COURSE	CORE	COURSE AREA	COURSE TYPOLOGY	NAME OF THE COURSE	TEACHING SCHEME				EVALUATION SCHEME							TOTAL MARKS	EXAM DURATION (HRS)
									THEORY				STUDIO				
					L	T	S	CREDIT	2-TERM EXAM 20%	TA 20% OR 50%	ESUE 40% OR 50%	TOTAL	TA 10% OR 50%	EV 10% OR 50%	TOTAL		
THEORY/STUDIO									INT	EX		INT	EX				
ARCG719	SEC	SU	THEORY /STUDIO	ELECTIVE- VII (POOL III) /GENERIC			3	3	20	30	50	100	50		50	150	

L - THEORY, S- STUDIO, T -TUTORIAL, C - CREDIT, HRS HOURS, MST - MIDTERM TEST, A.MST - AVERAGE OF MIDTERM, ESUE - END SEMESTER UNIVERSITY EXAMINATION, IA - INTERNAL ASSESSMENT PROGRESSIVE, SS- FOLIO FINAL Sessional (INTERNAL), EV - EXTERNAL VIVA VOICE, RVW - INTERMEDIATE REVIEW

ARCG 719: ELECTIVE – VII

Syllabus: 15 weeks (2 hours/week) Total Teaching hours: 30 Hrs.

7 Sem		**ELECTIVE VII**
	719.1	Disaster management

COURSE OBJECTIVES:

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

COURSE OUTCOME:

EXPECTED SKILLS / KNOWLEDGE TRANSFERRED:

better grooming than just books and theories.

COURSE OVERVIEW:

The following is a representative list of Institute projects: Seminars, Tutorials/ additional classes for any course, Guest Lectures, and Workshops, which provides knowledge to support student being sensitive to design;

COURSE CONTENTS:

SR. NO.	SYLLABUS: TOPIC	SUBTOPIC	TEACHING HOURS:
1		The creative electives provide an opportunity to express talents that are different from architecture but related to imagination, visualization & creation. They offer hands-on experience of unique ingenuity & workmanship. The essence of a creative domain can be achieved by exploring different materials, techniques, and processes; developing creative products; finishing & presenting the product for the concepts that evolved. The outcome will be through portfolio & presentations. • As Per Pool Electives Choices Stage II odd semester pool	5 hrs @ each class

GUIDELINES

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

NOTE: Evaluation is to be done through viva voce, Portfolios after the university exam shall be retained at the Institute level for the viva–voice

COURSE OBJECTIVES:

In the face of climate change, the occurrence of natural disasters has become more frequent, influencing livelihoods and the existence of human civilization.

COURSE OUTCOME:

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

- overall nurturing of the student with issues in practice and field outside better grooming than just books and theories.
- In this context, this course is designed to provide an overview of the occurrence, causes and consequences of disaster and an understanding of fundamental concepts and application of disaster-resilient design.

ARCG 719: ELECTIVE – VII

COURSE	CORE	COURSE AREA	COURSE TYPOLOGY	NAME OF THE COURSE	TEACHING SCHEME				EVALUATION SCHEME							TOTAL MARKS	EXAM DURATION (HRS)
									THEORY				STUDIO				
					L	T	S	CREDIT	2 -TERM EXAM 20%	TA 20% OR 30%	ESUE 40% OR 50%	TOTAL	TA 10% OR 50%	EV 10% OR 50%	TOTAL		
THEORY/STUDIO									INT	EX		INT	EX				
ARCG719	SEC	SU	THEORY /STUDIO	ELECTIVE- VII (POOL III) /GENERIC			3	3	20	30	50	100	50		50	150	

L - THEORY; S- STUDIO, T -TUTORIAL; C - CREDIT; HRS: HOURS, MST - MIDTERM TEST, A MST - AVERAGE OF MIDTERM, ESUE - END SEMESTER UNIVERSITY EXAMINATION; IA - INTERNAL ASSESSMENT PROGRESSIVE, SS- FOLIO FINAL Sessional (INTERNAL), EV - EXTERNAL VIVA VOICE, RVW - INTERMEDIATE REVIEW

- The first module introduces the scenario of hazards caused due to natural disasters and provides a brief insight into disaster mitigation and management.

COURSE OVERVIEW:
Two modules cover the causes, impact and performance of structures, retrofitting and strengthening of existing structures both for cyclones and earthquakes exclusively. The other two modules deal with basic principles, simulation techniques, design considerations, adaptable building construction techniques, codes and practices separately for cyclone and earthquake-resilient buildings.

COURSE CONTENTS:

SR. NO.	SYLLABUS: TOPIC	SUBTOPIC	TEACHING G HOURS:
1		A brief introduction to different types of natural disasters, Occurrence of disasters in different climatic and geographical regions, hazard (earthquake and cyclone) map of the world and India, Regulations for disaster risk reduction, Post-disaster recovery and rehabilitation (socioeconomic consequences) - case studies.	**8 hrs**
2		Climate change and its impact on the tropical cyclone, Nature of cyclonic wind, velocities and pressure, Cyclone effects, Storm surge, Floods, and Landslides. The behaviour of structures in past cyclones and wind storms, case studies. Cyclonic retrofitting, strengthening of structures and adaptive sustainable reconstruction. Lifeline structures such as temporary cyclone shelters.	**8 hrs**
3		Basic wind engineering, the aerodynamics of bluff bodies, vortex shedding and associated unsteadiness along and across wind forces. Lab: Wind tunnel testing, its salient features. Introduction to Computational fluid dynamics. General planning/design considerations under wind storms & cyclones; Wind effects on buildings, towers, glass panels etc, & wind resistant features in the design. Codal Provisions, design wind speed, pressure coefficients; Coastal zoning regulation for construction & reconstruction phase in the coastal areas, innovative construction material & techniques, and traditional construction techniques in coastal areas.	**8 hrs**
4		Causes of the earthquake, plate tectonics, faults, seismic waves; magnitude, intensity, epicentre, energy release and ground motions. Earthquake effects – On the ground, soil rupture, liquefaction, landslides. Performance of ground and building in past earthquakes: Behaviour of various types of buildings, structures, and collapse patterns; Behaviour of Non-structural elements like services, fixtures, mountings-case studies. Seismic retrofitting- Weakness in existing buildings, ageing, concepts in repair, restoration and	**8 hrs**

ARCG 719: ELECTIVE – VII

COURSE	CORE	COURSE AREA	COURSE TYPOLOGY	NAME OF THE COURSE	TEACHING SCHEME				EVALUATION SCHEME							TOTAL MARKS	EXAM DURATION (HRS)
									THEORY				STUDIO				
					L	T	S	CREDIT	2-TERM EXAM 20%	TA 20% OR 30%	ESUE 40% OR 50%	TOTAL	TA 10% OR 50%	EV 10% OR 50%	TOTAL		
THEORY/STUDIO									INT	EX		INT	EX				
ARCG719	SEC	SU	THEORY /STUDIO	ELECTIVE- VII (POOL III) /GENERIC			3	3	20	30	50	100	50		50	150	

L - THEORY; S- STUDIO, T -TUTORIAL, C - CREDIT; HRS HOURS, MST - MIDTERM TEST, A MST - AVERAGE OF MIDTERM, ESUE - END SEMESTER UNIVERSITY EXAMINATION; IA - INTERNAL ASSESSMENT PROGRESSIVE, SS- FOLIO FINAL Sessional (INTERNAL), EV - EXTERNAL VIVA VOICE, RVW - INTERMEDIATE REVIEW

	seismic strengthening.	
5	General Planning and design consideration; Building forms, horizontal and vertical eccentricities, mass and stiffness distribution, soft storey etc.; Seismic effects related to building configuration. Plan and vertical irregularities, redundancy and setbacks. Various Types and Construction details of Foundations, soil stabilization, retaining walls, plinth fill, flooring, walls, openings, roofs, terraces, parapets, boundary walls, under-ground - overhead tanks, staircases and isolation of structures; innovative construction material and techniques; Local practices: traditional regional responses; Computational investigation techniques.	**8 hrs**

SUGGESTED READINGS:

Abbott, L. P. (2013). Natural disasters. 9th Ed. McGraw-Hill.
Aga Khan Award for Architecture. Ed. Shelter. (1996).
The Access to Hope. AKDN,
Istanbul and Geneva. Agarwal, P. and Shrikhande, M. (2009). Earthquake Resistant Design of Structures. New Delhi: PHI Learning.
Alcantara, A. I. and Goudie, A. (2010). Geomorphological Hazards and Disaster Prevention. Cambridge: CUP.
Bankoff, G., Frerks, G. and Hilhorst, D. (2004). Mapping Vulnerability: Disasters, Development and People. London: Earthscan.
Burby, R. J. (1998). Cooperating with Nature. Confronting Natural Hazards with Land-Use Planning for Sustainable Communities. Washington: Joseph Henry Press. Christopher, A. and Reitherman, R. (1982). Building configuration and Seismic Design. John Wiley & Sons Inc.
Dutta, S. C. and Mukhopadhyay, P. (2012). Improving Earthquakes and Cyclone Resistance of Structures: Guidelines for the Indian Subcontinent. TERI.
Dyrbye, C. D., Dyrbye, C. and Dyrbye, C. (1997). Wind Loads on Structures. John Wiley.
Foote, K. (2003). Shadowed Ground: How Americans deal with Places of Tragedy. Austin: the University of Texas Press.
Holmes, J. D. (2007). Wind Loading of Structures. 2nd Ed. Taylor & Francis. ICIMOD. (2007). Disaster Preparedness for Natural Hazards: Current Status in India. Kathmandu: ICIMOD. Judy, L. B. (2012). Climate change, Disaster Risk and the urban poor – cities building resilience for a changing world. Washington DC: The World Bank. Lee, B. Ed. (2008). Hazards and the Built Environment: Attaining Built-In Resilience. Oxon: Taylor and Francis. McDonald, R. (2003). Introduction to Natural and Man-made Disasters and their Effects on Buildings. Burlington: Architectural Press. Oxford University Press. (2000). Confronting Catastrophe: New Perspectives on Natural Disasters. London: OUP.
Singh, P. P. and Sharma, S. (2006). A modern dictionary of natural disasters. Deep & Deep Publications.
Smith, B. S. and Coull, A. (2001). Tall Building Structures: Analysis and Design. Willey– Inderscience.
Simiu E. and Scanlan R. H. (1996). Wind Effects on Structures-Fundamentals and Applications to Design. 3rd Edn., John Wiley.
Sinha, P. C. (2006). Disaster Mitigation, preparedness, recovery and Response. New Delhi: SBS Publishers.
Talwar, A. K. and Juneja, S. (2009). Cyclone Disaster Management. Commonwealth Publishers. Taranath, B. S. (2004). Wind and Earthquake Resistant Buildings: Structural Analysis and Design. CRC Press.
Thomas, F. (2013). Designing to avoid disaster: The Nature of Fracture-Critical Design. London: Routledge. Pelling, M. (2003). The Vulnerability of Cities: Social Resilience & Natural Disaster. London: Earthscan.
U.N.D.P. (2004). Reducing Disaster Risk: A Challenge for Development. New York: UNDP.
World Bank. (2009). Handbook for Reconstructing after Natural Disasters.