 hours**

Opportunities in Visual communication - skills required for a good graphic designer - professional practice and market potential for visual communication focussed ad agencies.

Module: 8	**Market trends**	**2 hours**

Trends in market - presentation by market leaders from various areas of visual communication presenting about the best practices - cultural preferences and design trends.			
Total Lecture Hours			**30 hours**
Reference Books			
1.	Visual Communication: images with messages Jan 1, 2013 by Paul Martin Lester		
2.	Visual Communication: from theory to practice May 1, 2006 by Lucienne Roberts and Jonathan Baldwin		
3.	An Introduction to visual communication: from cave art to second life by Susan B. Barnes		
4.	Visual Communication: images with messages by Paul Martin Lester		
5.	Visual Intelligence: Sharpen Your Perception, Change Your Life by Amy E. Herman		
6.	Essentials of Visual Communication by Bo Bergstrom		
Mode of evaluation: Continuous Assessment Test, Quizzes, Assignments, Final Assessment Test			
Recommended by Board of Studies	02-06-2016		
Approved by Academic Council	**No. 41**	Date	17-06-2016

ARC5011	SUSTAINABLE ARCHITECTURE	L	T	P	J	C
		2	0	0	4	3
Pre-requisite	**ARC4001**					

Course Objectives:

The course is aimed at
[1] Adopt/incorporate sustainable practices in Building Design
[2]combining architectural design and planning principles with modern technology and traditional Community wisdom in order to design and manage a sustainable project.

Expected Course Outcome:

At the end of the course the student should be able to
[1] **Understand** sustainability, its types in built environment and the importance of environmentally, ecologically sensitive architecture
[2] **Evaluate** sustainable concepts incorporated into vernacular architecture.
[3] **Analyse** different types of sustainable material and technologies used to design and construct sustainable buildings.
[4] **Understand** different rating method to **evaluate** sustainable methods.
[5] **Summarise** the concepts of sustainability through case studies of sustainable buildings

Module: 1	**Sustainability in Built Environment**	**2 hours**
Introduction to Sustainability in Built Environment		
Module: 2	**Environmental impacts and need for sustainability**	**2hours**
Environment, Energy, Climate Change and Economics, need for sustainability.		
Module: 3	**Sustainability in Vernacular Architecture**	**4 hours**
Vernacular Architecture and Sustainability 1) Factors that contributed to its evolution. 2)Vernacular architecture in India		
Module: 4	**Elements of Sustainability**	**2 hours**
Elements of sustainability		
Module: 5	**Sustainable Building Materials and Construction**	**4 hours**
Role of Materials in Sustainable architecture Building with regional/renewable materials: Bamboo, casuarina ,types of thatch, palm trunks, palm rafters, Straw, Reed, Mud, lime, Stabilised mud blocks, Rammed Earth construction, Terracotta		
Module: 6	**Sustainable concepts and the design strategies**	**6 hours**
Method of Achieving Sustainability in Buildings Understanding Energy Efficiency, Daylighting, Passive Heating/cooling, Water Resource management, Renewable Energy etc		
Module: 7	**Rating methods**	**6 hours**
Assessment or Rating methods of Sustainable buildings. Green Building or Contemporary High Performance Buildings:		
Module: 8	**Case studies of sustainable buildings**	**4 hours**
LEED - Case study project in Operations and Maintenance of Existing Building		

Total Lecture Hours		**30 hours**	
Reference Books			
1.	Oliver, Paul, "Encyclopedia of vernacular Architecture of the world (3 Vol. Set)", Cambridge University Press, U.K., 1997.		
2.	Klans Dukeeberg, Bambus – Bamboo, Karl Kramer verlag Stuttgart Germany, 2000		
3.	Bansal, N.K., Hauser, G., &Minke, G., "Passive Building Design", Elsevier, Amsterdam, 1994.		
4.	Sodha, M.S., Bansal, N.K., Bansal, P.K., Kumar, A., & Malik, M.A.S., "Solar Passive Building", Pergamon Press, Oxford, England, 1986.		
5.	Spencke R. F. and Cook D.J. Building Materials in Developing Countries – John Wiley and sons 1983.		
6.	Building with straw - Design and Technology of a Sustainable Architecture Gernot Minke and Friedmann Mahlke Birkhauser – Publisher for Architecture Berlin – Boston, 2005.		
7.	Caring A.Langston Grace K.C.Ding, “Sustainable practices in built environment”, 2nd Edition, Publishers: Butterworth-Heinmann Linacre House Jordanhill Oxford, 2001		
8.	Bernard Fieldcen, „Guidelines for Conservation, a Technical Manual“, INTACH, New Delhi, 1989.		
9.	Conservation and Development in Historic Towns and Cities – Pamela Ward _ Orid Press. Ltd., 1968		
10.	Character of towns an Approach to conservation – Worskett Roy, Architectural Press – London, 1979		
11.	William T. Meyer., Energy Economics and Building Design., New York: McGraw- Hill, Inc		
12.	Public Technology, Inc. (1996). Sustainable Building Technical Manual: Green Building Design, Construction, and Operations. Public Technology, Inc., Washington, DC.		
13.	Sim Van DerRyn, Stuart Cowan, “Ecological Design”, Island Press (1996).		
14.	Dianna Lopez Barnett, William D. Browning ,”A Primer on Sustainable Building”, Rocky		
Mode of evaluation: Continuous Assessment Test, Quizzes, Assignments, Final Assessment Test			
Recommended by Board of Studies	09-08-2017		
Approved by Academic Council	**No. 47**	Date	05-10-2017

ARC5012	MODULAR CO-ORDINATION	L	T	P	J	C
		2	0	0	4	3
Pre-requisite	**ARC3099**					

Course Objectives:

To equip the students with tools for basic research, development and real life applications of dimensional and functional coordination of modular systems

Expected Course Outcome:

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

[1] Understand about chronological evolution of the modular principles in the west and India.

[2] Understand the modular system used in structures which are derived from nature and development in the engineering technology.

[3] Understand the modular principles and application in space systems.

[4] Understand the interrelation between, process, performance and design potential among the components related to building systems (superstructure and the exterior envelope).

[5] Understand the use of modular principles in civil construction, architectural interior design MEP system and prefabrication construction techniques.

Module: 1	**8 hours**

Digital STRATEGY & Innovation for Planning, Sourcing, Construction and life cycle operations to enhance built facility & environment, Understanding co-existence of manual & digital processes in Design, engineering & technology (DET)

Module: 2	**8hours**

Facility Programming &Master planning with DATA acquisition tools like GIS, Laser scan &Google FLUX; concept &schematic design with planning data solutions like DROFUS, Ideation to visualizing 3D model& to performance outcomes with BIM tools like REVIT build suite

Module: 3	**8 hours**

Sustainability (6D model) & Quality bench marking to create IGBC \ LEED compliant materials & system resource data and Energy modeling with tools like GBS- green building studio; Acoustics & Lighting design from concept stage.

Module: 4	**8 hours**

MEP integration of Air-conditioning systems, Electrical & Low current systems, fire safety & Plumbing systems from early stages of architectural design through BIMCOBIE standards for facility management to have an Engineering facility model (7D)

Module: 5	**8 hours**

Constructability enabled from Programming stage with tools like NAVIS works for clash detection & construction simulation (4D model)

Module: 6	**6hours**

Cost model (5D) with BIM &ERP tools - impact review of Estimation & specifications on design brief

Module: 7	**8 hours**

Emerging Digital technologies like Generative design, Augmented realty (AR), Artificial intelligence and their impact on building (AEC) industry

Module: 8		**6 hours**
Integrated Project delivery (IPD) concepts & tools for collaborative design, project management and construction workflows.		
Total Lecture Hours	**60 hours**	
Reference Books		
1.	Contemporary Architecture and the Digital Design Process, Peter Szalapaj Routledge, 2014	
2.	BIM and Integrated Design: Strategies for Architectural Practice., Randy Deutsch AIA, LEED AP, 2011 John Wiley and Sons	
3.	BIM Handbook: A Guide to Building Information Modelling for Owners, Managers, Designers, Engineers, and Contractors, Chuck Eastman, Paul Teicholz, Rafael Sacks, Kathleen Liston .,2nd edition, 2012 John Wiley and Sons	
4	The BIM Manager's Handbook: Guidance for Professionals in Architecture, Engineering, and Construction, Holzer Dominik, 2015 John Wiley and Sons	
5	Integrating Project Delivery 1st Edition, by Martin Fischer, Howard W. Ashcraft, Dean Reed , Atul Khanzode , 2017 John Wiley and Sons	
Mode of evaluation: Continuous Assessment Test, Quizzes, Assignments, Final Assessment Test		
Recommended by Board of Studies	02.06.2016	
Approved by Academic Council	**No. 41**	Date 17.06.2016

ARC1021	HISTORY AND THEORY OF ARCHITECTURE – MEDIEVAL	L	T	P	J	C
		3	0	0	4	4
Pre-requisite	**ARC3006**	**v.1.1**				

Course Objectives:

[1] Providing an introduction to medieval architecture both Indian and western
[2] Supplying the students with historical information that will help the student to understand the evolution of architecture
[3] Enhancing the grasp of basic architectural concepts and ways of discussing and presenting them
[4] Discussing building technologies and their relevance to that time period

Expected Course Outcome:

[1] Understand the physical characteristics of different built environments through history.
[2]Will have an understanding towards evolution of architecture in the medieval era and its influence upon current built forms.
[3] Will have an understanding of the methods available to analyse the social, economic, religious and political influence upon architecture
[4] Will be able to distinguish the style, form and period in specific geographic location to which the architecture belongs to
[5] Will be able to distinguish specific elements and differences depending upon aesthetics or structure.
[6] Will be able to evaluate the spatial configurations across history with comparative analyses of different physical forms and demonstrate ability to correlate societal behaviour and architectural outputs.

Module: 1	**Introduction**	**2 hours**
Introduction to History and Theory of Medieval Architecture		
Module: 2	**Architecture in 800 - 1000 AD**	**6 hours**
1.800 - 1000 AD -Vellore, Tanjore, Srirangam Rajput Kingdoms, Modhera Sun Temple, Jain temples at Abu, 2. Great mosque Isfahan, Persian Architecture, etc		
Module: 3	**Architecture in 1200 AD**	**9hours**
1. 1200 AD - Konarak Sun Temple, Delhi Sultanate, 2. Amiens Cathedral, Romanesque and Gothic, Italian town halls, Siena, 3. Chicen Itza, 4. Key institutions and key cities, etc		
Module: 4	**Architecture in 1400 AD**	**5 hours**
1. 1400 AD - Mandu, Hampi, Ahmedabad, Jama Masjid,		
2. Machu Pichu, Peking,		
Module: 5	1. Italian Renaissance, Florence, St Peter's, Palladio, Systems of Proportioning and changing social conditions. Venice, 2. Mughal, Architecture in India: FatehpurSikri, Gol Gumbaz, etc. 3. Vijaynagara,	**9 hours**

Module: 6	**Architecture in 1600 AD**	**6 hours**
1. 1600 AD- Padmanabhapuram, Humayun's Tomb, Stepwells, Madurai, 2. Katsura, Peking and China etc.		
Module: 7	Spanish conquest of America , Baroque Italy, Dogon, etc.	**6 hours**
Module: 8	Interactions with architectural historians	**2 hours**
Total Lecture Hours		**45 hours**

Projects:	
1.	Draw and analyze the elements of a historic building and its spatial organization
Reference Books	
1.	Leland M Roth, Understanding Architecture: Its Elements, History and Meaning, Craftsman, House,2004
2.	Brown, Percy "Indian Architecture (Budhist, Hindu, Islamic period), , DB Taraporevala Sons & Co, Mumbai, (reprint 2011)
3.	ChristoperTadgell, The History of Architecture in India from the Dawn of civilization to the End of the Raj, Longman Group U.K.Ltd., London.
4.	INTACH Publications
5.	Madras Craft Foundation Publications
6.	Benevolo, The History of the City, MIT Press 2010 (reprint)
7.	Bannister Fletcher, History of Architecture, 20th Edition, 2011 Architectural Press, (reprint)
8.	Architecture Principles in the Age of Humanism, Rudolf Wittkower, Wiley ,1998
9.	Monica Juneja, Architecture in Medieval India, Univ of Michigan, Permanent Black, 2001
10.	George Michell, Vijanagara, Alkazi, 2008
Mode of evaluation: Continuous Assessment Test, Quizzes, Assignments, Final Assessment Test	

Recommended by Board of Studies	09-08-2017		
Approved by Academic Council	No. 47	Date	05.10.2017

ARC2020	HISTORY AND THEORY OF ARCHITECTURE– INDUSTRIAL ERA	L	T	P	J	C
		3	0	0	4	4
Pre-requisite	**ARC1021**					

Course Objectives:

The course is aimed at
[1] Providing an introduction to architecture of industrial era.
[2] Equipping the students the relevance of building technologies in relation to industrial revolution and colonialism.
[3] To develop skills of observation, critical appreciation and writing , complementing the experience of buildings, precincts and settlements across space and time.
[4]To appreciate the broad changing complexities and aspirations (cultural, social, economic, Technological etc.) in society impacting architecture.

Expected Course Outcome:

At the end of the course the student should be able to
[1] Understand an overview of architecture and its building types as an integral evolution and emergence of social, cultural, economic, climatic and ideational underpinnings.
[2] understanding towards evolution of architecture in today's context
[3] recognise the style depending on the school of design or architect that has been designed by.
[4] understand cultural, social, economic, technological issues in society impacting architecture.
[5]To conceptually study evolution of building types and construction Practices.

Module: 1	Introduction	**2 hours**
Module: 2	**New typologies (Nicolas Durand)**	**3 hours**
Themes and variations, new typologies (Nicolas Durand) – 1600 to19th Century		
Module: 3	1. Late Baroque in Europe, Roccoco, Versailles, 2. Americas	**6 hours**
Module: 4	1. 1700 AD - Syncretic Architecture - Nayaks of Madurai, 2. Colonialism, 3. Jaipur, End of Moghuls, Darbar Sahib Amritsar, etc. Persian Architecture	**9 hours**
Module: 5	Colonial British, Portuguese, French, Dutch presence in India, Pondicherry, Goa, etc.	**6 hours**
Module: 6	1. The Industrial Revolution – Glass and Steel, Viollet Le Duc, John Ruskin etc. 2. Imperial Palace Chengde, China 3. Neo-Classicism in Europe, St Petersburg, Russia.	**9 hours**
Module: 7	History and growth of Chennai and George Town, Vellore – Chisolhm and the influence of the Industrial Revolution in India).	**6 hours**
Module: 8	Interactions with architectural historians - The significant aspects of The Industrial Era	**4 hours**
Total Lecture Hours		**45 hours**

Projects:

Draw and analyse the elements of a historic building and its spatial organization

Reference Books			
1.	Leland M Roth, Understanding Architecture: Its Elements, History and Meaning, ,Craftsman, House,2004		
2.	Brown, Percy "Indian Architecture (Budhist, Hindu, Islamic period), , DB Taraporevala Sons & Co, Mumbai, (reprint 2011)		
3.	ChristoperTadgell, The History of Architecture in India from the Dawn of civilization to the End of the Raj, Longman Group U.K.Ltd., London.		
4.	INTACH Publications		
5.	Madras Craft Foundation Publications		
6.	Benevolo, The History of the City, MIT Press 2010 (reprint)		
7	Bannister Fletcher, History of Architecture, 20th Edition, 2011 Architectural Press, (reprint)		
8	Andreas Volvahsen, Splendors of Imperial India, Prestel, 2004		
9	Giles Tillotson, Building Jaipur, Reaktion Books 2002		
10	Giles Tillotson, Paradigms in Indian Architecture, Routledge Press, 1998		
11	Madras: The Architectural Heritage, K Kalpana, S Muthiah, INTACH, 2003		
Mode of evaluation: Continuous Assessment Test, Quizzes, Assignments, Final Assessment Test			
Recommended by Board of Studies	09-08-2017		
Approved by Academic Council	**No. 47**	Date	05-10-2017

ARC5016	ARCHITECTURAL SPECIFICATIONS AND ESTIMATION	L	T	P	J	C
		3	0	0	0	3
Pre-requisite	**ARC4001**					

Course Objectives:

The course aims to educate the student on the subject of specifications-definition of quality and processes in practical building construction and estimation-the method of evolving costs related to construction works.

Expected Course Outcome:

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

[1] Understand the components of specification

[2] Assess Detailed specifications for civil works, Building services, infrastructure, interior and landscape Design

[3] Prepare estimate of cost for works. Evolve rates for various building works based upon given parameters

[4] Analyse the rates for various items of work

[5] Understand the application of computation tools in estimation

[6] Evaluate the processes of Estimation and Specification

Module: 1	**Introduction to specification**	**3 hours**

Introduction to the subject of specifications , relevance of accuracy in communication, principles and protocols, materials, labour and processes in defining work quality

Module: 2	**Specifications for civil works**	**12 hours**

Detailed specifications for civil works-excavation, plain and reinforced cement concrete, steel reinforcement, masonry of different kinds, wall and floor finishes, joinery, weathering and waterproofing systems, cladding and other related works integral to civil construction

Module: 3	**Specification for building services**	**3 hours**

Overview of specifications for electrical and mechanical and associated infrastructure works such as illumination, acoustics, security systems and network infrastructure with broad understanding of processes

Module: 4	**Specification for interior and landscape design**	**6 hours**

Overview of specifications for interior and landscape works with examples

Module: 5	**Introduction to estimation**	**3 hours**

Introduction to estimation processes-bills of quantities, preliminary ,abstract and detailed estimates

Module: 6	**Rate analysis**	**6 hours**

Rate analysis, unit rate and lump sum methods, base rates for works, method of measurement of various civil and related works

Module: 7	**Detailed estimation using computer tools**	**6 hours**

Building Information Systems and their applications in computation of quantities and estimates

Module: 8	**Specifications and estimation processes**	**6 hours**

Professional experiences/ student discussions on specifications and estimation processes

Total Lecture Hours	**45 hours**

Text Books

1.	Estimating ,Costing and Valuation by Gurcharan Singh and Jagdish Singh,Standard Publishers, 2012		
2.	Estimating and Costing in Civil Engineering (Theory and Practice) 2016 by B.N.Dutta, UBS Publishers'		
Reference Books			
1.	PWD Standard Specifications, Govt.Publication, 2012.		
2.	Indian Practical Civil Engineers Handbook by P.N.Khanna, Engineers'Publishers, New Delhi, 2012		
Mode of evaluation: Continuous Assessment Test, Quizzes, Assignments, Final Assessment Test			
Recommended by Board of Studies	09-08-2017		
Approved by Academic Council	**No.47**	Date	05-10-2017

ARC5017	ACCOUNTING FOR ARCHITECTS	L	T	P	J	C
		3	0	0	0	3
Pre-requisite	**ARC4001**					

Course Objectives:

The course is aimed at

Having successfully completed this course, student will be able to demonstrate knowledge and understanding of the assumptions underlying the preparation, interpretation and analysis of the Income Statement, Balance Sheet. Cost analysis in the context of preparation of cost sheet, tenders and quotations and issue of materials. Student will also have basic understanding of Indian taxation.

Expected Course Outcome:

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

[1] Understand the scope, processes, uses and concepts of accounting

[2] Understand the maintenance methods of accounts.

[3] Prepare of Quotations and Tenders by understanding cost accounting

[4] understand various aspects of management accounting in construction business

[5] knowledge about the coordination of management accounting information for corporate financial decision making

[6] Understand the basics of taxation.

Module: 1	**Introduction to Accounting**	**5 hours**

Meaning-Nature- Scope. Types of business entity. Accounting terms and processes- Users of accounting information. Concepts and conventions of Accounting.

Module: 2	**Accounting cycle, Books and Records**	**6 hours**

Double entry system- concepts, Accounting equation-Journal-Ledger. Trial Balance

Module: 3	**Final Account**	**8 hours**

Trading and profit and loss account- Balance Sheet with simple adjustments.

Module: 4	**Introduction to Cost Accounting**	**7 hours**

Meaning of Costing and Cost Accounting – Objectives and functions of Cost Accounting –Advantages and limitations of cost accounting –Classifications of cost – Elements of cost – Cost Sheet – Preparation of Quotations and Tenders.

Module: 5	**Material**	**6 hours**

Inventory Control – Concept and Techniques –E.O.Q- Levels of Inventory- Methods of pricing of Materials issues – FIFO, LIFO and Simple averages.

Module: 6	**Overhead**	**5 hours**

Overheads – Classification - Primary and Secondary Distribution of Overheads.

Module: 7	**Basics of Taxation**	**6 hours**

Taxation- meaning-Previous year-Assessment year-Residential status- Different heads of income – Deductions- Exemptions- Different tax slab. Filing of Income tax return.

Module: 8	External Invited Lecture on Contemporary Topics	**2 hours**
Total Lecture Hours		**45 hours**

Text Book:

1. R.L. Gupta and M. Radhaswamy, Advanced Accountancy, Sultan Chand and Sons Publishers, 2012.
2. Bhabatosh Banerjee, Cost Accounting- Theory and Practice, PHI Learning Private Limited, 2014

Reference Books:			
1.	M.C. Shukla, T.S. Grewal and S.C. Gupta, Advanced Accounts, S. Chand Publishing, 2013.		
2.	S.P. Jain and K.L. Narang, Advanced Accountancy, Kalyani publishers, 2012.		
3.	S.N. Maheshwari and S.K. Maheshwari, Advanced Accountancy, Vikas Publishing House Ltd., 2012.		
Mode of evaluation: Continuous Assessment Test, Quizzes, Assignments, Final Assessment Test			
Recommended by Board of Studies	09-08-2017		
Approved by Academic Council	**No. 47**	Date	05-10-2017

ARC4016	MODERN ARCHITECTURAL THOUGHT	L	T	P	J	C
		3	0	0	0	3
Pre-requisite	**ARC3099**					

Course Objectives:

To educate students on the philosophies/ideologies of various individuals of the 19th and 20th century leading to the ideation and realization of differential built environments and to explore the relationship between thought process and realization

Expected Course Outcome:

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

[1] Understand about the association and influence of philosophy of an individual and group on architecture and architectural Ideation.

[2] Understand innovative architectural styles initiated by famous architects during early periods of 19th century.

[3] Understand modern architectural philosophy originated in Europe and United States

[4] Understand the architectural philosophy in the Asian and national context.

[5] Understand the architectural philosophy postmodern and Hi-tech architect s.

Module: 1	**3 hours**

Introduction to philosophical thought, understanding philosophy in the context of the individual, society, economic and political environment. Relationships between individual and collective philosophy and ideation.

Module: 2	**6 hours**

Directions of turn of the century architects-Eric Mendelsohn, Peter Behrens, Gerrit Rietveld, Hans Scharoun, Antoni Gaudi and others

Module: 3	**9 hours**

Modern western and architectural philosophy in the 20th century in Europe and the United States-Frank Lloyd Wright, Walter Gropius, le Corbusier, Mies van der Rohe, Alvar Aalto, Buckminster Fuller and others

Module: 4	**6 hours**

Asian thinkers of the 20th century-Geoffrey Bawa, KenzoTange, Kisho Kurokawa, Toyo Ito and others

Module: 5	**6 hours**

Contemporary Indian architectural thinking of the last five decades –Indian masters including Joseph Allen stein, Laurie Baker, Balakrishna Doshi, Charles Correa, Achyut Kanvinde among others.

Module: 6	**6 hours**

Contemporary international practices, the digital age, creative thinkers-among them Frank Gehry, ZahaHadid, Tadao Ando, Shigeru Ban, Norman Foster, Santiago Calatrava, Herzog and de Meuron

Module: 7	**3 hours**

Fantasia and visionary architecture and their proponents.

Module: 8	**6 hours**

Discussions with academics/professionals and seminars by students

Total Lecture Hours	**45 hours**

Reference Books			
1	The Embodied image: Imagination and Imagery in Architecture by Juhani Pallasmaa Publisher: John Wiley & Sons (May 16th 2011)		
Mode of evaluation: Continuous Assessment Test, Quizzes, Assignments, Final Assessment Test			
Recommended by Board of Studies	09-08-2017		
Approved by Academic Council	**No. 47**	Date	05-10-2017

ARC2021	ADVANCED DIGITAL GRAPHICS – SKILL DEVELOPMENT	L	T	P	J	C
		0	0	4	4	3
Pre-requisite	**ARC1024**					

Course Objectives:

The course is aimed to familiarize students with building modelling and visualization software applied to architectural design solutions

Expected Course Outcome:

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

[1] Examine Conceptual and basic Massing studies using 3D computer applications.

[2] Develop drawings with application software relevant to architectural design studio and investigation of gaming exercises in the digital domain to realize optimal outputs in applied situations

Module: 1	**Introduction to BIM Revit parametric modelling.**	**4 hours**
Module: 2	**Introduction to Revit**	**12 hours**
Revit Categories, families, creating a custom family, parameters, type and instance parameters, passing parameters, using formulas to create geometry. Parametric adaptive families		
Module: 3		**12 hours**
Revit curtain systems, creating mass forms, rectangular and linear masses, creating masses with basic shapes and curves, basic editing of massing, using of massing in BIM project, converting massing into building elements and adding levels, Cost Estimating and Quantity Take-off		
Module: 4	**Introduction to Rhino**	**4 hours**
Introduction to Rhino, interface and modelling tools, and using of rhino in architecture.		
Module: 5		**8 hours**
Creating Lines, curves, advance modelling tools, 3d modelling with Nurbs and surfaces, nurbs typologies, surface continuity, solids and meshes, editing Geometry, point editing, creating a residence using 3d modelling options. Exporting and importing, Rendering		
Module: 6	**Introduction to Grasshopper**	**8 hours**
Introduction to Grasshopper, parametric modelling using grasshopper, parameters and components, inputting parameters, algorithms, using of math and expressions, Meshes and their use in architecture, generative surfaces		
Module: 7	**Introduction to 3D printing**	**8 hours**
Introduction to 3D printing, GIS for Architects - GIS Data Models, Data Sources and Data Entry, Digitizing, GPS, Remote Sensing, Intermediate Spatial Analysis, Mapping, Introduction to Scripting. Introductory course in Illustrator and InDesign		
Module: 8	Professional inputs on Project Presentation using advanced software.	**4 hours**
Total Lecture Hours		**60 hours**

Reference Books

1.	Autodesk Curriculum Architecture, Construction Management and Planning
2.	Rhinoceros modelling tools for designers –level 1
3.	Rhinoceros modelling tools for designers –level 2
4.	Grasshopper primer

Mode of evaluation: Continuous Assessment, Final Assessment			
List of exercises (Indicative)			
1. Creating of innovative building mass using parametric rules. 2. Architectural expression using surfaces with adjustable parameters to study different iterations. 3. Simple math-based surface with parametric rules which are part of a building. Students are free to use any of the two modelling tools [Revit, Rhino with Grasshopper] Students should write a one-page report of the project they wish to study and discuss with the instructor about its feasibility and complexity. Demonstrate the same at the end of semester toward J-Component and document the process with presentation.			
Recommended by Board of Studies	07-08-2018		
Approved by Academic Council	**No. 51**	Date	14-09-2018

ARC5018	ADVANCED DIGITAL PROCESSES FOR ARCHITECTS	L	T	P	J	C
		0	0	4	4	3
Pre-requisite	**ARC1024 & ARC5003**					

Course Objectives:

To develop contemporary digital technology application skills for the execution of building projects including active participation in the management of their design, technology and realization processes.

Expected Course Outcome:

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

[1] Understand about digital strategies and innovative method adopted in the construction industry at different stages of building life cycle.

[2] Understand different digital tools used for building facility programming and management.

[3] Understand standards, benchmarking and building performance simulation tools and different MEP based optimization systems related to buildings.

[4] Understand about BIM related digital tools to study clash detection, construction simulation Estimation, specifications in building construction.

[5] Understand the application of Generative design, Augmented realty (AR), Artificial intelligence in designing and construction of buildings and also tools to collaborate among different stakeholders involved in the construction of buildings.

Module: 1	**8 hours**

Digital STRATEGY & Innovation for Planning, Sourcing, Construction and life cycle operations to enhance built facility & environment, Understanding co-existence of manual & digital processes in Design, engineering & technology (DET)

Module: 2	**8hours**

Facility Programming &Master planning with DATA acquisition tools like GIS, Laser scan &Google FLUX; concept &schematic design with planning data solutions like DROFUS, Ideation to visualizing 3D model& to performance outcomes with BIM tools like REVIT build suite

Module: 3	**8 hours**

Sustainability (6D model) & Quality bench marking to create IGBC \ LEED compliant materials & system resource data and Energy modeling with tools like GBS- green building studio; Acoustics & Lighting design from concept stage.

Module: 4	**8 hours**

MEP integration of Air-conditioning systems, Electrical & Low current systems, fire safety & Plumbing systems from early stages of architectural design through BIMCOBIE standards for facility management to have an Engineering facility model (7D)

Module: 5	**8 hours**

Constructability enabled from Programming stage with tools like NAVIS works for clash detection & construction simulation (4D model)

Module: 6	**6hours**

Cost model (5D) with BIM &ERP tools - impact review of Estimation & specifications on design brief

Module: 7	**8 hours**

Emerging Digital technologies like Generative design, Augmented realty (AR), Artificial intelligence and their impact on building (AEC) industry			
Module: 8			**6 hours**
Integrated Project delivery (IPD) concepts & tools for collaborative design, project management and construction workflows.			
Total Lecture Hours		**60 Hours**	
Reference Books			
1.	Contemporary Architecture and the Digital Design Process, Peter Szalapaj Routledge, 2014		
2.	BIM and Integrated Design: Strategies for Architectural Practice., Randy Deutsch AIA, LEED AP, 2011 John Wiley and Sons		
3.	BIM Handbook: A Guide to Building Information Modelling for Owners, Managers, Designers, Engineers, and Contractors, Chuck Eastman, Paul Teicholz, Rafael Sacks, Kathleen Liston .,2nd edition, 2012 John Wiley and Sons		
4	The BIM Manager's Handbook: Guidance for Professionals in Architecture, Engineering, and Construction, Holzer Dominik, 2015 John Wiley and Sons		
5	Integrating Project Delivery 1st Edition, by Martin Fischer, Howard W. Ashcraft, Dean Reed , Atul Khanzode , 2017 John Wiley and Sons		
Mode of evaluation: Continuous Assessment, Final Assessment			
List of exercises (Indicative)			
1.Simulate the direct and indirect effects of artificial lighting in a five story commercial buildings using any BIM software.			
2.Formulate the schematic schedule of material procurement and related resource management for a construction project of a G+1 residential building. This simulation and technical report has to be conducted using NAVIS works.			
Recommended by Board of Studies	07.08.2018		
Approved by Academic Council	**No. 51**	Date	14.09.2018

ARC2022	APPLIED CLIMATOLOGY	L	T	P	J	C
		0	0	4	4	3
Pre-requisite	**ARC 1022**					

Course Objectives:

The course is aimed to expose students to the process and pertinent aspects involved in designing climate
Responsive building.

Expected Course Outcome:

At the end of the course the student should be able to
[1] understand different aspect related to sustainability in building design such as analysis of climate, designing of shading devices, incorporation and quantification of daylighting
[2] Understand the need for thermal comfort and its components as well as its assessment in buildings.
[3] Select appropriate materials for construction of a building for a given climate.

Module: 1	Introduction to climate variables; Graphical representation of weather data; Manual methods and using software tools	**4 hours**
Module: 2	Understanding sun-path diagram; Solar Shading, Design for shading of windows using shading protractor & heliodon.	**8 hours**
Module: 3	Quantifying the daylight levels in a space using Daylight Factor (DF) method using models and field study, Glare analysis using HDR photography& photo-sphere, LEED daylight credits.	**12 hours**
Module: 4	Human thermal comfort, assessing of comfort in an indoor environment using measured data & Olgyay Bioclimatic chart psychrometric, ET / CET nomogram charts.	**8 hours**
Module: 5	Design recommendation using Givoni–Milne Bioclimatic Chart, Mehoney tables.	**8 hours**
Module: 6	Design recommendation using Givoni–Milne Bioclimatic Chart, Mehoney tables.	**8 hours**
Module: 7	Heating and Cooling load calculations and selection of Appropriate materials. Study of Heat loss and gain of building using thermal imaging.	**8 hours**
Module: 8	Analysis of a building in terms of, Solar shading, daylighting, thermal comfort, Heat loss and heat gain. (A group project / exercise)	**4 hours**
Total Lecture Hours		**60 hours**

Text books:

1.Koenigsberger O.H., Ingersol T.G., Mayhew A. and Szokolay S.V., Manual of Tropical Building and Housing, Orient Longman Pvt. Ltd, 2004

Reference Books:

1. Introduction to Architectural Science: The Basis of Sustainable Design By Steven V. Szokolay, Routledge, 11-Apr-2014. 2. Arvind Krishan, Nick Baker, Simons Yannas, Szokolay S.V., Climatic Responsive Architecture - A Design Handbook for Energy Efficient Buildings, Tata Mc Graw Hill Publishing Company Ltd, New Delhi, 2001			
Mode of evaluation: Continuous Assessment, Final Assessment			
List of exercises (Indicative)			
1. Methods of Graphical representation of Climatic data.			
2. Design of Shading Devices for a given Climate			
3. Design recommendations using Mehoney and Gevoni millan Charts and Dayligh Factor analysis			
4. Understanding human comfort using Psychrometic chart			
Recommended by Board of Studies	07-08-2018		
Approved by Academic Council	**No. 51**	Date	14-09-2018

ARC4017	ARCHITECTURAL ENTREPRENEURSHIP	L	T	P	J	C
		3	0	0	0	3
Pre-requisite	**ARC3099**					

Course Objectives:

[1] To provide guidance to students pursuing entrepreneurship opportunities in the architectural and allied professions.
[2] The coursework will entail sessions with experts in the respective domains besides academic overviews.

Expected Course Outcome:

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

[1] Differentiate between entrepreneurship versus paid employment and types of companies.

[2] Understand components involved in the starting an architectural entrepreneurship in Indian

[3] Understand components associated with architectural entrepreneurship ecosystem.

Module: 1	**6 hours**

An introduction to entrepreneurship versus paid employment. The directions ahead for young professionals. Basic concepts of partnerships, proprietorships, private and public limited companies.

Module: 2	**6 hours**

Legal aspects of becoming an architectural entrepreneur in the Indian environment. Statutory requirements and formalities, Insurance, taxation, documentation and records. Special statutes pertaining to the architectural profession.

Module: 3	**6 hours**

The concept of workspace-shared workspace. Outreach-the use of social media and marketing platforms.

Module: 4	**6 hours**

Setting up an establishment-capital and revenue studies, planning for business, review of strategy, tapping of lateral opportunities, SWOC studies.

Module: 5	**6 hours**

Time management-the role of clients, contractors and service providers

Module: 6	**6 hours**

The skills of architectural presentation and the management of project delivery.

Module: 7	**6 hours**

Scaling up and planning for the future

Module: 8	**3 hours**

Discussions on contemporary professional trends.

Total Lecture Hours	**45 hours**

Reference Books

1. H.Nandan, Fundamentals of Entrepreneurship,PHI, 3rd Edition 2013
2. Rajeev Roy, Entrepreneurship, Oxford, 2nd edition 2011

Mode of evaluation: Continuous Assessment Test, Quizzes, Assignments, Final Assessment Test

Recommended by Board of Studies	07-08-2016		
Approved by Academic Council	**No.51**	Date	14.09.2018

ARC2023	ARTS AND CRAFTS WORKSHOP	L	T	P	J	C
		0	0	4	4	3
Pre-requisite	**ARC1014**					

Course Objectives:

The course is aimed at
To provide a platform for lateral learning through material exploration and creative expression and to develop finer sensibilities and aesthetic appreciation. The course accommodates hands-on activity in a workshop environment

Expected Course Outcome:

At the end of the course the student should be able to
[1] Understand the wide variety of procedures, ideas and innovations in making models with different materials.
[2] Creation of Hands- on products demonstrating execution of artistry and hand- eye coordination

Module: 1	Print making	**16 hours**
Module: 2	Sculpture and ceramics	**16 hours**
Module: 3	Metalwork	**16 hours**
Module: 4	Other crafts	**12 hours**
Total Lecture Hours		**60 hours**

Text Books

1.	Bill Fick, Beth Grbowski, Modern Printmaking – A Guide to Traditional and Digital Techniques, WatsonGuptill, 2016.
2.	Stella Kramrisch, Indian Sculpture, Motilal Banarsidass, 2013.
3.	Handmade in India, Crafts of India, Mapin Publishing Pvt.Ltd. 2009.

Reference Books

1.	C.Keith Wilbur, Indian Handicrafts, Globe Pequot Press, 2001.
2.	Rudolf Wittkower, Sculpture: Processes and Principles, Penguin Books, 1991.
3.	Walter Chamberlain, The Thames and Hudson Manual of Etching and Engraving, Thames and Hudson,1992.

Mode of evaluation: Continuous Assessment, Final Assessment Test

List of exercises (Indicative)

1. **Use various kind of metal scrap to generate meaningful identifiable elements in the natural environment**
2. **Create a terra cotta model of a human figurine of height 300 mm. as a base for a utility tray.**

Recommended by Board of Studies	7.8.2018		
Approved by Academic Council	**No. 51**	Date	14.09.2018

ARC3007	ARCHITECTURAL ILLUMINATION AND ACOUSTICS	L	T	P	J	C
		3	0	0	0	3
Pre-requisite	**ARC2019**					

Course Objectives:

The course is aimed at

[1] To expose students to aspects of Illumination and Acoustics and how they help in designing of buildings and architectural spaces that are visually and aurally comfortable.

Expected Course Outcome:

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

[1] Understand the fundamentals of light, its source and designing of electrical lighting for different building typologies.

[2] Understand the physics and basics of sound, its propagation in spaces, acoustical defects of spaces and there mitigation and rectification..

[3] Understand about acoustical compliance of different facilities as per different codes.

Module: 1	**Introduction Lighting**	**2 hours**

History and basics of lighting; Light and electromagnetic spectrum; Fundamentals quantities of lighting; Photometry

Module: 2	**Lighting design basics**	**4hours**

Brief history of light sources; Different types of lamps; Luminous Efficacy of Light Sources; Energy efficient lighting; Luminaries and its components; Luminaries types and classification; Lighting systems ; Lighting Distribution Patterns

Module: 3	**Illumination and lighting**	**4 hours**

Quantity of lighting: Minimum Illumination levels for different facilities Quality of lighting: Glare (Direct and Reflected/Veiling) ; Control of Direct and Indirect glare; Visual comfort probability; Concept and fundamentals of color ; Color temperature of different light sources; Color Rendering and Color Rendering Index (CRI) of light sources.

Module: 4	**Lighting Design and Calculation**	**9 hours**

Lighting calculation methods: Lumen method, Zonal cavity method and point method. Permanent Supplementary Artificial Lighting in Interiors (PSALI) . Lighting Application for Different Facilities: Hospitals, Institutional and Educational Buildings, Restaurants, Office Buildings, Outdoor, Landscape; Assembly Rooms, Auditoriums, And Multipurpose Spaces; Sports facilities, Laboratories, Library etc.

Module: 5	**Nature of sound**	**3 hours**

Sound and it's Physics: Speed, Wavelength and Frequency, Octave bands, Sound Propagation; Ray and Particle nature of the sound, longitudinal motion, spherical dissipation, inverse square law.

Fundamentals of Human Ear & Hearing mechanism: Equal Loudness contours; Expressing Sound Magnitude; Sound Power; Sound Pressure; Sound Intensity; Decibel; Attenuation; Sound Power Level; Sound Pressure Level;Common Sound Pressure Levels

Module: 6	**Acoustics of Architectural Spaces**	**10 hours**

Sound in enclosed spaces: Acoustical defects of architectural space & Measures to Solve; Types of Sound Absorption Material & their use in architectural Spaces; Sabine; Sound Absorption Coefficient; Acoustical Material Rating methods; Reverberance and reverberation time calculation for spaces; Optimal Reverberation time; Variable Acoustics; Acoustical Design criteria of spaces for speech, music and open-air auditorium; Methods adopted in designing acoustics for architectural spaces.		
Module: 7	**Noise Control and Sound Reinforcement**	**11 hours**
Types of Noise and its sources in buildings: Rating system of Noise; Noise Rating System of Building components; Noise control methods in buildings for different noise types. Mechanical Systems Noise & control; HVAC lining materials- difference between thermal and acoustical insulation. Vibration Isolation and Control; Active sound and Noise cancelation; Environmental Acoustics; Traffic noise; Planning to mitigate environmental / outdoor noise; Sound barriers; Principles of sound barrier attenuation, shadow zone, distance from receiver etc. Acoustic compliance, NIHL, OSHA and NIOSH guidelines for acceptable ambient noise exposure levels in different places.		
Module: 8	**Expert Lectures on Lighting and Acoustics**	**2 hours**
Total Lecture Hours		**45 hours**
Text Book		
1.	Mechanical and Electrical Equipment for Buildings 12th, By Walter T. Grondzik, Alison G. Kwok, John Wiley & Sons 2014.	
Reference Books		
	The Lighting Handbook: Reference and Application:David L. DiLaura, Illuminating Engineering Society of North America:Illuminating Engineering Society of North America, 2011.	
	Architectural Acoustics Illustrated; Michael Ermann; John Wiley & Sons, 2015	
	Master Handbook of Acoustics, Sixth Edition,	
	F. Alton Everest, Ken C Pohlmann, McGraw Hill Professional, 08-Dec-2014	
	Architectural Acoustics, M.David Egan, J.Ross Publication, 2007.	
	Noise Control in Buildings: Fundamental and Application, Mahavir Singh, Narosa Publishing House, 2014	

	Noise Control Management, Howard K. Pelton, Van Nostrand Reinhold, 1994		
Mode of evaluation: Continuous Assessment Test, Quizzes, Assignments, Final Assessment Test			
Recommended by Board of Studies	7.8.2018		
Approved by Academic Council	No. 51	Date	14.09.2018

ARC4018	STRUCTURAL SYSTEMS EVOLUTION	L	T	P	J	C
		2	0	0	4	3
Pre-requisite	**ARC3001**					

Course Objectives:

To instil an understanding of structural concepts as they have evolved over history and to appreciate the application of structural systems in tandem with architectural design evolution

Expected Course Outcome:

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

[1] Understand about the structural forms, tools, resources and techniques used in the construction of primitive dwelling units and rock cut shelters.

[2] Understand about building of multi-level structures using lintel and column elements.

[3] Understand construction and structural techniques using different types of bricks and mortars and Arches.

[4] Understand different types of construction techniques using reinforced concrete and steel employed in small to mega structures.

[5] Understand about innovative structural systems, sustainability aspects related to structures and construction and innovative and state-of-the-art materials, composites and alloys used in constructions.

Module: 1	Introduction to shelter as a fundamental aspect of existence. The relationship between resources, technology and structural ideation. Rock-cut caves and primitive dwellings: Structural forms and tools- use of natural materials.	**4 hours**
Module: 2	The concept of multilevel structures using basic concepts. Trabeated systems and stability -use of monolithic blocks for posts and lintels, articulation of joints in stone and timber, monolithic columns, multi-drum columns.	**4 hours**
Module: 3	Modular construction- use of modular units in sun-dried mud blocks, stone, fired clay brick dry-stack construction to wet construction - role of binding mortars: mud and lime, the advent of concrete, vertical joints in wall construction, single leaf to multi-leaf constructions, cavity walls, rationale behind dimensioning of walls.	**4hours**
Module: 4	Arcuated systems-semi-circular, segmental, pointed arches, catenary curves, thrust lines and buttressing, corbelling, cross and groin vaults and domes, squinches. Development of the arching system	**4 hours**
Module: 5	The advent of steel and reinforced cement concrete. Fundamental structural concepts of steel and RCC structures	**4 hours**
	and the conquest of span and height, advances in strength of materials/structural analysis methods and fabrication. Truss action (strut and tie) and connections, bridges and towers, steel frame structures. Bending resistance and framing action in RCC Foundation systems/RC beams/columns/beam-column joints/slabs (one-way, two-way, flat slabs, waffle slabs)	

Module: 6	Developments in structural RCC-prestressing and post-tensioning, prefabrication principles. Mega structures in steel and reinforced concrete and unique structural concepts employed-skyscrapers and bridges, stadia, structures for special applications. Composite steel-concrete structures, tensile structures, RCC shells	**4 hours**
Module: 7	Structures in consonance with mechanical systems, pneumatic shelters, dismantlable structures, new-age systems. high performance materials, Nano mechanics, environmental impact, sustainability, energy efficiency High performance computing for structural analysis. Building skins Composites –fibre reinforced plastics, alloys, allotropes, carbon nanotubes, shape memory alloys.	**4hours**
Module: 8	Discussions on contemporary structural trends, practices and potentials	**2 hours**
Total Lecture Hours		**30 hours**

Reference Books

1.	Agrawal Roma, Built: The hidden stories behind our structures, Bloomsbury Publishing, 2018
2.	Fletcher Bannister, History of Architecture, Architectural Press, 20th Edition, 1996, Reprint 2001

Mode of evaluation: Continuous Assessment Test, Quizzes, Assignments, Final Assessment Test

Recommended by Board of Studies	7-8-2018		
Approved by Academic Council	**No. 51**	Date	14-9-2018

ARC2024	URBAN ECOLOGY	L	T	P	J	C
		3	0	0	0	3
Pre-requisite	**CHY 1002**					

Course Objectives:

The course is aimed at
[1] Expose participants to recent research on the ecology of urban ecosystems.
[2 Understand the interdisciplinary nature of urban ecosystems.
[3] Familiarize participants with recently developed tools for analysing urban ecosystems.

Expected Course Outcome:

At the end of the course the student should be able to
[1] Understand the nature, elements and characters of Urban Ecosystems
[2]Provide sustainable solutions with unique identification frame work for natural environment and human community while preserving harmony with ecosystem.
[3] Formulate political, social and technological resources to implement action plans to provide healthy urban habitat into nature with systematic balancing.

Module: 1	**Urban Ecology**	**6 hours**
Urban Ecology—Introduction, characteristics of urban ecosystems, differences with natural ecosystems		
Module: 2	**Ecological Niche**	**6 hours**
Ecological Niche—which species succeed in urban ecosystems Island Biogeography—space and urban ecology		
Module: 3	**Habitat and Fragmentation**	**6 hours**
Habitat and Fragmentation—historical development of urban eco-systems and habitat types Meta-populations and corridors—dispersal in urban ecosystems		
Module: 4	**Urban Ecology and Disease**	**6 hours**
Urban Ecology and Disease—ecology of urban disease vectors Disturbance, Succession, Restoration—processes affecting urban ecosystems over time		
Module: 5	**Ecological Footprints**	**6 hours**
Ecological Footprints—impact of urban ecosystems on environment		
Module: 6	**Ecological Footprint Analyses**	**6 hours**
Incorporating urban environmental history into Ecological Footprints Tools for Ecological Footprint Analyses		
Module: 7	**Ecosystem Services**	**6 hours**
Ecosystem Services— benefits provided by urban eco systems, air and water quality. Tools for Ecosystem Service Analyses. Urban Metabolism, material flow analysis, substance flow analysis		
Module: 8	Interaction with contemporary artistes & Industry Guest lecture	**3 hours**
Total Lecture Hours		**45 hours**

Text Books

1.	Kate Orff, 2017 MacArthur Fellow, Toward an Urban Ecology: SCAPE / Landscape Architecture, Publisher: The Monacelli Press; 01 edition, 12 July 2016
2.	Richard T. T. Forman, Urban Ecology: Science of Cities 1st Edition, Cambridge University Press; 1 edition, April 7, 2014

3.	Frederick R. Adler (Author), Colby J. Tanner (Author), Urban Ecosystems: Ecological Principles for the Built Environment 1st Edition, Cambridge University Press; 1 edition, June 10, 2013		
Reference Books			
4.	William W. Braham, Architecture and Systems Ecology: Thermodynamic Principles of Environmental Building Design, Routledge; 1 edition, August 16, 2015.		
5.	Jürgen Breuste, Hildegard Feldmann, Ogarit Uhlmann edited Urban Ecology, Springer1 edition, 2013		
6.	Majid Husain, Environment and Ecology: Biodiversity, Climate Change and Disaster Management for Civil Services Examination, Access Publishing; Second edition, 18 April 2014		
7.	Handbook of Environmental Fluid Dynamics. National University of Singapore: Singapore Roth, M. CRC Press, Taylor & Francis Group, 2013		
Mode of evaluation: Continuous Assessment Test, Quizzes, Assignments, Final Assessment Test			
Recommended by Board of Studies	7.8.2018		
Approved by Academic Council	**No. 51**	Date	14.09.2018

ARC1028	ARCHITECTURAL TRAVEL STUDIES – 1	L	T	P	J	C
		-	-	-	-	2
Pre-requisite	**Nil**					

Course Objectives:

The course is aimed at travel to cities and site of historic/social or cultural significance in order to observe, evolve drawing skills appreciate the place and undertake basic documentation.

Expected Course Outcome:

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

[1] Develop knowledge, awareness and understanding of contexts of architectural development from a theoretical and historical standpoint.

[2] Summarize writings and sketches, photographs with content capturing the architectural, cultural, social, physical, economic dimensions of various travel locations.

[3] Develop Sketches and critical writings of observations during the travel process.

Module: 1	Discussion of experience of observations
Module: 2	Basic documentation of way of life.
Module: 3	Basic documentation of proportion and elements (Drawing and or photography)
Module: 4	Record of materials and technology
Module: 5	Interviews with community.
Module: 6	To prepare sketches and reports with photographs recording the physical, social, cultural and, historic context.

Total Lecture Days			15
Mode of evaluation: Final Assessment			
Recommended by Board of Studies	07-08-2018		
Approved by Academic Council	No. 51	Date	14-09-2018

ARC1029	ARCHITECTURAL TRAVEL STUDIES –2	L	T	P	J	C
		-	-	-	-	2
Pre-requisite	**Nil**					

Course Objectives:

The course is aimed at travel to cities and site of historic/social or cultural significance in order to observe, evolve drawing skills appreciate the place and undertake basic documentation.

Expected Course Outcome:

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

[1] Develop knowledge, awareness and understanding of contexts of architectural development from a theoretical and historical standpoint.

[2] Summarize writings and sketches, photographs with content capturing the architectural, cultural, social, physical, economic dimensions of various travel locations.

[3] Develop Sketches and critical writings of observations during the travel process.

Module: 1	Discussion of experience of observations
Module: 2	Basic documentation of way of life.
Module: 3	Basic documentation of proportion and elements (Drawing and or photography)
Module: 4	Record of materials and technology
Module: 5	Interviews with community.
Module: 6	To prepare sketches and reports with photographs recording the physical, social, cultural and, historic context.
Total Lecture Days	**15 days**

Mode of evaluation: Final Assessment

Recommended by Board of Studies	07-08-2018		
Approved by Academic Council	**No. 51**	Date	14-09-2018