

**Faculty of Science and Technology  
Savitribai Phule Pune University  
Maharashtra, India**



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**Honors\* in Architecture and Town  
Planning**

**Board of Studies  
(Civil Engineering)  
(With effect from A.Y. 2021-22)**

[http://unipune.ac.in/university\\_files/syllabi.htm](http://unipune.ac.in/university_files/syllabi.htm)

**Savitribai Phule Pune University**  
**With effect from 2021-22**

**Honors\* in Architecture and Town Planning**

Year & Semester	Course Code	Course Title	Teaching Scheme Hours / Week			Examination Scheme and Marks						Credit Scheme		
			Theory	Tutorial	Practical	Mid-Semester	End-Semester	Term work	Practical	Presentation	Total Marks	Theory / Tutorial	Practical	Total Credit
TE & V	301401	Urban Housing and Infrastructure Planning	04	--	--	30	70	--	--	--	100	04	--	04
	301402	Urban Housing and Infrastructure Planning -PR/Lab	--	--	02	--	--	50	--	--	50	--	01	01
	<b>Total</b>		04	-	02	100		50	-	-	150	04	01	05
<b>Total Credits = 05</b>														
TE & VI	301403	Sustainable Architecture and Landscape Design	04	--	--	30	70	--	--	--	100	04	--	04
	<b>Total</b>		04	-	-	100		-	-	-	100	04	-	04
<b>Total Credits = 04</b>														
BE & VII	401401	Traffic and Transportation Planning	04	--	--	30	70	--	--	--	100	04	--	04
	401402	Traffic and Transportation Planning -PR/Lab	--	--	02	--	--	50	--	--	50	--	01	01
	<b>Total</b>		04	-	02	100		50	-	-	150	04	01	05
<b>Total Credits = 05</b>														
BE & VIII	401403	Land Use and Land Cover	04	-	--	30	70	--	--	--	100	04	--	04
	401404	Seminar	--	02	--	--	--	-	--	50	50	02	--	02
	<b>Total</b>		04	-	02	100		-	--	50	150	06	-	06
<b>Total Credits = 06</b>														
<b>Total Credit for Semester V+VI+VII+VIII = 20</b>														
		<p><b>* To be offered as Honours for Major Disciplines as–</b></p> <p><b>1. Civil Engineering</b></p> <p><b><u>For any other Major Disciplines which is not mentioned above, it may be offered as Minor Degree.</u></b></p>												

### **Dear Students**

It gives me an immense pleasure to introduce a state-of-the-art course on Architecture and Town Planning as an Honors Program under Civil Engineering Curriculum starting from June 2021. The honors courses will start from TE civil and will continue in BE as well. Students are referred to

[http://collegecirculars.unipune.ac.in/sites/documents/Syllabus2020/Rules%20and%20Regulations%20of%20Honors%20and%20Minors\\_17.02.2021.pdf](http://collegecirculars.unipune.ac.in/sites/documents/Syllabus2020/Rules%20and%20Regulations%20of%20Honors%20and%20Minors_17.02.2021.pdf)

for details about the honors program.

Architectural planning and building construction are the basic courses in the Civil Engineering curriculum of any university both in India and abroad. In this era of smart cities that one must think of Town planning for a comfortable stay using the natural gifts like sunshine, wind to their maximum effect with no burden on the nature. The students of Civil Engineering if learn principles of town planning and architecture together it can fetch them more jobs in the realty industry. It's a high time that we at the University level should include this as a part of our curriculum. We the Board of Civil of Engineering are introducing the honors course on Architecture and Town planning from June 2021 starting at TE. In our opinion it would give another opening to students pursuing their BE (Civil) under the aegis of Savitribai Phule University. I thank all the faculty members involved in framing the syllabus of this honors program. I would like to thank all the Board of Studies members for unanimously approving this honors program. Finally I would like to thank the faculty of Science and Technology, Dean faculty of Science and Technology, Hon. members of the academic council and Hon. Vice Chancellor for giving the necessary approval to start this program.

Prof. Shreenivas Londhe  
Chairman BOS (Civil Engineering)  
SPPU Pune

## SEMESTER V

Savitribai Phule Pune University, Pune

TE Civil (2019 Pattern) w. e. f. June 2021

Honors in\* Architecture and Town Planning

### **301401: Urban Housing and Infrastructure Planning**

<b>Teaching scheme</b>	<b>Credit</b>	<b>Examination scheme</b>
Lectures: 04 Hours/week	04	In semester exam: 30 Marks End semester exam: 70 Marks

### **Course Contents**

#### **Unit 1: Planning of Residential Areas (08 Hours)**

Household, housing need, housing demand, housing requirement for different sections of society, housing project layouts, socio-economic, aesthetic and environmental factors affecting layouts.

#### **Unit 2: Housing for urban poor (08 Hours)**

Process of slum formation, causes, approaches challenge of slums, Housing evaluation for urban poor, standards, materials, social amenities and services, locational parameters, housing schemes, Formal and informal housing markets and their impact on urban poor.

#### **Unit 3: Housing policies and finance (08 Hours)**

Housing policies, role of co-operative housing, central, state, urban local bodies, Housing Boards-HUDCO, NHB, HFIs, Rural housing finance, Housing demand models.

#### **Unit 4: Urban Infrastructure Planning (08 Hours)**

Data required for provision & planning of urban infrastructure, Types, significance, impact, norms and financial aspects, area allocation as per URDPFI

#### **Unit 5: Networks and Services System (08 Hours)**

Overview urban services, classification and significance, concepts and theories for design and operation, components, requirements of appropriate technology, cost recovery.

#### **Unit 6: Infrastructure Network (08 Hours)**

City network scenario, norms and policies water supply, sewerage, storm water network, solid waste management, street lighting, telecommunication network, health, education, fire protection, recreation & open space.

### **Books:**

1. Fredrick Gibberd: "Town Design", Architectural Press, London.
2. Charles Abrahms, "Housing in the Modern World", Faber and Faber, London.
3. D. Heggade and F. Cherunilam, "Housing in India", Himalya Publishing House, Bombay.
4. Dwivedi R. M. (2007), "Urban development and housing in India 1947-2007" New Century Publications, New Delhi.
5. James A LaGro Jr. (2008): "Site Analysis A Contextual Approach to Sustainable Land Planning and Site Design", John Wiley and Sons, Inc., Hoboken, New Jersey

6. Grigsby, William G (1963): "Housing Markets and Public Policy", U of Pennsylvania Press
7. UNHS Programme (2003): "The Challenge of Slums Global Report on Human Settlements 2003", UN-Habitat Earthscan Publishing, London
8. Dr. D Goswami (2012): "Housing and Urban Poverty Alleviation", SAAD Publications, Delhi
9. Fair, G.M., Gayer, J.C. and Okun, D.A., "Elements of water supply and Waste water Disposal", John Wiley & Sons, New York.
10. National Institute of Urban Affairs, "status of water supply, sanitation and solid waste management in urban area" 2005

**Organization:**

1. T.M. Vinodkumar, "Networks and services", ITPI Reading Manuals.
2. TCPO and Ministry of Works and Housing, "Norms and Standards for Urban Water Supply and Sewerage Services", New Delhi.
3. Tan Yigitcanlar," sustainable urban and regional infrastructure development: technologies, application and management, 2010 IGI Global publishing company.
4. CPHEEO, "CPHEEO Manuals on water supply, sewerage, drainage and solid waste management.2005-08.

## **SEMESTER V**

Savitribai Phule Pune University, Pune

TE Civil (2019 Pattern) w. e. f. June 2021

Honors in\* Architecture and Town Planning

### **301402: Urban Housing and Infrastructure Planning - Lab**

#### **Teaching scheme**

Practical: 02 Hours/week

#### **Credit**

01

#### **Examination scheme**

Term Work: 50 Marks

### **Course Contents**

#### **Lab Assignment:**

1. Prepare report on housing layouts for different economic classes, different building forms on full empirical sheet also same on AutoCAD software (Group work, 4 students)
2. Report on housing policies for urban poor in India. (Individual)
3. Report on urban infrastructure standards using different norms such as URDPFI, NBC, and TCPO etc. (Individual)
4. Study and prepare report on urban infrastructure network for local area (one infrastructure allocate to four students' group)
5. Prepare of plans, elevations, sections, center line plan, structural plan, footing detailing and important details of an apartment unit (Group work, 4 students)
6. Prepare studies to assess management, financial feasibility, Cost Benefit Analysis of Project, Social and Economic Impacts of residential and public Projects (Group work, 4 students)

## SEMESTER VI

Savitribai Phule Pune University, Pune

TE Civil (2019 Pattern) w. e. f. June 2021

Honors in\* Architecture and Town Planning

### **301403: Sustainable Architecture and Landscape Design**

<b>Teaching scheme</b>	<b>Credit</b>	<b>Examination scheme</b>
Lectures: 04 Hours/week	04	In semester exam: 30 Marks End semester exam: 70 Marks

### **Course Contents**

#### **Unit 1: Aesthetics, Culture and Planning Technology in India (08 Hours)**

Aesthetics, culture and advancement of technology in ancient India and their impact on planning; planning principles of the Manasara Treatise and Indus Valley Civilization. Aesthetics, culture and advancement of technology during the Mughal and British periods, independent India and their impact on planning of human settlements.

#### **Unit 2: Introduction to Sustainable Development (08 Hours)**

Definition, History, current urban problems related to urban design, Theory and background to sustainability planning, the three E's: Environment, Economics, Ethics, and ecology of sustainable development, Tools for sustainability planning: indicators, ecological footprint, virtual water concepts, sustainability plans, Components of sustainable urban and regional development.

#### **Unit 3: Sustainable Planning Techniques (08 Hours)**

Concepts and components of ecology and ecosystem, Concept of Green building, concept of green residential cluster, Concept of Eco-city; provision of green belt, Eco-friendly industrial location and planning, development of existing water bodies, Role of Urban planners and architect in sustainable planning, Concept of Smart City.

#### **Unit 4: Landscape Planning (08 Hours)**

Behavioral issues in landscape design, principles in landscape design, elements of geomorphology, hydrology, pedology, drainage in landscape planning, Types of landscaping, emphasizing landscape assessment. landscape suitability analysis, environmental factors in landscape planning.

#### **Unit 5: Landscape Design (08 Hours)**

History and philosophy of landscape architecture, Purpose of landscape, concerns of landscape, Landscaping impacts on the environment, main factor affecting landscaping, how to plan landscape area and green roof design.

#### **Unit 6: Landscape Development (08 Hours)**

Landscape development in rural areas, landscape development in urban areas, landscape treatment for special areas like i) highly industrialized area, ii) water logged area, iii) sandy/desert area, iv) coastal area, Improving landscaping of existing road.

### **Books:**

1. Cities of tomorrow: an intellectual history of urban planning and design in the twentieth century, Hall, P., Blackwell, London.

2. Making the Invisible Visible: A Multicultural Planning History, Sandercock, L., University of California Press, London
3. Urban and Regional Planning: A systems approach, McLoughlin, J. B., Faber and Faber, London.
4. Textbook of Town Planning, G. K. Bandyopadhyay
5. Town Planning by Rangwala
6. Rehana Tariq; Sustainable Urbanization and urban Development, New Academic Publishers, New Delhi, 2008.
7. Rachel Cooper; Designing Sustainable Cities, Wiley-Blackwell Publisher, New Delhi, 2009
8. Cliff Moughtin, "Urban Design--Street and Square", Third Edition, Architectural Press,Oxford 2003
9. Douglas Farr, John Wiley & Sons , "Sustainable Urbanism: Urban Design with Nature"
- 10. Guidelines on Landscaping and Tree Plantation: Indian Road Congress 2009**



## SEMESTER VII

Savitribai Phule Pune University, Pune  
BE Civil (2019 Pattern) w. e. f. June 2022  
Honors in\* Architecture and Town Planning  
**401401: Traffic and Transportation Planning**

<b>Teaching scheme</b>	<b>Credit</b>	<b>Examination scheme</b>
Lectures: 04 Hours/week	04	In semester exam: 30 Marks End semester exam: 70 Marks

### **Course Contents**

#### **Unit 1: Traffic Studies (08 Hours)**

Role and importance of transport, characteristics and role of various forms of transport systems - road, rail, air, water, different traffic studies, speed and delays, origin and destination, modal split, accident, Traffic Management measures: Traffic Signs, Symbols, Signals, Regulation of Traffic – speed.

#### **Unit 2: Traffic flow Analysis (08 Hours)**

Macroscopic, Microscopic & Mesoscopic approach, Categories of Traffic Flow, Traffic stream characteristics, Traffic volume survey, Space - Time diagram, Relationship between speed, flow & density, Concept of PCU, level of service & capacity analysis.

#### **Unit 3: Design Standards (08 Hours)**

Roads: Road hierarchy, design control and criteria, geometric design elements, sight distance, over taking sight distance, stopping sight distance.

Parking: Parking space norms and standards, design standards for on-street and off-street parking facilities.

Pedestrian Facilities: Capacity guidelines for at-grade and grade separated facilities, design considerations

Cycling Facilities: Capacity guidelines and design considerations for cycle tracks

Public Transport / Para Transit Facilities: Design standards for bus stops, auto rickshaw, taxi, cycle-rickshaw stands

#### **Unit 4: Intersection Design (08 Hours)**

Types of intersection, design of rotary intersection (with numerical), design of at-grade and grade separated intersections, road safety issues.

Passenger terminals- types, facilities, and layout, Freight terminals- types, facilities, layout

#### **Unit 5: Transport land use system (08 Hours)**

Transport land use pattern, 20-year plans- Nagpur, Bombay, Lucknow, land use models: i) Lowry Model, ii) Lowry – Garin Model, urban system components, urban spatial structure, accessibility, location theory.

#### **Unit 6: Urban public transportation (08 Hours)**

Urban growth mechanism, urban development planning policy, urban transport problems in India, sustainable urban transportation, planning of city bus transportation, BRTS, metro transport and Mass Transportation, Transportation System Management (TSM) Process - planning & Strategies

### **Books:**

1. Bowmen, J. and M. ben-Akiva, Activity based travel Forecasting; in Activity based travel forecasting. Washington,DC: U.S. Department of Transportation, Report DOT-97-17.
2. Bruton M.J.(1988), Introduction to Transportation Planning, Hutchinson of London
3. Chakroborty P., Das N. (2003), Principles of Transportation Engineering, PHI,New Delhi
4. Dickey J.W. (1980), Metropolitan Transportation Planning, Tata Mc-Graw Hill.
5. Hutchinson B.G. (1974), Principles of Urban Transportation System Planning, Mc-Graw Hill.
6. Khisty C J., Kent, L.B. (2005), Transportation Engineering – An Introduction, Prentice-Hall, NJ.
7. Ortuzar, J. D., Willumsen, L.G. (1994), Modeling Transport, John Wiley & Sons, 1994
8. Papacostas C.S. and Prevedouros, P.D. (2002), Transportation Engineering & Planning, PHI, New Delhi
9. Kadiyali, L.R., "Traffic and Transportation Planning", Khanna Publishers, Delhi.
10. Morlok, K.E. (1978), Introduction to Transportation Engineering, McGraw-Hill, New York
11. C. Jotin Khisty, B. Kent Lall "Traffic Engineering: An introduction", Pearson
12. kadiyali L. R. "Traffic and Transportation Planning", Khanna Publication

### **e Sources:**

1. NPTEL Course on "Urban Transport System Planning", IIT Kharagpur
2. NPTEL Course on "Traffic Engineering", IIT Kharagpur
3. NPTEL Course on "Traffic Engineering and Management", IIT Bombay

## **SEMESTER VII**

Savitribai Phule Pune University, Pune  
BE Civil (2019 Pattern) w. e. f. June 2022  
Honors in\* Architecture and Town Planning  
**401401: Traffic and Transportation Planning - Lab**

<b>Teaching scheme</b>	<b>Credit</b>	<b>Examination scheme</b>
Practical: 02 Hours/week	01	Term Work: 50 Marks

### **Course Contents**

#### **Lab Assignment:**

1. Report on traffic signals, signs, symbols, rules of traffic and their application.
2. Report on road safety audit.
3. Report on Land use models.
4. The project on Traffic /Transportation planning covers study of Traffic & Transportation Planning of the city / Urban Area including hierarchy of roads, planning parameters, problem identification and solutions at city/ zonal /local level, intersections, logistic parks, bus/ rail terminal studies, road safety audits etc. with conceptual drawing (Allocate for batch)
5. Report on public transportation system of any metropolitan city.
6. Design of rotary intersection

## SEMESTER VIII

Savitribai Phule Pune University, Pune  
BE Civil (2019 Pattern) w. e. f. June 2022  
Honors in\* Architecture and Town Planning  
**401403: Land Use and Land Cover**

<b>Teaching scheme</b>	<b>Credit</b>	<b>Examination scheme</b>
Lectures: 04 Hours/week	04	In semester exam: 30 Marks End semester exam: 70 Marks

### **Course Contents**

- Unit 1: History of Planning (08 Hours)**  
Evolution of planning in India, Ancient River valley civilizations (Egyptian, Mesopotamian, Indus valley), Impacts of Industrial Revolution on town and regional planning, Rural-Urban Migration, Contribution of individuals to city planning
- Unit 2: Urban Settlement Classification and Structure (08 Hours)**  
India's urbanization, Growth theories, urban form, Activity system, density structure, Town classification, Multinuclei urban development, Concept of New Urbanism and Smart Growth, Need of specific urban settlement.
- Unit 3: Urban Surveys and cities planning (08 Hours)**  
Define, Significance of surveys, Planning parameters, Types of surveys, Analysis and Applications, Questionnaires form for socio economic survey, Application of GIS and RS in LULC, issues and planning approaches of smart cities, green cities, sustainable cities.
- Unit 4: Land Use Classification (08 Hours)**  
Residential Zone, Industrial, Public and Semipublic, Agriculture, Traffic and Transportation, Tourism development, Afforestation, Hilly area, Defense zone, Forest, Public utility, Mines and quarry, Green belt
- Unit 5: Urban Land Use Planning (08 Hours)**  
Objectives and Principles of Urban planning, Different Land use planning norms, Environmental aspects of land use planning, Role of URDPFI guidelines in land use planning, demand and supply of land relationship, UDCPR guidelines for land planning: Development charges, Revocation of permission, Provision of appeal, Action against unauthorized development.
- Unit 6: Land planning tools and Policies (08 Hours)**  
Objectives & principles of land use planning, Concept of Neighborhood planning, Development plan, T.P. Scheme, New towns, Satellite town, Government policies on small and medium town, Urban renewal strategy, National Land utilization policy, Maharashtra land revenue code 1966.

### **Reference Books:**

1. Town and Country Planning and Housing, N.V. Modak and V. N. Ambdekar, Orient Longman Limited.
2. Planning and Development of Towns, R.G. Gupta, New Delhi.

3. Urban and Regional Planning, K.S. Ramegauda, Mysore University Publication
4. Hiraskar G.K. (1993), Fundamentals of Town Planning, Dhanpat Rai & Sons, Delhi.
5. Gallion A.B. and Eisner, S. (1984), The Urban Pattern, CBS Publishers, Delhi.
6. Cities of tomorrow: an intellectual history of urban planning and design in the twentieth century, Hall, P., Blackwell, London.
7. Making the Invisible Visible: A Multicultural Planning History, Sandercock, L., University of California Press, London
8. Urban and Regional Planning: A systems approach, McLoughlin, J. B., Faber and Faber, London
9. URDPFI guidelines
10. MR & TP act 1966
11. Maharashtra Land Revenue Code 1966
12. UDCPR

## **SEMESTER VIII**

Savitribai Phule Pune University, Pune  
BE Civil (2019 Pattern) w. e. f. June 2022  
Honors in\* Architecture and Town Planning  
**401404: Seminar**

<b>Teaching scheme</b>	<b>Credit</b>	<b>Examination scheme</b>
Tutorial: 02 Hours/week	02	Presentation: 50 Marks

### **Course Contents**

A Seminar Report should be made which should contain the following topics (not limited to):

1. Introduction of the topic, its relevance to Architecture and Town Planning, need of the study, aims and objective, limitations.
2. Latest Literature review on the topic chosen.
3. Theoretical contents related to the chosen topic and case studies if applicable.
4. Concluding remarks or summary.

**Examination:** The students must prepare presentation on seminar topic and present in presence of examiners through a viva-voce examination.