

# **FACULTY OF PHYSICAL PLANNING & ARCHITECTURE**

## **SYLLABUS**

### **FOR**

### **Pre Ph.D. Course in ARCHITECTURE (Credit Based Evaluation and Grading System) (Semester: I-II)**

**Examinations: 2019-20**



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**GURUNANAKDEVUNIVERSITY  
AMRITSAR**

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## Pre Ph.D. Course in Architecture

| Course Code                                                                                               | Course Title                                     | Course Type | Credits | L  | T  | U | Duration of Exam |
|-----------------------------------------------------------------------------------------------------------|--------------------------------------------------|-------------|---------|----|----|---|------------------|
| ARL-901                                                                                                   | Research Methodology in Architecture             | DC          | 03      | 02 | 01 | 0 | 03Hrs            |
| ARL-905                                                                                                   | Climate Responsive Built Environment             | DC          | 03      | 02 | 01 | 0 | 03Hrs            |
| ARL-906                                                                                                   | Contemporary Trends in Architecture and Planning | DC          | 03      | 02 | 01 | 0 | 03Hrs            |
| TOTAL                                                                                                     |                                                  |             | 09      | 06 | 03 | 0 |                  |
| Note: Ph.D. Students may opt for courses at M.Phil/ M.Tech/Post Graduate level courses in any department. |                                                  |             |         |    |    |   |                  |

## Semester-II

|         |         |    |    |   |   |   |              |
|---------|---------|----|----|---|---|---|--------------|
| ARS-904 | Seminar | DC | 01 | 0 | 0 | 0 | Presentation |
|---------|---------|----|----|---|---|---|--------------|

**Note: Evaluation of ARS-904 shall be Satisfactory/ Unsatisfactory Only**

Pre Ph.D. Course in Architecture

**ARL-901: Research Methodology in Architecture**

Time: 3Hrs.

**Credits:03(L=02,T=1,U=0)**

**Total Marks: 100**

**Mid Semester Examination: 20% weightage (Marks:20)**

**End Semester Examination: 80 % weightage (Marks: 80)**

**Instructions for the Paper Setter**

Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

**Cours Contents:**

**SECTION - A**

Definition and need of Research, scientific methods, system approach of research major steps in the conduct of scientific research, induction, deduction and verification, Levels of research- micro and macro. There search process, sources of research ideas, research types, pure, applied, exploratory, descriptive, explanatory, experimental, qualitative, quantitative, longitudinal and cross sectional or comparative research.

**SECTION - B**

Theory Development: what is theory ? Types of theory, role of theory in science, characteristics of good theory, developing and testing of theories. Reviewing of literature.

**SECTION - C**

Formulatio of hypothesis, testing of hypothesis-meaning, importance and methods such as t-test, chi-square test, correlation and regression analysis-meaning, types, importance, methods of measurement, selection and formulation of research problems, preparing of research design, preparation of questionnaire, scaling, sampling, pre-test and pilot study.

**SECTION - D**

Data collection, sources of data: primary, secondary; data processing, coding, classification and tabulation, editing, analysis and interpretation; research compilation and report: contents and style, factors in the organization of a research report, writing of footnotes quoting styles, references, cross referencing and bibliography.

**Suggested Readings:**

1. Sharma Sandhir,"Bansal Gautam Research Methodology" I.B. Publications & Distributors, New Delhi.
2. Kothari, C.R. "Research Methodology-Method of Techniques Wiley Eastern Limited, New Delhi
3. Gupta, Santosh, Research Methodology and statistical Techniques: Deep & Deep publication, New Delhi.
4. Kumar, Ranjit research Methodology "Person Education Australia
5. Ahuja, Ravi, Research Methods,"Rawat Publication.

Pre Ph.D. Course in Architecture

**ARL-905: Climate Responsive Built Environment**

Time: 3Hrs.

**Credits:03(L=02,T=1,U=0)**

**Total Marks: 100**

**Mid Semester Examination: 20% weightage (Marks:20)**

**End Semester Examination: 80 % weightage (Marks: 80)**

**Instructions for the Paper Setters:**

Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

**SECTION-A**

Introduction to climatic factors, Describing tropical zones and their characteristics. Thermal flow, psychrometric and climatic analysis, human thermal comfort analysis through C.E.T nomogram, understating micro climate.

**SECTION-B**

Thermal design principles, thermal qualities, Insulation, Calculation of steady and periodic heat flow, Passive control strategies, Building form, thermal mass, ventilation, Solar control through study of sun position, sun-path diagrams, method of designing shading devices.

**SECTION-C**

Air movement, ventilation, functions, health, comfort, cooling, mechanism of ventilation, natural and created effects, forced ventilation, air recirculation, ventilation strategies for various climatic zones, effect to built form and orientation.

**SECTION-D**

Designing for climate and climate change, Bio-climatic design concepts and techniques, Active and passive systems for heating and cooling, site planning, building design, sustainable techniques adopted in traditional buildings, emphasis on responses related to cultural, strategic, social and technological reference to climate and built form.

**Suggested Readings:**

- 1 Koenigsberger, O.H Ingersoll, T.G Mayhew, A. Szokalay 2015 “Manual of tropical housing and building” –Orient Longman Pvt. Ltd. UK.
- 2 Givoni.b–1969” Man Climate and Architecture” –Elsieven Publishing Company Ltd
- 3 William Gething and Katre Puchet– “Design for climate change” RIBA Publishing–Feb 2013.
- 4 Runming Yao–“Design and management of Sustainable Built Environment” Springer – London.

**ARL-906: Contemporary Trends in Architecture and Planning****Credits: 03 (L=02, T=1, U=0)****Time: 3Hrs.****Total Marks: 100****Mid Semester Examination: 20% weightage (Marks:20)****End Semester Examination: 80 % weightage (Marks: 80)****Instructions for the Paper Setters:**

Eight questions of equal marks (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided in to parts (not exceeding four). Candidates are required to attempt five questions, selecting atleast one question from each Section. The fifth question may be attempted from any Section.

**Section -A**

Introduction to Modern Architecture, Reasons for evolution of modern architecture in world and in India, origins – Neoclassicism and Revivalism – Socio-Cultural and Technical transformations that led to Advent of Modern Architecture. Post Independence influence of Modern Masters on Indian architecture. Advent of Post-Modernism.

**Section-B**

Overview of the contemporary architectural concepts such as biomimicry, adaptive reuse, low cost development and urban regeneration; Green building principles and practices.

**Section -C**

Impact of Contemporary trends in architecture in various climate zones- Hot and Dry, Warm Humid and Composite type. Understanding impact on Typologies and Techniques through various case studies

**Section -D**

Sustainable Urban Development Approaches – New Urbanism, Compact Cities, Smart Cities, etc. Resilient and Low-carbon cities. Examples from India and abroad.

**Suggested Readings:**

1. Frampton, Kenneth; "Modern Architecture: A Critical History", Thames & Hudson, UK, 2007.
2. Giedion Sigfried; "Space, Time and Architecture", Harvard University Press, 2009.
3. William, J. Curtis; "Architecture since 1990". Phaidon Press Limited, London, 1982
4. Lang, Jon, Madhavi Desai & Mili Desai; "Architecture and Independence- The Search for Identity-India 1880-1980", Oxford University Press (Selected Portions only), 1997.

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5. Edward, R.Ford; "The Details of Modern Architecture", The MIT Press, 2003.
6. Bhatt, Vikram and Scriver Peter; "Contemporary Indian Architecture: After the Masters", Ahmedabad.1990.
7. Koenigsberger, O.H Ingersoll, T.G Mayhew, A. Szokalay 2015 "Manual of tropical housing and building"–Orient Longman Pvt Ltd UK.
8. Olgay, V; "Design with Climate", Princeton University Press, London, 1963.
9. Krishan, Arvind; "Climate Responsive Architecture", Tata Mc Graw Hill, New Delhi. And Organisational Behaviour", BH-1987.