

DEPARTMENT OF CIVIL ENGINEERING

	2021-22	2020-21	2019-20	2018-19	2017-18
New courses	2	1	-	-	-
Total Courses	64	69	67	65	66
Percentages	3	1.5	0	0	0

18UCVO701 Introduction to Law for Engineers (3-0-0)3

Contact Hours: 39

Course Learning Objective (CLOs): Law for Engineers is taught as one of open elective courses for Engineering Program. In this course, Law of Tort, and important laws pertaining to Business Law, Corporate Law, Banking law and Workplace Law with reference to definition, provisions, applicability, enforcement and remedy are dealt. The delivering of topics will be made through lecture classes. The evaluation will be carried out through IAs & Semester End Examination.

Course Outcomes (COs):

Description of the Course Outcome: At the end of the course the student will be able to:		Mapping to PO (1-12)/ PSO (13-15)		
		Substantial Level (3)	Moderate Level (2)	Slight Level (1)
CO-1	Understand definition, elements, nature, general principles, liability of state, and remedy of Law of Torts including specific torts and its application to consumer protection.		6	8
CO-2	Comprehend Indian Contract Act of 1872 with reference to general	6		

	<p>principles, essentials of a valid contract, performance of contract, breach of contract, contingent and quasi contract.</p> <p>Understand The sale of Goods Act of 1930 with reference to formation of contract of sale, conditions and warranties, transfer of ownership and delivery of goods, unpaid seller and his rights.</p> <p>Understand the Competition Act of 2002 with reference to definition and meaning, anti-competitive agreements, abuse of dominant position, breach, enforcement of law and formation of Competition Commission of India and the Competition Appellate Tribunal.</p>			8
CO-3	<p>Comprehend The Companies Act of 2013 with reference to corporate personality, promoters, registration and incorporation, MOA, AOA, prospectus, directors, meetings, dividends, shares and debentures, types, procedure for allotment, rights and privileges of shareholders, preventions of oppression and mismanagement, different modes of winding up of companies.</p> <p>Understand the Information Technology act of 2000 – need, objectives and important provisions.</p>	6		8
CO-4	<p>Understand definitions, various provisions, applicability and enforcement of The Negotiable Instruments Act of 1881, Banking Regulation Act of 1949, The Securitization and Reconstruction of Financial Assets and Enforcement of Security Interest Act of 2002, Prevention of Money Laundering Act of 2002.</p>		6	8
CO-5	<p>Understand definitions, various</p>			6,8,9

	provisions, applicability and enforcement of Law of Industrial Disputes Act of 1947, The Minimum Wages Act of 1948, The Employees Provident Fund Act of 1952, The Shops and Establishment Act of 1953, The Maternity Benefit Act of 1961, Sexual Harassment of Women at Workplace (Prevention, Prohibition and Redressal) Act of 2013 and, Introduction to Labour Codes			
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Prerequisites:

Students taking this course shall have the knowledge of following:

1. Constitution of India and Professional Ethics
2. Management, Entrepreneurship and Protection of Intellectual Property

Content:

Unit-I:

Law of Tort: Definition, Elements and nature of torts, General Principles of Law of Torts, Liability of State in Tort, Damages as remedy in Tort, Specific torts and its application to consumer protection. **8 Hrs**

Unit-II

Business Law:

Indian Contract Act of 1872: General principles the Act (section 1 to 75), essentials of a valid contract, performance of contract, breach of contract, contingent and quasi contract.

The sale of Goods Act of 1930: Formation of contract of sale, conditions and warranties, transfer of ownership and delivery of goods, unpaid seller and his rights.

The Competition Act of 2002: Definition and meaning, anti-competitive agreements and abuse of dominant position, breach, enforcement of law, Competition Commission of India and the Competition Appellate Tribunal.

8 Hrs

Unit-III

Corporate Law

The Companies Act of 2013: Corporate personality and its kinds, promoters, Registration and Incorporation - MOA, AOA, Prospectus, Directors, Meetings, Role of Company Secretary, Dividends, Issue of Shares, types of shares, debentures, procedure for allotment of shares and debentures, share capital, rights and

privileges of shareholders, preventions of oppression and mismanagement, different modes of winding up of companies.

The Information Technology Act of 2000: Need, Objectives, Application, Important provisions, Offences and penalty under the Act. **8 Hrs**

Unit-IV

Banking Law

The Negotiable Instruments Act of 1881, Banking Regulation Act of 1949, The Securitization and Reconstruction of Financial Assets and Enforcement of Security Interest Act of 2002, Prevention of Money Laundering Act of 2002. **8Hrs**

Unit- V

Workplace Law

Law of Industrial Disputes Act of 1947, The Maternity Benefit Act of 1961, The Minimum Wages Act of 1948, The Employees Provident Fund Act of 1952, The Shops and Establishment Act of 1953, Sexual Harassment of Women at Workplace (Prevention, Prohibition and Redressal) Act of 2013. Labour Codes on: Wages, Social Security, Industrial Relations, Occupational Safety, Health and Working Conditions. **7 Hrs**

Note: If new legislations are enacted in place of existing legislations, the syllabus would include corresponding provisions of such new legislations with effect from the date notified by the institute.

Reference Books:

1. Anirudh Wadhwa, 'Mulla: Indian Contract Act', LexisNexis.
2. J.N. Pandey, 'Law of Torts (With Consumer Protection Act and Motor Vehicles Act)', Central Law Publications, Allahabad.
3. Avtar Singh, 'Company Law', Eastern Book Company, Lucknow.
4. Kondaiah Jonnalagadda, 'Securities Law', LexisNexis.
5. Kandasami K.P, Natarajan S & Parameswaran, 'Banking Law and Practice', S Chand, New Delhi.
6. Bare Acts on all laws mentioned in the syllabus.

Contact Hours: 39

Course Learning Objectives (CLOs): Traffic Engineering is taught as one of elective course for Civil Engineering Program. In this course, students are given exposure to measure various traffic flow parameters, design traffic control devices, apply statistical methods for transport planning. The delivery of topics will be made through lecture classes and field visits. The evaluation will be carried out through IAs& SEE..

Course Outcomes (COs):

Description of the Course Outcome: At the end of the course the student will be able to:		Mapping to POs(1,12)/ PSO (1,2,3)		
		Substantial Level (3)	Moderate Level (2)	Slight Level (1)
CO-1	Use Engineering science to determine the power performance of the vehicle under various resisting forces.			1,2
CO-2	Illustrate and apply traffic flow parameters to develop an efficient transport system.	1,2,3		
CO-3	Summarize the Traffic Flow theories applied to understand the traffic pattern.			1,2
CO-4	Examine the transport system problems and apply statistical methods to overcome.		1,2	
CO-5	Illustrate various traffic regulation and control devices and develop suitable traffic signal system.	1,3,12		

PO's	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	PO-11	PO-12	PSO-1	PSO-2	PSO-3
Mapping Level	2	1.75	3									3			

Prerequisites:

Students taking this course shall have the knowledge of following:

- i. Highway Engineering.

Contents:

Unit-I

1. Definition, Objectives, Scope of Traffic Engineering. **02 Hrs**
2. **Road User and Vehicle Characteristics:** Static and Dynamic characteristics, Power performance of vehicles, Resistances to the motion of vehicles, Reaction time of driver, Problems on above **05 Hrs**

Unit-II

1. **Traffic Parameter Studies and Analysis:** Objectives and Method of study, Definition of study area, Sample size, Data Collection and Analysis Interpretation of following Traffic Studies, Volume, Spot Speed, Origin and Destination, Speed and Delay, Parking on Street and off-Street Parking, Accidents, Causes, Analysis (right angle collision only with parked vehicle), Measures to reduce Accident, Problems. **10Hrs**

Unit-III

1. **Traffic Regulation and Control:** Vehicle and Road controls, Traffic Regulations, One Way, Traffic Signs, Traffic signals, Vehicle actuated and synchronized signals, Webster's method of signal Design, IRC Method, Problems. **07 Hrs**

Unit-IV

1. **Traffic Island:** Traffic Rotary elements and traffic operation, Relevant Problems on above. Traffic markings. **07 Hrs**

Unit-V

1. **Probability Distribution:** Poisson's Distribution and application to Traffic Engineering, Normal Distribution, Significance tests for observed Traffic Data, Chi square test, Problems on above, Sample size. **08 Hrs**

Reference Books:

- 1) Khanna S.K. and Justo C E G., "Highway Engineering", Nemchand and Bros, Roorkee.
- 2) Kadiyali L.R., "Traffic Engineering And Transport Planning", Khanna Publishers, New Delhi.
- 3) Matson, Smith and Hard., "Traffic Engineering", McGraw Hill and Co.
- 4) Pignataro, "Traffic Engineering", Prentice Hall.

Total Hrs: 39

Course Learning Objective (CLOs): Remote Sensing and Geographical information systems is taught as one of the Open Elective courses for Civil Engineering Program. In this course, topics on fundamentals of remote sensing platforms, sensors, introduction to GIS, GIS data models querying, analysis and cartographic output are dealt. The subject will be taught through classroom lectures, demonstration. The evaluation will be carried out through IAs & SEE.

Course Outcomes (COs):

ID	Description of the Course Outcome: At the end of the course the student will be able to:	Mapping to POs (1-12)/ PSOS (13-15)		
		Substantial Level (3)	Moderate Level (2)	Slight Level (1)
CO-1	Explain principles of remote sensing technology.		1	
CO-2	Explain use of remote sensing technology for different applications.		4	1
CO-3	Explain GIS is and its applications	5	2	
CO-4	Identify type of data required and use the same for applications.	4	2	
CO-5	Collect, analyze the data and prepare output in the form of maps and tables.	4	2	

POs/PSOs	PO-1	PO-2	PO-4	PO-5
Mapping Level	1.5	2	2.67	3

UNIT I

Remote Sensing: Basic concept of Remote sensing, Data and Information, Remote sensing data collection, Remote sensing advantages & Limitations, Remote Sensing process. Electromagnetic Spectrum, Energy interactions with atmosphere and with earth surface features (soil, water, and vegetation), Resolution, image registration and Image and False color composite, elements of visual interpretation techniques

7 hrs

UNIT II

Remote Sensing Platforms and Sensors: Indian Satellites and Sensors characteristics, Remote Sensing Platforms, Sensors and Properties of Digital Data, Data Formats: Introduction, platforms- IRS, Landsat, SPOT, Cartosat, Ikonos,

Envisat etc. sensors, sensor resolutions (spatial, spectral, radiometric and temporal). Basics of digital image processing- introduction to digital data, systematic errors(Scan Skew, Mirror-Scan Velocity, Panoramic Distortion, Platform Velocity , Earth Rotation) and non-systematic [random] errors(Altitude, Attitude), Image enhancements(Gray Level Thresholding, level slicing, contrast stretching),image filtering.

8 hrs

UNIT III

Introduction: What is GIS, components of GIS, GIS Subsystems, Historical roots of GIS, Early & Current Systems, GIS Applications, Modeling Real World Features, Definition of a map, how maps convey descriptive info, how maps convey spatial relationships.

8 hrs

UNIT IV

GIS Data Models: Spatial Data Models, Vector Data Model, Raster Data Model, Image Data Model, Vector Vs Raster Data Models, Attribute Data Models, File Structures, Database Structures, Sources of Data, Data Input Techniques, Manual Digitizing, Scanning & Vectorisation, Co-ordinate Geometry, Existing digital data, Entering attribute data, Data Verification, Errors in Spatial Data, Errors in Attribute Data , Data Editing, Interactive Graphic Editing, , Edge Match/Rubber Sheeting, Data Organization & Storage, Vertical Data Organization, Horizontal Data Organization, Data Quality & Accuracy, Accuracy & Precision.

8 hrs

UNIT V

GIS Analysis: Measurements, From Vector Data, From Raster Data, Accuracy, Querying Data, Spatial Selection, Logical Selection, Classification, User Controlled, Automatic Overlay Operations, Proximity Analysis, Network Analysis, Cartographic Output, Layout design, Symbology, Vector Display Devices, Raster Display Devices.

8 hrs

Reference Books:

1. Lillisand and Kiefer- "Principles of Remote Sensing and image interpretation", John Wiley and Sons.
2. Bauseb Bhatta, "Remote sensing & GIS", Oxford University Press.
3. Ian Heywood, Sarahand Steve, "An introduction to Geographic Information Systems" , Pearson Education Asia.
4. Michael N.Demers, "Fundamentals of Geographic Information Systems", John Wiley & sons