

Course Type	Course Code	Name of Course	L	T	P	Credit
DP	NCEC519	Transportation Planning Laboratory	0	0	3	1.5

Course Objective
<ul style="list-style-type: none"> To provide hands-on experience to students in transportation system analysis, planning, and management through data-driven modeling, and simulation techniques.
Learning Outcomes
<ul style="list-style-type: none"> Students will gain practical expertise in transportation system analysis, urban planning, and policy design by getting an understanding of real-world problems.

Unit No.	Topics to be Covered	Contact Hours	Learning Outcome
1	Develop a travel survey questionnaire and collect sample data.	9	Understating how to design a travel survey, sampling techniques, and preliminary data analysis.
	Data coding and cleaning of the travel survey data for further analysis.		
	Learn basic statistical techniques to extract information from the collected data.		
2	Learning simulation techniques to generate a large synthetic data from the collected data	21	Understating 4-stages of travel demand modeling using real and synthetic data.
	Learning techniques to determine the trip generation rates.		
	Application of growth factor methods to determine trip distribution		
	Application of synthetic methods to determine trip distribution		
	Modeling the trip mode choice between zones on the synthetic data		
	Implement various algorithm to determine optimal travel route		
	Simulate aggregate travel and determine future demand and travel patterns		
3	Simulation of disaggregated (individual) travel behavior based on activity choices	6	Develop the ability to simulate individual travel behavior and assess the impact of various policy scenarios
	Simulation of various policy scenarios and its impact on activity travel choices		
4	Project	6	To utilize the knowledge gained from the conducted experiments to undertake a project in transportation planning.
	Total Contact Hours	42	

Text Books:

1. Relevant software manuals

Reference Books:

1. Respective Indian Standard/ International Standard Codes of Practices.