**Course Name: Laws, Policies and Guidelines promoting Green and Blue Infrastructure**

**Number of credits: 2 ECTS**

**Period: Fall/spring semester**

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| Coordinator | **Prof. Vibha Gajjar** |
| Credits | 2 ECT |
| Lecturers | **Prof. Vibha Gajjar and Prof. Utpal Sharma** |
| Level | Online course open for all |
| Host institution | Nirma University |
| Course duration | 14 Days |

**Summary**

This is a 2 ECTS online course which will be open to all students or professionals from various departments like architecture, planning, design, engineering, etc. This course will introduce various laws and policies to encourage blue and green infrastructure in our built environment.

**Target student audiences**

Open for all (online course)

**Prerequisites**

NA

**Aims and objectives**

The main course objective is to

* Examine the role and function of several statutory authorities involved in a city's development.
* Examine the building bylaws and other restrictions that apply to the structures.
* Understand the roles of several regulatory bodies in urban development, as well as the normal procedures for building/scheme plan approval and whetting.
* Apply your understanding of the construction and plan approval procedures..

**General learning outcomes:**

By the end of the course, successful students will:

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| Knowledge | * Interpet the role and function of various statutory authorities responsible for the development of a city. |
| Comprehensive | * Comprehend the role of various statutory authorities responsible for urban development and standard procedures for building/ scheme plan approval and whetting |
| Application | * Apply knowledge of building and plan approval processes |
| Analysis | * Examine building bye-laws and other regulations related to the buildings. |
| Synthesis | * Improve and/or propose guidelines, laws and policies to promote green and blue infrastructure. |

**Overview of sessions and teaching methods**

The course will make most of interactive and self-reflective methods of teaching and learning and, where possible, avoid standing lectures and presentations.

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| **Learning methods** | * Video presentations * Written articles/essay * Project Based Learning * Literature review * Stakeholder analysis/client consultancy |
| **Course outline** | Day 1-2   * History of building bye-laws, regulations and need for development control guidelines (early post-industrial cities; safety, health and hygiene concerns) * Definitions/ general building requirements & services. * Requirement for parts of the buildings and building services   Day 3-5   * Brief introduction to the urban development framework - eg. GTPUDA * Purpose and specifications under Development controls regulations and Zoning guidelines - CGDCR, URDPFI guidelines * General as well as Specific premises to promote GBI - Commercial/ Industrial plots, Transportation (streets, roads, parking and terminals), Public – Semi-Public spaces   Day 6-9   * Various provisions and guidelines as per National Building Codes (NBC) * Developing focus on sunlight, ventilation, thermal comfort, drainage, circulation, parking, access to emergency vehicles, universal access, fire safety, disaster resilience and other context-specific factors * Introduction to other regulatory contexts to be considered - RERA, Green building regulations - ECBC, GRIHA rating system, Environmental Clearances (where applicable such as hilly area planning, coastal regulations)   Day 10-12   * Building permissions and approvals * Signing of Plans, notice for alterations, Building Permit Fees, Sanctions, Procedures and permissions during Construction works, Connection to the municipal sewer/ water mains, Fire Protection & Fire safety Requirements * Notice for Completion, Completion/ Permission for Occupation, Occupancy/ Part Completion Certificate   Day 13-14   * Zoning guidelines for land use distribution * Development controls for site layout * Building codes for typology |

**Literature**

1. Althouse AD, Turnquist CH, Bracciano AF, (1968), Modern refrigeration & Air conditioning Book: theory, practice of refrigeration & air conditioning systems Bureau of Indian Standards, National Building Code of India, 2016
2. Gallion, Arthur and Simon, Eisner, Urban Pattern: City Planning and Design, Van Nostrand Reinhold, 1986
3. Government of Gujarat, Gujarat Town Planning and Urban Development Act (GTPUDA), 1976
4. Grondzik, W. T., & Kwok, A. G. (2014). Mechanical and electrical equipment for buildings. John Wiley & Sons.
5. Howell, Ronald H. & others., (2009), Principles of heating ventilating and air conditioning: a textbook with design data based on the 2009 ASHRAE handbook - fundamentals. Atlanta: American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc.
6. HW Stanford III, AF Spach , (2019), Analysis & Design of Heating, Ventilation & Air conditioning systems.
7. M Karlen, C Spangler, J R Benya, (2017), Lighting design basics.
8. H Koster, (2004), Dynamic daylighting architecture: basics, systems and projects.
9. Ministry of Housing and Urban Affairs (MoHUA), Urban and Regional Development and Planning Formulation and Implementation Guidelines (URDPFI), 2015 accessed from <http://mohua.gov.in/upload/uploadfiles/files/URDPFI%20Guidelines%20Vol%20I(2).pdf> visited on 23rd July 2019
10. Prakash, N. Sesha, Manual of Fire Safety.New Delhi: CBS Publishers and Distributors. 2011.
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13. Sugarman, S. C. (2015), Testing and balancing HVAC air and water systems. Lulu press, Inc.
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16. Urban Development and Urban Housing Department, Comprehensive General Development Control Regulations (GDCR), 2017 accessed from <https://townplanning.gujarat.gov.in/Documents/Final%20Comprehensive%20General%20Development%20Control%20Regulation-2017%20dt%2012%2010%2017.pdf> visited on visited on 23/07/2019
17. VP Lang, (1961), Basics of Air conditioning.

**Course workload**

The table below summarizes course workload distribution:

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| **Activities** | | **Learning outcomes** | **Assessment** | **Estimated workload (hours)** |
| **In-class activities (60 hours)** | | | | |
| Lectures | | Understanding theories, concepts, methodology and tools | Class participation | 28 |
| Moderated in-class discussions as well as tutoring and consulting | | Understanding various policy and management contexts and common problems in communication in laws and policies for GBI | Class participation and preparedness for discussions | 22 |
| In-class assignments | | Understanding various policy and management contexts and common problems in communication in laws and policies for GBI | Class participation and preparedness for assignments | 10 |
| **Independent work (12 hours)** | | | | |
| Individual presentation | | Ability to interpret data, to analyze the audience, and use the concepts, and tools, for understanding in laws and policies for GBI | Quality of individual presentation | 12 |
| ***Total*** | |  |  | ***72 hours*** |
| **Evaluation** | Pass or Fail | | | | |