



Integral University, Lucknow

Effective from Session: 2019 - 2020							
Course Code	AR601	Title of the Course	Research Methods	L	T	P	C
Year	I	Semester	I	2	-	-	2
Pre-Requisite	AR502	Co-requisite	Nil				
Course Objectives	To familiarize the students with basic research methodologies, data collection and its analysis						



Course Outcomes	
CO1	Employ qualitative, quantitative, and mixed research methodologies to conduct research in architecture.
CO2	Apply the research process to problems in architectural design and planning.
CO3	Master the literature in students' particular area of interest.
CO4	Design a research study using relevant approaches and methods.
CO5	Critically read, interpret, and evaluate research proposals and publications.

Unit No.	Title of the Unit	Content of Unit	Contact Hrs.	Mapped CO
1	Introduction to research methodology	Meaning of Research, Objectives of Research, Types of Research, Research Approaches, Significance of research, Research methods versus Methodology, Research and Scientific method, Research Process, and Criteria of Good Research..	4	1, 2, 3
2	Data collection techniques and ethical considerations	Introduction, Experiments and Surveys, Collection of Primary data: Difference between Questionnaire and Schedule, Guidelines for Constructing Questionnaire/Schedule, Some other Methods of Data Collection. Collection of Secondary data, Selection of Appropriate Method for Data collection	8	4, 5
3	Quantitative research	Research instruments used in the quantitative research, Characteristics of Good Tools, Questionnaire and Interview, Observation., Tests, Scale and Types	8	1, 3, 5
4	Qualitative research	Research instruments used in the qualitative research & Characteristics	8	1, 3, 4
5	Data collection	Modes of data collection, its analysis and presentation	4	1, 3, 4

Reference Books:	
'Vernacular Architecture and Regional design'- Cultural process and environmental response- 'Elsevier science and technology'- 30 April 2007 by Heath Kingston	
Vernacular Traditions: Contemporary Architecture, The energy resources and institute by Aishwarya Tipnis, 2012	
Marcel Vellinga, Taylor and Francis- 'Vernacular architecture in the Twenty first century'- 2006 USA by Lindsay Asquith	
e-Learning Source:	
https://www.classcentral.com/course/researchmethods-1767	
https://onlinecourses.nptel.ac.in/noc22_ge08/preview	

Course Articulation Matrix: (Mapping of COs with POs and PSOs)																		
PO-PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1		2		1	3		3	2					3	2	2	3		
CO2	2		2	1		1		2					2	1	1	1		
CO3			3	1	2								3	2	2	2		
CO4	3	3	2	2	1			1					2	1	2	2		
CO5		3		3	2		3	3					3	2	2	3		

1-Low Correlation; 2- Moderate Correlation; 3- Substantial Correlation

 Ar. Khurram Ashraf Name & Sign of Program Coordinator	 Sign & Seal of HoD
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Integral University, Lucknow

Effective from Session: 2019 - 2020							
Course Code	AR602	Title of the Course	Sustainable Development	L	T	P	C
Year	I	Semester	I	2	-	-	2
Pre-Requisite	Nil	Co-requisite	Nil				
Course Objectives	To familiarize the students with basic sustainable development and its importance.						



Course Outcomes	
CO1	To understand the concept of Sustainable Development and its relevance in Architecture.
CO2	Importance of recycling and its value and need
CO3	Develop understanding for sustainability and issues related to it.
CO4	Know the need for recycling the waste water and methods involved in treatment of wastewater..
CO5	Importance of conservation and its intervention measures

Unit No.	Title of the Unit	Content of Unit	Contact Hrs.	Mapped CO
1	Introduction to sustainable development	Introduction to sustainable development in relation to natural resource conservation, energy conservation, environmental pollution and conservation of biodiversity.	6	1
2	Global issues	Global issues such as global warming, ozone layer depletion, greenhouse gasses, and depletion of natural resources in relation to energy generation.	8	2
3	Regional and urban planning	Sustainable development from the perspective of regional and urban planning.	6	3
4	Climate considerations in design	Issues at regional and micro level; Climate considerations in design of buildings in various climates.	6	4
5	Eco-friendly architecture	Eco-friendly architecture	6	5

Reference Books:	
Design in Architecture - Architecture and Human Science by Broadbent, G.	
Learning Basic Design. Mumbai: Rizvi College of Architecture by Chauhan, P.	
Design Drawing. Hoboken: John Wiley & Sons. by Ching, F. D. K.	
Architect? A Candid Guide to the Profession. Cambridge by Roger, K. L.	
Experiencing Architecture. 2nd Rev. Ed. Cambridge: MIT Press by Rasmussen, S.	
e-Learning Source:	
https://sdgs.un.org/goals	
https://www.who.int/health-topics/air-pollution	
https://www.conserve-energy-future.com/causes-effects-solutions-depletion-natural-resources.php#:~:text=Resource%20depletion%20happens%20when%20the,fishing%2C%20mining%2C%20logging%20etc.	
https://www.sciencedirect.com/science/article/abs/pii/S0360544220305168	

Course Articulation Matrix: (Mapping of COs with POs and PSOs)																		
PO-PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	PSO4	PSO6	PSO7
CO1	2	2	3	2	1	2	2	2					2	3	3	2		
CO2	2	2	3	2	2	2	2	2					2	2	3	3		
CO3	3	3	3	3	3	3	3	3					3	3	3	3		
CO4	2	2	1	2	2	2	2	2					2	2	1	2		
CO5	2	3	2	2	1	2	3	2					2	3	3	2		

1-Low Correlation; 2- Moderate Correlation; 3- Substantial Correlation

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Integral University, Lucknow

Effective from Session: 2019 - 2020							
Course Code	AR603	Title of the Course	Environmental Design-I	L	T	P	C
Year	I	Semester	I	2	-	5	7
Pre-Requisite	Nil	Co-requisite	Nil				
Course Objectives	To familiarize the students with environmentally responsive design						

Course Outcomes	
CO1	Theoretically understand design with climate as the basic parameter of design.
CO2	Students will learn a range of environmental, work-related and personal factors when deciding what makes a comfortable workplace temperature.
CO3	Analyze, troubleshoot, and implement solutions with climate as the basic parameter of design.
CO4	Assess and Review the condition of environment based on environment indicators
CO5	Prepare design strategies for different climatic regions

Unit No.	Title of the Unit	Content of Unit	Contact Hrs.	Mapped CO
1	Environment and Comfort	Global, macro and micro level climate, environmental aspects affecting human comfort	20	1
2	Building Physics	Energy balance of built environment; Thermal Environment; Adaptive model of Thermal Comfort and its application to environmental responsive design of buildings	20	1, 2
3	Case/ Literature Studies	Detailed Analysis of Buildings with respect to its thermal properties, environmental comfort factor	24	3, 4
4	Site Analysis	Study of case in detail	24	2, 4, 5
5	Design Exercise	Design of a multi-use built form - Office, Hotel, Apartment (and similar) taking into consideration the above design and assessment criteria) Suggested Exercise: <ul style="list-style-type: none"> ● Preparation of design schemes including analysis of prototypes ● Formulation of requirements, evolution of design criteria; and development of design for integrated building ● Complexes that address environmental issues 	24	3, 4, 5

Reference Books:	
A Design and Environment: An introductory manual by Vyas H. Kumar	
Climate Responsive Architecture: A Design Handbook for Energy Efficient Buildings by Arvind Krishan	
Environmental Science and Technology: Building Research Note by Central Building Research Institute	
Climate Design: Solution for buildings that can do more with less technology by Gerhard Hausladen.	
Climate responsive architecture by Arvind Krishnan	
Climate Design: Energy Efficient building principles and practices by Watson Donalt	
Man, Climate and Architecture, B.Givoni 5. Selected Research Papers and Studies	
e-Learning Source:	
https://www.researchgate.net/publication/43456525_Climate_Responsive_Architecture	
https://press.nid.edu/product/design-and-environment-a-primer/	
https://globalinch.org/bibliographyauthor/h-kumar-vyas/	
https://pdfgoes.com/downloads/	

Course Articulation Matrix: (Mapping of COs with POs and PSOs)																		
PO-PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	PSO4	PSO6	PSO7
CO1	3	2	1	2	2	1	3	1					3	3	2	1		
CO2	2	2	1	2	3	2	2	3					2	3	2	2		
CO3	3	2	3	3	2	3	2	3					2	3	3	1		
CO4	3	3	3	1	1	2	1	3					3	2	3	2		
CO5	3	3	3	3	3	3	3	3					3	3	2	1		

1-Low Correlation; 2- Moderate Correlation; 3- Substantial Correlation

<p>Ar. Khurram Ashraf Name & Sign of Program Coordinator</p>	<p>Sign & Seal of HoD</p>
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Integral University, Lucknow

Effective from Session: 2019 - 2020

Course Code	AR604	Title of the Course	Heritage-I (A)	L	T	P	C
Year	I	Semester	I	2	-	-	2
Pre-Requisite	Nil	Co-requisite	Nil				
Course Objectives	To Know Importance of Architectural Heritage & its Conservation						

Course Outcomes

CO1	To Know the importance of Architectural Heritage & its Conservation
CO2	Learning of International norms for Architectural Conservation
CO3	Understanding Classification of Monuments at local, national and international levels
CO4	Case Studies in Architectural Conservation
CO5	To make students conversant with the complete process of design: problem identification, formulation of requirement, evolution of a design criteria and preparation of the design proposals.

Unit No.	Title of the Unit	Content of Unit	Contact Hrs.	Mapped CO
1	Introduction	Importance of Architectural Heritage and its conservation.	4	1
2	Cultural Heritage Resource	Urban heritage; Tangible and Intangible Aspects	6	1
3	Norms For Architectural Conservation	National and International norms for Architectural Conservation and Preservation	8	2
4	Historic Building Materials & Structural Systems	Classification of Monuments at local, national and international levels	8	3
5	Heritage Buildings	Methods of heritage conservation, Case Studies in Architectural Conservation	6	4, 5

Reference Books:

- Conservation of Historic Buildings by M Feilden Bernard
- Heritage Buildings of India: Portfolio compiled from drawings and Sketches ...by Claude Batley
- Monuments of Delhi: Historical Study by R Nath
- World Monuments Watch 100 Most Endangered Sites-2002 by World Monuments

e-Learning Source:

- www.intach.org
- <https://www.india.gov.in/topics/art-culture/heritage>

Course Articulation Matrix: (Mapping of COs with POs and PSOs)

PO- PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
	CO1	-	2	-	1	2	-	3	2					1	2	3	1	
CO2	2	3	3	3	2	-	2	-					1	3	2	1		
CO3	3	2	3	2	-	2	2	-					2	2	3	1		
CO4	3	2	3	3	1	3	2	3					3	3	2	1		
CO5	3	2	2	2	1	1	3	2					3	2	2	2		

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Integral University, Lucknow

Effective from Session: 2019-2020							
Course Code	AR605	Title of the Course	Heritage-I (B)	L	T	P	C
Year	I	Semester	I	-	-	5	5
Pre-Requisite	Nil	Co-requisite	Nil				
Course Objectives	To Know Importance of Architectural Heritage & its Conservation						

Course Outcomes	
CO1	To Know the importance of Architectural Heritage & its Conservation.
CO2	Learning of International norms for Architectural Conservation.
CO3	Understanding Classification of Monuments at local, national and international levels.
CO4	Case Studies in Architectural Conservation.
CO5	To make students conversant with the complete process of design: problem identification, formulation of requirement, evolution of a design criteria and preparation of the design proposals.

Unit No.	Title of the Unit	Content of Unit	Contact Hrs.	Mapped CO
1	Introduction	Selection and analysis of building or contextual area regarding the conservation.	10	1, 2, 3
2	Literature study and site/building analysis	Site study in context of environment, norms, bye laws. Existing condition and analysis of site/building and mapping of issues.	16	1, 2, 3
3	Case studies	Relevant case studies to understand corresponding issues, design intervention and methodologies.	16	4
4	Data analysis and Design Interventions	Conceptual design, policy, methodology and interventions with evidence of logical argument and analysis of available information and issue mapping	16	5
5	Design Proposal	Final design/policy proposal	22	5

Reference Books:

Conservation of Historic Buildings by M Feilden Bernard

Heritage Buildings of India: Portfolio compiled from drawings and Sketches by Claude Batley

Monuments of Delhi: Historical Study by R Nath

World Monuments Watch 100 Most Endangered Sites-2002 by World Monuments

e-Learning Source:

www.intach.org

<https://www.india.gov.in/topics/art-culture/heritage>

Course Articulation Matrix: (Mapping of COs with POs and PSOs)

PO-PSO CO	Course Articulation Matrix: (Mapping of COs with POs and PSOs)																	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO4	PSO5	PSO6	PSO7
CO1	-	2	-	1	2	-	2	2					1	2	3	1		
CO2	2	3	3	3	2	-	1	-					1	3	2	1		
CO3	3	2	3	2	-	2	1	-					2	2	3	1		
CO4	3	2	3	3	1	3	1	3					3	3	2	1		
CO5	3	3	2	3	2	2	2	2					2	3	3	2		

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Integral University, Lucknow

Effective from Session: 2019 - 2020							
Course Code	AR606	Title of the Course	Architectural Education and Practice (A)	L	T	P	C
Year	I	Semester	I	2	-	-	2
Pre-Requisite	Nil	Co-requisite	Nil				
Course Objectives	To familiarize the students with teaching methodologies in architectural education						



Course Outcomes	
CO1	Introduction to the teaching methodologies in architectural education
CO2	Understanding importance of relationship between Architecture Education and Practice
CO3	New trends in Architectural Education
CO4	Knowledge of various tools used in teaching Architecture

Unit No.	Title of the Unit	Content of Unit	Contact Hrs.	Mapped CO
1	Introduction to Teaching Methodologies In Architectural Education	Chronological development of Architectural Education, Teaching methodologies in The English (British) system of Architectural Education, German system of Architectural Education and American system of Architectural Education	6	1
2	Elements of Architecture Education	Elements of Architecture Education, Identification of main discipline, Systematic organization of main disciplines into logical groups under Core, Associated and Allied description	6	2
3	Scope of Architecture Education	Interpretation of dynamics of Architecture observed during the studies of their period into the framing of teaching programs for the Architecture Education.	6	2
4	Review of Architecture Education In India	Understanding of the formal level of Architecture Education in India. Making the projection about the needs of the Architecture Education and future Architects to run the country	6	3
5	Practical Teaching	Observing the Classroom/studio teaching in live classes of B.Arch. and assisting teachers in their academic responsibilities relating to B. Arch programme	8	4

Reference Books:	
Narratives of Architectural Education-From Student to Architect: James Thompson	
Designing Better Architecture Education: Global Realities and Local Reforms: Manjari Chakraborty	
Spatial Design Education: New Directions for Pedagogy in Architecture and Beyond: Ashraf M. Salama	
e-Learning Source:	
https://architexturez.net/doc/az-cf-21231	
https://architexturez.net/doc/az-cf-168627	
https://www.arcc-journal.org/index.php/repository/article/download/252/194	
https://www.cambridge.org/core/journals/arq-architectural-research-quarterly/article/made-in-architecture-education-as-collaborative-practice/AA9E1D80014FCD7FCB0FF735E4FC6810	

Course Articulation Matrix: (Mapping of COs with POs and PSOs)																		
PO-PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1				3			2						3	2	2	2		
CO2				3			2						3	2	1	1		
CO3				3			2						2	2	1	2		
CO4				3			2						3	1	1	3		
CO5				3			2						3	2	1	2		

1-Low Correlation; 2- Moderate Correlation; 3- Substantial Correlation

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Integral University, Lucknow

Effective from Session: 2019-2020							
Course Code	AR607	Title of the Course	Architectural Education and Practice (B)	L	T	P	C
Year	I	Semester	I	-	2	-	2
Pre-Requisite	Nil	Co-requisite	Nil				
Course Objectives	To familiarize the students with the evolving teaching methodologies in architectural education.						


Course Outcomes	
CO1	Acquaintance with the different approaches of educational technology.
CO2	Acquaintance with the new educational technologies
CO3	Acquaintance with the evolving methodologies for teaching Architectural Design.
CO4	Acquaintance with the evolving methodologies for teaching Building Construction and History of Architecture.
CO5	Acquaintance with the evolving methodologies for teaching Services and Structures.

Unit No.	Title of the Unit	Content of Unit	Contact Hrs.	Mapped CO
1	Approaches of Educational Technology in Architectural Education	Different approaches of Educational Technology; Software Approach, Hardware Approach, System Approach and Multimedia Approach	6	1
2	Study of new Educational Technologies	Analytical study of new technologies in Architecture Education with their scope, advantages and limitations: Virtual Reality & Virtual Environments, Digital Studios/classroom, Mobile Applications based Learning, Digital Information Resources	6	2
3	Evolving Methodologies for Subjects Studied and Taught in Architecture-I	Evolving methodologies for subjects studied and taught in Architecture: Architectural Design	8	3
4	Evolving Methodologies for Subjects Studied and Taught in Architecture-II	Evolving methodologies for subjects studied and taught in Architecture: History of Architecture, Building Construction	6	4
5	Evolving Methodologies for Subjects Studied and Taught in Architecture-III	Evolving methodologies for subjects studied and taught in Architecture: Architectural Design, History of Architecture, Construction, Services, Structures	6	5

Reference Books:	
Narratives of Architectural Education-From Student to Architect: James Thompson	
Designing Better Architecture Education: Global Realities and Local Reforms: Manjari Chakraborty	
Spatial Design Education: New Directions for Pedagogy in Architecture and Beyond: Ashraf M. Salama	
e-Learning Source:	
https://www.sciencedirect.com/science/article/pii/S1110016819300511	
https://architexturez.net/doc/az-cf-168627	
https://www.arcc-journal.org/index.php/repository/article/download/252/194	
https://www.cambridge.org/core/journals/arq-architectural-research-quarterly/article/made-in-architecture-education-as-collaborative-practice/AA9E1D80014FCD7FCB0FF735E4FC6810	

Course Articulation Matrix: (Mapping of COs with POs and PSOs)																		
PO-PSO CO	PO 1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
	CO1				3			2						3	2	3	2	
CO2				3			2						2	1	2	3		
CO3				3			2						2	2	2	2		
CO4				3			2						3	2	3	3		
CO5				3			2						3	1	3	2		

1- Low Correlation; 2- Moderate Correlation; 3- Substantial Correlation

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Integral University, Lucknow

Effective from Session: 2019 - 2020

Course Code	AR608	Title of the Course	Computer Application	L	T	P	C
Year	I	Semester	I	1	1	-	2
Pre-Requisite	Nil	Co-requisite	Nil				
Course Objectives	<ul style="list-style-type: none"> To familiarize the students with basic research methodologies, data collection and its analysis. To enable them to expertise with forms, mapping, rendering and architectural work presentation techniques. 						

Course Outcomes

CO1	Analyzing requirements of architectural offices.
CO2	How to familiarize the students with basic research techniques and practice of Computer Applications in Architecture.
CO3	How to expertise in graphic applications specially 2 Dimensional and 3D Dimensional for fast and attractive presentation of theme and ideas.
CO4	To teach utilization and revisions of architectural computer Application in office uses.

Unit No.	Title of the Unit	Content of Unit	Contact Hrs.	Mapped CO
1	Introduction	Introduction, History and Scope of Digital Technologies in Architecture	6	1, 2, 3
2	Digital Applications Used in Creating a Built Environment	Applications used from Conception to construction of a built environment at micro and macro level: Presentation: Raster & vector graphics, Colour models, file formats and their usage, presentation techniques in Architectural graphics and Animations.	7	2, 3
3	Visualization as a Tool for Design	Visualization of complex forms, Digital Architecture, Parametric designing, Programming and scripting as tools for design, Designing, Drawing & detailing: Applications used for design processes and considerations.	8	2, 3, 4
4	Softwares in Industry	Softwares used in the AEC industry: CAD CAM & BIM applications, Digital Fabrication & Construction: Applications and fabrication techniques.	7	2, 3, 4
5	Digital Applications Trends	Building automation & Intelligent building concepts Energy modeling applications, Understanding Photoshop, Corel Draw and GIS.	4	3, 4

Reference Books:

Introduction to AutoCAD 2006 A Modern Perspective by Paul Richard

Powerpoint 2000 for Beginners by Alexis Leon

Photoshop 7: Savy by Steve Romaniello

Exploring Microsoft office XP:Maximize your productivity with the newest By John Breeden

e-Learning Source:

<http://www.focusnet.co.uk/cib/library/physdishous94.htm>

<http://www.ourvirtualmall.com/cloth.htm>

<http://www.ddimagazine.com/>

Course Articulation Matrix: (Mapping of COs with POs and PSOs)

PO-PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
	CO1	3	3	3	1	1	1	3	3					1	1	3	2	
CO2	2	3	3	2	2	2	3	3					3	3	3	3		
CO3	3	3	3	2	1	2	2	3					2	2	1	1		
CO4	3	3	3	2	2	3	3	3					2	2	3	3		

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Integral University, Lucknow

Effective from Session: 2019 - 2020							
Course Code	AR609	Title of the Course	Psychology as related to teaching methods and learning	L	T	P/S	C
Year	I	Semester	II	2	-	-	2
Pre-Requisite	Nil	Co-requisite	Nil				
Course Objectives	Creating an understanding of the term Psychology and its use in the profession of Architecture with emphasis on teaching methods and learning						



Course Outcomes	
CO1	To understand the term Psychology and its use in the profession of Architecture
CO2	To understand psychology with emphasis on teaching methods and learning
CO3	To understand the concept, scope of psychology and its organizational setting
CO4	To understand the factors affecting individual and group dynamics, Values at Personal/ National level, Assessment & Evaluation Techniques
CO5	To know about values, Assessment & Evaluation Techniques

Unit No.	Title of the Unit	Content of Unit	Contact Hrs.	Mapped CO
1	Principles of teaching	Principles of teaching, Psychological/ Sociological foundations, Methodology of teaching/ research	6	1, 2
2	Scope of Psychology	Concepts, methods and scope of Psychology, Motivation, Intelligence and creativity	6	2, 3
3	Personality Development	Attitude and Aptitude, Self and personality, Psychology in organizational setting	6	3, 4, 5
4	Learning Dynamics	Factors affecting individual and group dynamics, Values at Personal/ National level, Assessment & Evaluation Techniques	7	2, 3,4
5	Architecture Psychology	Introduction to the Psychology of Architecture; Meaning and Definition, Development	7	4, 5

Reference Books:	
Introduction to Psychology by Morgan and King	
Psychology for Architects by David V Canter	
e-Learning Source:	
https://www.verywellmind.com/what-is-educational-psychology-2795157#:~:text=Educational%20psychology%20is%20the%20study,influences%20on%20the%20learning%20process.	
https://www.frontiersin.org/articles/10.3389/fpsyg.2021.711489/full	
chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://archive.mu.ac.in/myweb_test/SYBA%20Study%20Material/edu-II%20psycho.pdf	
https://www.psychologydiscussion.net/notes/psychology-notes/educational-psychology-psychology-notes/top-6-methods-of-educational-psychology/2373	
https://research-education-edu.blogspot.com/2008/11/education-psychology-method-of.html	

Course Articulation Matrix: (Mapping of COs with POs and PSOs)																		
PO-PSO CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO10	PO11	PO12	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	2	3	3	1	1	2	3	2					2	3	1	2		
CO2	-	3	3	2	-	3	2	2					2	3	1	1		
CO3	3	3	3	3	2	2	1	2					2	3	1	2		
CO4	-	3	3	2	-	3	2	2					3	3	2	3		
CO5	3	3	3	3	2	2	1	2					3	2	2	2		

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Integral University, Lucknow

Effective from Session: 2019 - 2020

Course Code	AR610	Title of the Course	Resource Management	L	T	P	C
Year	I	Semester	II	2	-	-	2
Pre-Requisite	Nil	Co-requisite	Nil				
Course Objectives	To study and familiarize with basic management principles in resource planning for sustainable development.						

Course Outcomes

CO1	Identify the scope and classification of the resource management activities and expenditures.
CO2	Understand the importance of resources available and its current condition also the potential and constraint related to it.
CO3	Know the vernacular resource planning and identify the issues and challenges.
CO4	Understand the several ways to conserve the resources available.
CO5	Develop a systematic and methodological approach for resource management.

Unit No.	Title of the Unit	Content of Unit	Contact Hrs.	Mapped CO
1	Introduction	Definitions of Resources , Characteristics of Resources	6	4
2	Resource Classification	Resource identification and classification, Analytic study of important resources like Land, Water, Energy, Finance and Manpower- there present scenario, constraints and future prospects	6	2
3	Value of Resources	Availability, Utility, Fiscal Value, Industrial Value	8	3
4	Resource Optimization	Key issues and recent trends in resource planning , Conservation and Optimization of major resources	6	1, 2
5	Resource Management	Need for the Management of Resources, Basic Techniques of Resource Management, Systems approach in resource management,	6	1, 2, 3

Reference Books:

- A Design and Environment: An introductory manual by Vyas,H Kumar
- Climate Responsive Architecture: A Design Handbook for Energy Efficient Buildings by Arvind Krishan
- Environmental Science and Technology: Building Research Note by Central Building Research Institute
- Climate Design: Solution for buildings that can do more with less technology by Gerhard Hausladen.

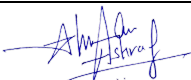

e-Learning Source:

- <https://www.globus.org/sites/default/files/gram97.pdf>
- https://www.researchgate.net/publication/3801486_A_distributed_resource_management_architecture_that_supports_advance_reservations_and_co-allocation
- https://www.ripublication.com/ijcer_spl/ijcerv5n4spl_21.pdf
- <https://core.ac.uk/download/pdf/36719077.pdf>

Course Articulation Matrix: (Mapping of COs with POs and PSOs)

PO-PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	2	3	3	3	3	2	3	3					3	2	3	3		
CO2	2	3	3	2	3	3	3	2					3	3	3	2		
CO3	3	3	2	1	3	3	3	3					3	3	3	3		
CO4	3	2	2	3	3	2	2	3					3	2	2	3		
CO5	3	3	3	3	3	2	2	3					3	2	2	3		

1-Low Correlation; 2- Moderate Correlation; 3- Substantial Correlation

 Ar. Khurram Ashraf Name & Sign of Program Coordinator	 Sign & Seal of HoD
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Integral University, Lucknow

Effective from Session: 2019 - 2020							
Course Code	AR611	Title of the Course	Environmental Design – II	L	T	P	C
Year	I	Semester	II	2	-	5	7
Pre-Requisite	AR603	Co-requisite	Nil.				
Course Objectives	<ul style="list-style-type: none"> To expose students to general understanding of the construction sector in India and the best practices in construction technology relating to environmental design. Design of complex buildings incorporating eco-friendly, energy saving and cost-effective materials and technologies. 						

Course Outcomes

CO1	Understanding of the construction sector in India.
CO2	Understanding of new, innovative and sustainable materials.
CO3	Understanding the impact of existing materials and technologies on the environment and the ecosystem.
CO4	Understanding of worldwide trends in the field of eco-friendly materials and technologies and their effectiveness in the Indian context.

Unit No.	Title of the Unit	Content of Unit	Contact Hrs.	Mapped CO
1	Introduction	General understanding of the construction sector in India, Best practices in construction technology.	20	1
2	Energy Efficient Materials	Study of new, innovative and energy effective building materials	20	2
3	Case/ Literature Studies	Detailed Analysis of Worldwide trends in the field of eco-friendly materials and technologies and their effectiveness in the Indian context	24	3
4	Site Analysis	Study of case in detail	24	2, 4, 5
5	Design Exercise	Design of complex buildings incorporating eco-friendly, energy saving and cost-effective materials and technologies	24	4

Reference Books:

- Energy efficient buildings in India by Mili Majumdar
- Sol Power by Sophia and Stefen Behling
- Solar energy in Architecture and urban planning by Thomos Herzog
- Climate responsive architecture by Arvind Krishan



e-Learning Source:

- https://www.researchgate.net/publication/347933554_What_is_environmental_design
- https://www.researchgate.net/publication/327043854_origin_and_development_of_environmental_design
- http://www.unicri.eu/news/files/2011-04-01_110414_CRA_Urban_Security_sm.pdf

Course Articulation Matrix: (Mapping of COs with POs and PSOs)

PO-PSO CO	Course Articulation Matrix: (Mapping of COs with POs and PSOs)																	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO4	PSO5	PSO6	PSO7
CO1	1	1	1				3	1					1	1	1	2		
CO2	2	2	2	1	2		3	2					2	2	2	2		
CO3	2	3	3			3	2	3					2	3	3	1		
CO4	3	3	3	2	2	3	3	3					2	3	3	1		

1-Low Correlation; 2- Moderate Correlation; 3- Substantial Correlation

 Ar. Khurram Ashraf Name & Sign of Program Coordinator	 Sign & Seal of HoD
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Integral University, Lucknow

Effective from Session: 2019 - 2020							
Course Code	AR612	Title of the Course	Heritage -II (A)	L	T	P	C
Year	I	Semester	II	2	-	-	2
Pre-Requisite	Nil	Co-requisite	Nil				
Course Objectives	To introduce and familiarize the students with the working of conservation systems and practices being followed nationally and internationally.						


Course Outcomes	
CO1	To understand the various techniques being followed globally.
CO2	To make students understand the national and international conservation laws.
CO3	To make students understand the financial feasibility of conservation projects.
CO4	To analyze the statistical application of data required for conservation projects.
CO5	to understand the ethics and duties of conservation architects.

Unit No.	Title of the Unit	Content of Unit	Contact Hrs.	Mapped CO
1	Global Conservation Techniques	Familiarization with various conservation techniques being followed globally	7	1
2	Conservation Laws	Introduction to National and International Conservation laws, Familiarization with the working of Archeological Survey of India, Creating an in-depth understanding about the rehabilitation of the historical building	7	2
3	Economics of Conservation	Introduction to the economics of conservation	6	3
4	Research and Documentation	Introduction to research, analysis and recording as related to conservation.	6	4
5	Conservation Ethics	Introduction to the principles of conservation of historical gardens, Understanding the duties and works of a Conservation Architect Project formulation techniques for major Conservation Projects	6	4, 5

Reference Books:
Guidelines for conservation –a technical manual by Feilden, Bernard,
Conservation of historical buildings by Feilden, Bernard,
Rearchitecture- old buildings/ new uses by Sherban Centacuzino
Journal of architectural conservation (UK)
e-Learning Source:
https://www.gutenberg.org/ebooks/66794
https://www.publicationsdivision.nic.in/index.php?route=product/product&product_id=2561

Course Articulation Matrix: (Mapping of COs with POs and PSOs)																		
PO-PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO4	PSO5	PSO6	PSO7
CO1	3	1	2	1	1	2	3						1	1	2	3		
CO2	1	3	2	1	3	2	1						3	3	2	1		
CO3	1	2	2	3	3	1	1						2	3	1	1		
CO4	2	2	3	2	2	2	1						2	2	2	2		
CO5	2	2	1	2	2	1	1						2	2	1	2		

1-Low Correlation; 2- Moderate Correlation; 3- Substantial Correlation

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Integral University, Lucknow

Effective from Session: 2019 - 2020

Course Code	AR613	Title of the Course	Heritage II (B)	L	T	P	C
Year	I	Semester	II	-	-	5	5
Pre-Requisite	AR605	Co-requisite	AR612				
Course Objectives	To impart practical understanding of conservation works						

Course Outcomes

CO1	Employ qualitative, quantitative, and mixed research methodologies to conduct research in architecture.
CO2	Apply the research process to problems in architectural design and planning.
CO3	Master the literature in students' particular area of interest.
CO4	Design a research study using relevant approaches and methods.
CO5	Critically read, interpret, and evaluate research proposals and publications.

Unit No.	Title of the Unit	Content of Unit	Contact Hrs.	Mapped CO
1	National Heritage Sites	Detailed study of heritage sites of national importance.	14	2, 3, 4
2	International Heritage sites	Detailed study of heritage sites of international importance.	14	2, 3, 4
3	Case Studies national monuments	Case studies relating to conservation and rehabilitation of Indian monuments.	17	3, 4, 5
4	Case studies international monuments	Case studies relating to conservation and rehabilitation of international monuments.	17	3, 4, 5
5	Documentation	Preparation of detailed project report pertaining to conservation of a monument listed by ASI.	18	1, 2, 3, 4, 5

Reference Books:

- Guidelines for conservation –a technical manual by Feilden, Bernard
- Conservation of historical buildings by Feilden, Bernard
- Re Architecture- old buildings/ new uses by Sherban Centacuzino
- Journal of architectural conservation (UK)
- Conservation in the Tropics by O. P. Agarwal
- Champaner- pavagadh cultural sanctuary, Gujarat, India – University of Illinois at Urbana
- Journal of architectural conservation (UK)

e-Learning Source:

- <https://www.tandfonline.com/toc/uarc20/current>
- <https://www.tandfonline.com/action/journalInformation?show=aimsScope&journalCode=uarc20>
- https://www.researchgate.net/publication/315445786_Champaner-Pavagadh_Cultural_Sanctuary_Gujarat_India
- <https://issuu.com/amitasinha/docs/champaner-pavagah>

Course Articulation Matrix: (Mapping of COs with POs and PSOs)

PO- PSO CO	Course Articulation Matrix: (Mapping of COs with POs and PSOs)																	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	PSO4	PSO6	PSO7
CO1	3	2	1	2	3	2	1	2					2	2	2	3		
CO2	2	3	3	2	2	2	2	2					2	2	1	3		
CO3	2	2	2	3	2	3	2	2					1	2	2	3		
CO4	1	3	2	3	2	2	2	3					2	3	2	3		
CO5	3	2	1	2	1	1	1	1					2	2	1	3		

1-Low Correlation; 2- Moderate Correlation; 3- Substantial Correlation

<p>Ar. Khurram Ashraf Name & Sign of Program Coordinator</p>	<p>Sign & Seal of HoD</p>
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Integral University, Lucknow

Effective from Session: 2019-2020							
Course Code	AR614	Title of the Course	Seminar: Contemporary Trends from Magazines and Journals (A)	L	T	P	C
Year	I	Semester	II	2			2
Pre-Requisite	Nil	Co-requisite	Nil				
Course Objectives	To impart thorough knowledge with the help of seminars and joint discussion about Contemporary trends in architecture in India and abroad.						

Course Outcomes	
CO1	To develop clear- cut understanding of contemporary design
CO2	To Understand the building type, style and architectural technologies
CO3	To understand contemporary trends in building materials and techniques
CO4	To know qualitative assessment of modernistic architecture
CO5	Know the development in the modern period with emphasis on the underlying parameters, philosophy, intentions and expressions of associated periods/ movements as a response to the context of time, location and aspirations

Unit No.	Title of the Unit	Content of Unit	Contact Hrs.	Mapped CO
1	Contemporary design thinking	Developing clear- cut understanding of contemporary design thinking and methods	4	1,2
2	Architectural technologies	Developing clear- cut understanding of architectural technologies	8	2,3
3	Contemporary techniques	Contemporary trends in building materials and techniques	8	2,3
4	Modernistic architecture	Qualitative assessment of modernistic architecture	6	4
5	Analytical study of contemporary architects	Analytic study of important works of contemporary Indian Architects like B.V.Doshi, Charles Correa, A.P. Kanvinde, Raj Rewal etc.	6	5

Reference Books:


Contemporary Indian architects- After the Masters by Vikram Bhatt & Peter Scriver
 Lauri Baker by Gautam Bhatia
 The complete architecture of Bal Krishna Doshi by James Steele
 Rajrewal by brian Brace Taylor
 Doing Your Research Project by Judith Bell
 Architectural Research Methods by Groat, Linda and David Wang..
 Visual Research Methods in Design. by Sanoff, H. (1991).
 Technical Communications – Principles and Practices by Raman Meenakshi and Sharma Sangeeta,
 A manual for Writers of Research Papers, Theses and Dissertation by Kate L.Tourabian,

e-Learning Source:

Research Methodology: <https://archive.nptel.ac.in/courses/127/106/127106227/>
 Qualitative Research Methods & Research Writing: <https://archive.nptel.ac.in/courses/127/105/109105115/>
 Methodology of Design Research: <https://archive.nptel.ac.in/courses/107/108/107108011/>

PO-PSO CO	Course Articulation Matrix: (Mapping of COs with POs and PSOs)																	
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO 1	PSO2	PSO3	PSO4	PSO5	PSO 6
CO1	-	2	3	3	-	3	3	2					3	3	1	1		
CO2	1	1	3	2	1	-	2	3					3	2	3	2		
CO3	-	3	3	3	1	-	2	3					3	3	3	2		
CO4	-	2	2	1	3	-		3					2	2	2	3		
CO5	-	1	2	3	-	2	3	3					3	1	3	3		

1-Low Correlation; 2- Moderate Correlation; 3- Substantial Correlation

 Ar. Khurram Ashraf Name & Sign of Program Coordinator	 Sign & Seal of HoD
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Integral University, Lucknow

Effective from Session: 2019 - 2020

Course Code	AR615	Title of the Course	Seminar: Contemporary Trends from Magazines and Journals (B)	L	T	P	C
Year	I	Semester	II	-	2	-	2
Pre-Requisite	AR614	Co-requisite	Nil				
Course Objectives	To developing understanding of contemporary design thinking and methods.						

Course Outcomes

CO1	To develop clear understanding of contemporary design.
CO2	To analyze important works of contemporary Indian Architects.
CO3	To analyze important works of contemporary International Architects.
CO4	To review latest construction technologies.
CO5	Students will learn documentation and report writing

Unit No.	Title of the Unit	Content of Unit	Contact Hrs.	Mapped CO
1	Contemporary Design Thinking	Developing clear- cut understanding of contemporary design thinking and methods, developing clear- cut understanding of architectural technologies, Contemporary trends in building materials and techniques.	6	1
2	Renowned Indian Architects	Analytic study of important works of contemporary Indian Architects like B.V.Doshi, Charles Correa, A.P. Kanvinde, Raj Rewal, etc.	5	2
3	Renowned International Architects	Analytic study of important works of contemporary International Architects like Le Corbusier.	8	3
4	Construction Technologies	Review of latest construction technologies being pursued at national and international level.	8	4
5	Seminar Report	Documentation and report writing	5	5

Reference Books:

- Architecture in the twentieth century by Peter Gossel and Gabriele
- Frank Lloyd Wright by Robert Mc Carter
- International Architecture - Year book: 8
- Building services journal (UK)
- Architectural Research (UK)

e-Learning Source:

- <https://whc.unesco.org/en/list/1321/#:~:text=These%20include%20the%20Villa%20Savoye,the%20Cabanon%20de%20Le%20Corbusier>
- <https://www.re-thinkingthefuture.com/top-architects/a271-15-works-of-b-v-doshi-every-architect-should-visit/>

Course Articulation Matrix: (Mapping of COs with POs and PSOs)

PO- PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
	CO1	1	3	3	2	1	2	2	3					3	1	2	2	
CO2	1	2	2	1	1	3	2	2					3	1	2	2		
CO3	2	2	2	2	1	3	2	1					3	1	3	2		
CO4	1	3	3	1	2	3	2	2					3	1	3	2		
CO5	3	3	2	1	1	3	2	3					3	1	3	2		

1-Low Correlation; 2- Moderate Correlation; 3- Substantial Correlation

<p>Ar. Khurram Ashraf Name & Sign of Program Coordinator</p>	<p>Sign & Seal of HoD</p>
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Integral University, Lucknow

Effective from Session: 2019 - 2020							
Course Code	AR616	Title of the Course	Philosophy	L	T	P/S	C
Year	I	Semester	II	1	1	-	2
Pre-Requisite	Nil	Co-requisite	Nil				
Course Objectives	Creating an understanding of the term Philosophy and its specific use in Architecture profession.						

Course Outcomes	
CO1	To create an understanding of the term Philosophy
CO2	To understand the role of Philosophy and its specific use in Architecture profession
CO3	To know the ideologies of prominent philosophers
CO4	To understand the ethics required in architecture and planning
CO5	To know the concept and issues in environmental philosophy and design

Unit No.	Title of the Unit	Content of Unit	Contact Hrs.	Mapped CO
1	Introduction	Origin and meaning of the term- philosophy, Philosophy- Nature and scope, Branches of philosophy, Theory of knowledge and Theory of Reality (Epistemology and metaphysics)	6	1, 2
2	Realism and Idealism	Introduction to Realism- Theories of Indian, Western & Greek Philosophy	6	2, 3
3	World Famed Philosophers	Ideologies of world famed Philosophers like Aristotle, Plato and Socrates	6	3, 4, 5
4	Ethics and Logics	Introduction to Ethics and logic, use of logic in designing and planning, Aesthetics and Ethics	7	2, 3, 4
5	Design and Environmental Philosophy	Concepts and issues in environmental philosophy, Creating an understanding of design philosophy	7	4, 5

Reference Books:


- An Introduction to Philosophy By Patric
- Introduction to Indian Philosophy By Dutta and Chatterjee
- Philosophy and Architecture By Michael H. Mitias

e-Learning Source:

- <https://nptel.ac.in/courses/107104078>
- <https://archive.nptel.ac.in/courses/107/104/107104078/>
- <https://nptel.ac.in/courses/124107004>

Course Articulation Matrix: (Mapping of COs with POs and PSOs)																		
PO-PSO CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	2	3	3	1	1	2	3	2					2	3	1	2		
CO2	2	3	3	1	1	3	2	2					2	3	2	2		
CO3	-	3	3	2	-	3	2	2					2	3	1	2		
CO4	3	3	3	3	2	2	1	2					2	3	1	2		
CO5	3	3	3	3	2	2	1	2					3	2	2	2		

1-Low Correlation; 2- Moderate Correlation; 3- Substantial Correlation

 Ar. Khurram Ashraf Name & Sign of Program Coordinator	 Sign & Seal of HoD
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