



G H RAISONI COLLEGE OF ENGINEERING NAGPUR

(An Autonomous Institute affiliated to Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur)

CRPF Gate No.3, Hingna Road, Digdoh Hills, Nagpur. Maharashtra-440016 (India)

Course wise Teaching Plan for Session : Summer 2017

Course : INTELLIGENT TRANSPORTATION SYSTEM

Faculty : Lemonisha Ishwar Uikey

Unit	Topic Code	Topic Covered	Date	Course	Section
1	1	Introduction to Intelligent Transportation System	12/12/2016	TNSL416	A
1	2	Definition of ITS and identification of ITS	12/12/2016	TNSL416	A
1	2	Introduction to Intelligent Transportation System	15/12/2016	TNSL416	A
1	3	Definition of ITS and identification of ITS	15/12/2016	TNSL416	A
1	3	Definition of ITS and identification of ITS	15/12/2016	TNSL416	A
1	4	Historical Background	19/12/2016	TNSL416	A
1	6	ITS data collection techniques	19/12/2016	TNSL416	A
1	5	Benefits of ITS	22/12/2016	TNSL416	A
1	6	ITS data collection techniques	22/12/2016	TNSL416	A
1	7	Detectors	02/01/2017	TNSL416	A
1	10	Automatic Vehicle Location(AVL)	02/01/2017	TNSL416	A
1	8	Automatic Vehicle Location(AVL)	05/01/2017	TNSL416	A
1	11	Geographic Information System(GIS)	05/01/2017	TNSL416	A
1	13	Telecommunications in ITS	09/01/2017	TNSL416	A
2	14	Importance of Telecommunications in the ITS system	09/01/2017	TNSL416	A
2	11	Telecommunications in ITS	12/01/2017	TNSL416	A
2	12	Importance of Telecommunications in the ITS system	12/01/2017	TNSL416	A
2	17	Traffic Management Centres(TMC)	16/01/2017	TNSL416	A
2	18	Telecommunications in ITS	16/01/2017	TNSL416	A
2	14	Traffic Management Centres(TMC)	23/01/2017	TNSL416	A
2	19	Vehicle-Road side communication	23/01/2017	TNSL416	A



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Course wise Teaching Plan for Session : Summer 2017

Course : INTELLIGENT TRANSPORTATION SYSTEM

Faculty : Lemonisha Ishwar Uikey

Unit	Topic Code	Topic Covered	Date	Course	Section
2	21	Vehicle positioning system	30/01/2017	TNSL416	A
2	22	Importance of Telecommunications in the ITS system	30/01/2017	TNSL416	A
2	23	ITS functional areas	02/02/2017	TNSL416	A
3	24	Advanced Traffic Management System(ATMS)	02/02/2017	TNSL416	A
3	26	Importance of Telecommunications in the ITS system	06/02/2017	TNSL416	A
5	40	Definition of ITS and identification of ITS	06/02/2017	TNSL416	A
3	19	Advanced Traveler Information System(ATIS)	09/02/2017	TNSL416	A
3	20	Commercial Vehicle Operations(CVO)	09/02/2017	TNSL416	A
3	21	Advanced Vehicle control System(AVCS)	13/02/2017	TNSL416	A
3	30	Importance of Telecommunications in the ITS system	13/02/2017	TNSL416	A
5	43	ITS data collection techniques	13/02/2017	TNSL416	A
6	45	Automatic Vehicle Location(AVL)	15/02/2017	TNSL416	A
4	34	Commercial Vehicle Operations(CVO)	20/02/2017	TNSL416	A
6	48	Telecommunications in ITS	20/02/2017	TNSL416	A
4	25	Travel and traffic management	27/02/2017	TNSL416	A
4	52	Vehicle-Road side communication	27/02/2017	TNSL416	A
4	27	Electronic payment	02/03/2017	TNSL416	A
5	55	Advanced Traffic Management System(ATMS)	02/03/2017	TNSL416	A
4	28	Commercial Vehicle Operations(CVO)	06/03/2017	TNSL416	A
4	40	ITS user needs and services	06/03/2017	TNSL416	A
4	29	Emergency management	09/03/2017	TNSL416	A



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Course wise Teaching Plan for Session : Summer 2017

Course : INTELLIGENT TRANSPORTATION SYSTEM

Faculty : Lemonisha Ishwar Uikey

Unit	Topic Code	Topic Covered	Date	Course	Section
4	42	Information management	09/03/2017	TNSL416	A
5	31	Information management	16/03/2017	TNSL416	A
4	43	Automated highway system	16/03/2017	TNSL416	A
5	34	Integration of automated highway system	23/03/2017	TNSL416	A
6	73	Overview of ITS implementations in developed countries	23/03/2017	TNSL416	A
5	47	Overview of ITS implementations in developed countries	27/03/2017	TNSL416	A
5	48	Commercial Vehicle Operations(CVO)	27/03/2017	TNSL416	A
5	36	Overview of ITS implementations in developed countries	30/03/2017	TNSL416	A
5	50	Case studies in india	30/03/2017	TNSL416	A



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Course wise Teaching Plan for Session : Summer 2017

Course : PUBLIC TRANSPORTATION PLANNING AND DESIGN

Faculty : Mr. Bhalchandra V. Khode

Unit	Topic Code	Topic Covered	Date	Course	Section
1	1	introduction & course objective	12/12/2016	TNSL534	A
1	2	Modes of public transportation	13/12/2016	TNSL534	A
1	3	application	14/12/2016	TNSL534	A
1	4	urban travel needs	16/12/2016	TNSL534	A
1	5	comparison of transit modes	19/12/2016	TNSL534	A
1	6	comparison of transit modes	20/12/2016	TNSL534	A
1	7	selection of technology for transit service	21/12/2016	TNSL534	A
1	8	transit planning	23/12/2016	TNSL534	A
1	9	transit planning	26/12/2016	TNSL534	A
1	10	Estimating demand in transit planning	27/12/2016	TNSL534	A
1	11	Estimating demand in transit planning	28/12/2016	TNSL534	A
1	12	planning studies	02/01/2017	TNSL534	A
2	13	demand modeling	03/01/2017	TNSL534	A
2	14	demand modeling	04/01/2017	TNSL534	A
2	15	development of generalized cost,	06/01/2017	TNSL534	A
2	16	development of generalized cost,	09/01/2017	TNSL534	A
2	17	RP & SP data and analysis	10/01/2017	TNSL534	A
2	18	techniques;	11/01/2017	TNSL534	A
2	19	functional design	13/01/2017	TNSL534	A
2	20	functional design	16/01/2017	TNSL534	A
2	21	costing of transit routes	17/01/2017	TNSL534	A
2	22	costing of transit routes	18/01/2017	TNSL534	A



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Course wise Teaching Plan for Session : Summer 2017

Course : PUBLIC TRANSPORTATION PLANNING AND DESIGN

Faculty : Mr. Bhalchandra V. Khode

Unit	Topic Code	Topic Covered	Date	Course	Section
2	23	models for planning of transit routes	23/01/2017	TNSL534	A
2	24	models for planning of transit routes	24/01/2017	TNSL534	A
2	25	scheduling	25/01/2017	TNSL534	A
2	26	scheduling	27/01/2017	TNSL534	A
2	27	management and operations of transit systems;	06/02/2017	TNSL534	A
2	28	management and operations of transit systems;	07/02/2017	TNSL534	A
2	29	operations of transit systems;	08/02/2017	TNSL534	A
2	30	operations of transit systems;	10/02/2017	TNSL534	A
2	31	operations of transit systems;	13/02/2017	TNSL534	A
2	32	Integrated public transport planning	14/02/2017	TNSL534	A
3	33	Integrated public transport planning	15/02/2017	TNSL534	A
3	34	Integrated public transport planning	20/02/2017	TNSL534	A
3	35	operational,	21/02/2017	TNSL534	A
3	36	institutional	22/02/2017	TNSL534	A
3	37	physical integration	27/02/2017	TNSL534	A
3	38	models for integrated planning	28/02/2017	TNSL534	A
4	39	case studies on public transportation system	01/03/2017	TNSL534	A
4	40	case studies on public transportation system	03/03/2017	TNSL534	A
4	41	case studies on public transportation system	06/03/2017	TNSL534	A
4	42	case studies on public transportation system	07/03/2017	TNSL534	A
4	43	case studies on public transportation system	08/03/2017	TNSL534	A



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Course wise Teaching Plan for Session : Summer 2017

Course : PUBLIC TRANSPORTATION PLANNING AND DESIGN

Faculty : Mr. Bhalchandra V. Khode

Unit	Topic Code	Topic Covered	Date	Course	Section
4	44	case studies on public transportation system	10/03/2017	TNSL534	A
4	45	case studies on public transportation system	14/03/2017	TNSL534	A
4	46	case studies on public transportation system	15/03/2017	TNSL534	A
4	47	case studies on public transportation system	17/03/2017	TNSL534	A
4	48	case studies on public transportation system	20/03/2017	TNSL534	A
4	49	case studies on public transportation system	21/03/2017	TNSL534	A
4	50	case studies on public transportation system	22/03/2017	TNSL534	A
1	51	Revision	24/03/2017	TNSL534	A
2	52	Revision	27/03/2017	TNSL534	A
3	53	Revision	29/03/2017	TNSL534	A
4	54	Revision	31/03/2017	TNSL534	A



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Course wise Teaching Plan for Session : Summer 2017

Course : TRANSDUCERS & SENSORS

Faculty : Shaliesh Bhalerao

Unit	Topic Code	Topic Covered	Date	Course	Section
1	1	UNIT I: To convey Course Outcomes, Program Outcomes to students. Objective of subject, syllabus, scheme, teaching plan , TAE, CAE discussion. Building Concepts of Sensors & Transducers. Generalized Instrumentation system, Active and Passive transducers,	12/12/2016	TNSL417	A
1	2	Digital and Analog mode of operation static and dynamic characteristics	13/12/2016	TNSL417	A
1	3	performance of instruments	14/12/2016	TNSL417	A
1	4	Statistical treatment of measurement of errors	16/12/2016	TNSL417	A
1	5	error distribution	19/12/2016	TNSL417	A
1	6	error distribution	20/12/2016	TNSL417	A
1	7	probability tables	21/12/2016	TNSL417	A
1	8	Combination of errors	23/12/2016	TNSL417	A
2	9	UNIT II: Resistance type Transducers	26/12/2016	TNSL417	A
2	10	potentiometer, strain gauge	27/12/2016	TNSL417	A
2	11	Inductive type - LVDT	28/12/2016	TNSL417	A
2	12	piezoelectric transducer Sensing elements	30/12/2016	TNSL417	A
2	13	Temperature sensing element	02/01/2017	TNSL417	A
2	14	Temperature sensing elements - RTD	03/01/2017	TNSL417	A
2	15	thermistor,	04/01/2017	TNSL417	A
2	16	thermocouple	06/01/2017	TNSL417	A
2	17	cold junction compensation	09/01/2017	TNSL417	A
3	18	UNIT III: Motion measurement	10/01/2017	TNSL417	A



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Course wise Teaching Plan for Session : Summer 2017

Course : TRANSDUCERS & SENSORS

Faculty : Shaliesh Bhalerao

Unit	Topic Code	Topic Covered	Date	Course	Section
3	19	relative and absolute motion measurement of displacement, velocity and acceleration	11/01/2017	TNSL417	A
3	20	Pressure sensing elements – manometers	13/01/2017	TNSL417	A
3	21	elastic elements, Bourdon tube,	16/01/2017	TNSL417	A
3	22	diaphragm, bellows	17/01/2017	TNSL417	A
3	23	electrical type, McLeod gauge, Pirani gauge	18/01/2017	TNSL417	A
3	24	Flow sensing type – head meters (orifice, venturi)	23/01/2017	TNSL417	A
3	25	area meters, rotameters,	24/01/2017	TNSL417	A
3	26	electromagnetic flowmeter	25/01/2017	TNSL417	A
3	27	Coriolis flow meter, Ultrasonic flowmeter; pH measurement	27/01/2017	TNSL417	A
4	28	Unit-IV: Pyrometers,	30/01/2017	TNSL417	A
4	29	Piezoelectric transducer	31/01/2017	TNSL417	A
4	30	Magnetostrictive, IC sensor, Digital transducers	01/02/2017	TNSL417	A
4	31	Signal conditioning techniques used in various transducers	03/02/2017	TNSL417	A
4	32	Signal conditioning techniques used in various transducers	06/02/2017	TNSL417	A
4	33	Linearization, gain	07/02/2017	TNSL417	A
4	34	Clipping,,	08/02/2017	TNSL417	A
4	35	filtering	10/02/2017	TNSL417	A
4	36	filtering	13/02/2017	TNSL417	A
4	37	differential amplification	14/02/2017	TNSL417	A
4	38	shielding techniques	15/02/2017	TNSL417	A



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Course : TRANSDUCERS & SENSORS

Faculty : Shaliesh Bhalerao

Unit	Topic Code	Topic Covered	Date	Course	Section
4	39	various standards for signal transmission like 4-20mA current loop converter etc	20/02/2017	TNSL417	A
4	40	various standards for signal transmission like 4-20mA current loop converter etc	21/02/2017	TNSL417	A
4	41	various standards for signal transmission like 4-20mA current loop converter etc	22/02/2017	TNSL417	A
5	42	UNIT V: Recording of data CRO	27/02/2017	TNSL417	A
5	43	data acquisition system	28/02/2017	TNSL417	A
5	44	Industry Standard Bus architecture	03/03/2017	TNSL417	A
5	45	PCI Bus	06/03/2017	TNSL417	A
5	46	ISA Bus	07/03/2017	TNSL417	A
5	47	EISA Bus	08/03/2017	TNSL417	A
5	48	protocols	10/03/2017	TNSL417	A
5	49	test equipments like Multimeter	13/03/2017	TNSL417	A
5	50	signal generator,	14/03/2017	TNSL417	A
5	51	signal analyzer	15/03/2017	TNSL417	A
6	52	Unit-VI: Calibration of measuring Instruments	17/03/2017	TNSL417	A
6	53	Theory and Principles (absolute and secondary or comparison method), Setup	20/03/2017	TNSL417	A
6	54	Modeling.	21/03/2017	TNSL417	A
6	55	Sensor calibration and testing	22/03/2017	TNSL417	A
6	56	Sensor calibration and testing	24/03/2017	TNSL417	A
6	57	Sensor calibration and testing	27/03/2017	TNSL417	A
6	58	Analytical methods in calibrating	28/03/2017	TNSL417	A



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Course : TRANSDUCERS & SENSORS

Faculty : Shaliesh Bhalerao

Unit	Topic Code	Topic Covered	Date	Course	Section
6	59	Analytical methods in calibrating	29/03/2017	TNSL417	A
6	60	Advanced Topics: Sensor & Transducers in Transportation Application	31/03/2017	TNSL417	A



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Course wise Teaching Plan for Session : Summer 2017

Course : TRAFFIC FLOW THEORY

Faculty : Vinay Bhakhtyapuri

Unit	Topic Code	Topic Covered	Date	Course	Section
1	1	Outline of entire semester and application of subject	12/12/2016	TNSL415	A
1	2	Subject Introduction including Course outcomes and objectives	13/12/2016	TNSL415	A
1	3	SUBJECT PPT	13/12/2016	TNSL415	A
1	4	Basics of Traffic Engineering	14/12/2016	TNSL415	A
1	5	Introduction to Traffic Flow Theory and History	16/12/2016	TNSL415	A
1	6	Introduction to Traffic Flow Theory and History	19/12/2016	TNSL415	A
1	7	Traffic stream parameters - Fundamental diagram of volume-speed-density	20/12/2016	TNSL415	A
1	8	Traffic stream parameters - Fundamental diagram of volume-speed-density	20/12/2016	TNSL415	A
1	9	Traffic stream parameters - Fundamental diagram of volume-speed-density	21/12/2016	TNSL415	A
1	10	Numericals on Traffic stream parameters - Fundamental diagram of volume-speed-density	23/12/2016	TNSL415	A
1	11	Numericals on Traffic stream parameters - Fundamental diagram of volume-speed-density	26/12/2016	TNSL415	A
1	12	Discrete probability distributions	27/12/2016	TNSL415	A
1	13	Discrete probability distributions	27/12/2016	TNSL415	A
1	14	Continuous probability distributions	28/12/2016	TNSL415	A
1	15	Problems on Distribution function	30/12/2016	TNSL415	A
1	16	Merging maneuvers	02/01/2017	TNSL415	A
1	17	Merging maneuvers	03/01/2017	TNSL415	A
1	18	critical gaps and their distribution.	03/01/2017	TNSL415	A
1	19	critical gaps and their distribution.	04/01/2017	TNSL415	A



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Course : TRAFFIC FLOW THEORY

Faculty : Vinay Bhakhtyapuri

Unit	Topic Code	Topic Covered	Date	Course	Section
1	20	Problems on critical gaps	06/01/2017	TNSL415	A
2	21	Macroscopic models - Heat flow and fluid flow analogies	09/01/2017	TNSL415	A
2	22	Macroscopic models - Heat flow and fluid flow analogies	10/01/2017	TNSL415	A
2	23	Macroscopic models - Heat flow and fluid flow analogies	10/01/2017	TNSL415	A
2	24	Shock waves and bottleneck control approach.	11/01/2017	TNSL415	A
2	25	Problems on modelling	13/01/2017	TNSL415	A
2	26	Shock waves and bottleneck control approach.	16/01/2017	TNSL415	A
2	27	Shock waves and bottleneck control approach.	17/01/2017	TNSL415	A
3	28	Microscopic models - Application of queuing theory	17/01/2017	TNSL415	A
3	29	Microscopic models - Application of queuing theory	18/01/2017	TNSL415	A
3	30	Microscopic models - Application of queuing theory	23/01/2017	TNSL415	A
3	31	Problems on queuing theory	24/01/2017	TNSL415	A
3	32	Regular, random and Erlang arrival	24/01/2017	TNSL415	A
3	33	Regular, random and Erlang arrival	25/01/2017	TNSL415	A
3	34	Service time distributions	27/01/2017	TNSL415	A
3	35	Service time distributions	30/01/2017	TNSL415	A
3	36	Numericals on arrival and distribution	31/01/2017	TNSL415	A
3	37	Waiting time in single channel queues and extension to multiple channels	31/01/2017	TNSL415	A
3	38	Waiting time in single channel queues and extension to multiple channels	01/02/2017	TNSL415	A
3	39	Waiting time in single channel queues and extension to multiple channels	06/02/2017	TNSL415	A
4	40	Numericals on waiting time	07/02/2017	TNSL415	A



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Course wise Teaching Plan for Session : Summer 2017

Course : TRAFFIC FLOW THEORY

Faculty : Vinay Bhakhtyapuri

Unit	Topic Code	Topic Covered	Date	Course	Section
4	41	Linear and non-linear car following models	07/02/2017	TNSL415	A
4	42	Linear and non-linear car following models	08/02/2017	TNSL415	A
4	43	Linear and non-linear car following models	10/02/2017	TNSL415	A
4	44	Linear and non-linear car following models	13/02/2017	TNSL415	A
4	45	Linear and non-linear car following models	14/02/2017	TNSL415	A
4	46	Numericals on car following	14/02/2017	TNSL415	A
4	47	Numericals on car following	20/02/2017	TNSL415	A
4	48	Numericals on car following	21/02/2017	TNSL415	A
4	49	Determination of car following variables	21/02/2017	TNSL415	A
4	50	Determination of car following variables	27/02/2017	TNSL415	A
4	51	Determination of car following variables	28/02/2017	TNSL415	A
4	52	Numericals on car following variables	28/02/2017	TNSL415	A
4	53	Numericals on car following variables	01/03/2017	TNSL415	A
5	54	Modeling Signalized Intersections	03/03/2017	TNSL415	A
5	55	Modeling Signalized Intersections	06/03/2017	TNSL415	A
5	56	Modeling Signalized Intersections	07/03/2017	TNSL415	A
5	57	Modeling Signalized Intersections	07/03/2017	TNSL415	A
5	58	Modeling Signalized Intersections	08/03/2017	TNSL415	A
5	59	Modeling Signalized Intersections	10/03/2017	TNSL415	A
5	60	Examples of modelling intersections	14/03/2017	TNSL415	A
5	61	Simulation and Modeling	14/03/2017	TNSL415	A



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Course wise Teaching Plan for Session : Summer 2017

Course : TRAFFIC FLOW THEORY

Faculty : Vinay Bhakhtyapuri

Unit	Topic Code	Topic Covered	Date	Course	Section
5	62	Simulation and Modeling	15/03/2017	TNSL415	A
5	63	Simulation and Modeling	17/03/2017	TNSL415	A
5	64	Examples of simulation	21/03/2017	TNSL415	A
5	65	Examples of simulation	21/03/2017	TNSL415	A
5	66	Examples of simulation	22/03/2017	TNSL415	A
5	67	Examples of simulation	24/03/2017	TNSL415	A
1	68	Revision Unit 1	27/03/2017	TNSL415	A
4	71	Revision Unit 4	29/03/2017	TNSL415	A
5	72	Revision Unit 5	31/03/2017	TNSL415	A



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Course wise Teaching Plan for Session : Summer 2017

Course : URBAN TRANSPORTATION PLANNING

Faculty : Prashant .S.Sandel

Unit	Topic Code	Topic Covered	Date	Course	Section
1	2	Introduction to transportation planning	14/12/2016	TNSL414	A
1	3	System approach to transportation planning	14/12/2016	TNSL414	A
1	4	System approach to transportation planning	15/12/2016	TNSL414	A
1	5	Types of models	16/12/2016	TNSL414	A
1	6	Explanation of different models	21/12/2016	TNSL414	A
1	7	Types of models	21/12/2016	TNSL414	A
2	8	Concept of travel demand and supply	22/12/2016	TNSL414	A
2	9	Socio economic	23/12/2016	TNSL414	A
2	11	Land use	04/01/2017	TNSL414	A
2	12	Concept of travel demand and supply	04/01/2017	TNSL414	A
2	13	Network	05/01/2017	TNSL414	A
2	14	Transport system characteristics	06/01/2017	TNSL414	A
2	15	Transportation system in brief	11/01/2017	TNSL414	A
2	16	Transport system characteristics	11/01/2017	TNSL414	A
2	17	Transportation system affecting transportation planning	12/01/2017	TNSL414	A
3	18	Study area definition	13/01/2017	TNSL414	A
3	19	Zoning principles	18/01/2017	TNSL414	A
3	20	Study area definition	18/01/2017	TNSL414	A
3	21	Cordon	25/01/2017	TNSL414	A
3	22	Data collection through secondary sources	25/01/2017	TNSL414	A
3	23	Screen lines	27/01/2017	TNSL414	A
3	24	Data collection	01/02/2017	TNSL414	A



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Course wise Teaching Plan for Session : Summer 2017

Course : URBAN TRANSPORTATION PLANNING

Faculty : Prashant .S.Sandel

Unit	Topic Code	Topic Covered	Date	Course	Section
3	25	Data collection through secondary sources	01/02/2017	TNSL414	A
3	26	Data collection through primary sources	02/02/2017	TNSL414	A
3	27	Data collection through secondary sources	03/02/2017	TNSL414	A
3	28	Sampling techniques	08/02/2017	TNSL414	A
3	29	Screen lines	08/02/2017	TNSL414	A
3	30	Modelling	09/02/2017	TNSL414	A
3	31	Four stage sequential modelling approach	10/02/2017	TNSL414	A
3	32	Trip generation	15/02/2017	TNSL414	A
3	33	Four stage sequential modelling approach	15/02/2017	TNSL414	A
3	34	Trip assignment	22/02/2017	TNSL414	A
3	35	Trip assignment	22/02/2017	TNSL414	A
3	36	Land use transport models	01/03/2017	TNSL414	A
3	37	Activity Based Modelling	01/03/2017	TNSL414	A
4	38	Modeling	02/03/2017	TNSL414	A
4	39	Activity Based Modelling	03/03/2017	TNSL414	A
4	40	Brief of modelling	08/03/2017	TNSL414	A
4	43	Activity Based Modelling	08/03/2017	TNSL414	A
4	44	Urban Good Movement	09/03/2017	TNSL414	A
4	45	Brief of Urban good movements	10/03/2017	TNSL414	A
5	46	Planing	15/03/2017	TNSL414	A
5	47	Activity Based Modelling	15/03/2017	TNSL414	A
5	48	Planing for Non motorized vehicles	16/03/2017	TNSL414	A



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Course wise Teaching Plan for Session : Summer 2017

Course : URBAN TRANSPORTATION PLANNING

Faculty : Prashant .S.Sandel

Unit	Topic Code	Topic Covered	Date	Course	Section
5	49	Public transport	17/03/2017	TNSL414	A
5	50	Public transport planing	22/03/2017	TNSL414	A
5	51	Activity Based Modelling	22/03/2017	TNSL414	A
5	52	Different modes	23/03/2017	TNSL414	A
5	53	Integration of different modes	24/03/2017	TNSL414	A
5	54	Travel demand	29/03/2017	TNSL414	A
5	55	Activity Based Modelling	29/03/2017	TNSL414	A
5	56	Travel demand management	30/03/2017	TNSL414	A
5	57	Revision	31/03/2017	TNSL414	A



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Course wise Teaching Plan for Session : Summer 2017

Course : **ADVANCED DESIGN OF RCC STRUCTURES**

Faculty : **Mrudul V. Gabhane**

Unit	Topic Code	Topic Covered	Date	Course	Section
1	1	Aim, objectives, syllabus & necessity of the subject in Civil Engineering point of view with its wide applications. Discussing paper pattern & planning of TAE Parameters.	05/12/2016	STRL406	A
1	2	Analysis and Design of Slab type & T-Beam bridges, IRC Recommendations	07/12/2016	STRL406	A
1	4	Analysis and Design of Slab type & T-Beam bridges, IRC Recommendations	08/12/2016	STRL406	A
1	5	Analysis and Design of Slab type & T-Beam bridges, IRC Recommendations TUTORIAL	08/12/2016	STRL406	A
1	3	Analysis and Design of Slab type & T-Beam bridges, IRC Recommendations	09/12/2016	STRL406	A
1	6	Analysis and Design of Slab type & T-Beam bridges, IRC Recommendations	12/12/2016	STRL406	A
1	7	Analysis and Design of Slab type & T-Beam bridges, IRC Recommendations	14/12/2016	STRL406	A
1	8	Analysis and Design of Slab type & T-Beam bridges, IRC Recommendations	15/12/2016	STRL406	A
1	9	Analysis and Design of Slab type & T-Beam bridges, IRC Recommendations TUTORIAL	15/12/2016	STRL406	A
1	10	Analysis and Design of Slab type & T-Beam bridges, IRC Recommendations	16/12/2016	STRL406	A
1	11	Analysis and Design of Slab type & T-Beam bridges, IRC Recommendations	19/12/2016	STRL406	A
1	12	Analysis and Design of Slab type & T-Beam bridges, IRC Recommendations	21/12/2016	STRL406	A
1	13	Analysis and Design of Slab type & T-Beam bridges, IRC Recommendations	22/12/2016	STRL406	A
1	14	Analysis and Design of Slab type & T-Beam bridges, IRC Recommendations TUTORIAL	22/12/2016	STRL406	A
1	15	Analysis and Design of Slab type & T-Beam bridges, IRC Recommendations	23/12/2016	STRL406	A
1	16	Analysis and Design of Slab type & T-Beam bridges, IRC Recommendations	02/01/2017	STRL406	A
2	17	Analysis and Design of Elevated service Reservoirs, IS Recommendations for wind & earthquake and ductile detailing	04/01/2017	STRL406	A



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Course wise Teaching Plan for Session : Summer 2017

Course : **ADVANCED DESIGN OF RCC STRUCTURES**

Faculty : **Mrudul V. Gabhane**

Unit	Topic Code	Topic Covered	Date	Course	Section
2	18	Analysis and Design of Elevated service Reservoirs, IS Recommendations for wind & earthquake and ductile detailing	05/01/2017	STRL406	A
2	19	Analysis and Design of Elevated service Reservoirs, IS Recommendations for wind & earthquake and ductile detailing TUTORIAL	05/01/2017	STRL406	A
2	20	Analysis and Design of Elevated service Reservoirs, IS Recommendations for wind & earthquake and ductile detailing	06/01/2017	STRL406	A
1	21	Analysis and Design of Elevated service Reservoirs, IS Recommendations for wind & earthquake and ductile detailing	09/01/2017	STRL406	A
1	22	Analysis and Design of Elevated service Reservoirs, IS Recommendations for wind & earthquake and ductile detailing	09/01/2017	STRL406	A
2	23	Analysis and Design of Elevated service Reservoirs, IS Recommendations for wind & earthquake and ductile detailing	11/01/2017	STRL406	A
1	24	Analysis and Design of Elevated service Reservoirs, IS Recommendations for wind & earthquake and ductile detailing	12/01/2017	STRL406	A
2	25	Analysis and Design of Elevated service Reservoirs, IS Recommendations for wind & earthquake and ductile detailing TUTORIAL	12/01/2017	STRL406	A
2	26	Analysis and Design of Elevated service Reservoirs, IS Recommendations for wind & earthquake and ductile detailing	13/01/2017	STRL406	A
2	27	Analysis and Design of Elevated service Reservoirs, IS Recommendations for wind & earthquake and ductile detailing	16/01/2017	STRL406	A



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Course wise Teaching Plan for Session : Summer 2017

Course : **ADVANCED DESIGN OF RCC STRUCTURES**

Faculty : **Mrudul V. Gabhane**

Unit	Topic Code	Topic Covered	Date	Course	Section
1	28	Analysis and Design of Elevated service Reservoirs, IS Recommendations for wind & earthquake and ductile detailing	18/01/2017	STRL406	A
1	29	Analysis and Design of Elevated service Reservoirs, IS Recommendations for wind & earthquake and ductile detailing	19/01/2017	STRL406	A
2	30	Analysis and Design of Elevated service Reservoirs, IS Recommendations for wind & earthquake and ductile detailing TUTORIAL	19/01/2017	STRL406	A
2	31	Analysis and Design of Elevated service Reservoirs, IS Recommendations for wind & earthquake and ductile detailing	20/01/2017	STRL406	A
2	32	Analysis and Design of Elevated service Reservoirs, IS Recommendations for wind & earthquake and ductile detailing	23/01/2017	STRL406	A
3	33	Analysis and design of Multi storied buildings, calculation of loads, Approximate analysis,	25/01/2017	STRL406	A
3	34	Analysis and design of Multi storied buildings, calculation of loads, Approximate analysis,	27/01/2017	STRL406	A
3	35	Analysis and design of Multi storied buildings, calculation of loads, Approximate analysis,	30/01/2017	STRL406	A
3	36	Analysis and design of Multi storied buildings, calculation of loads, Approximate analysis,	01/02/2017	STRL406	A
3	37	Analysis and design of Multi storied buildings, calculation of loads, Approximate analysis,	02/02/2017	STRL406	A
3	38	Analysis and design of Multi storied buildings, calculation of loads, Approximate analysis, TUTORIAL	02/02/2017	STRL406	A
3	39	Analysis and design of Multi storied buildings, calculation of loads, Approximate analysis,	03/02/2017	STRL406	A



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Course wise Teaching Plan for Session : Summer 2017

Course : **ADVANCED DESIGN OF RCC STRUCTURES**

Faculty : **Mrudul V. Gabhane**

Unit	Topic Code	Topic Covered	Date	Course	Section
3	40	Analysis and design of Multi storied buildings, calculation of loads, Approximate analysis,	06/02/2017	STRL406	A
3	41	Analysis and design of Multi storied buildings, calculation of loads, Approximate analysis,	08/02/2017	STRL406	A
3	42	Analysis and design of Multi storied buildings, calculation of loads, Approximate analysis,	09/02/2017	STRL406	A
3	43	Analysis and design of Multi storied buildings, calculation of loads, Approximate analysis, TUTORIAL	09/02/2017	STRL406	A
3	44	Analysis and design of Multi storied buildings, calculation of loads, Approximate analysis,	10/02/2017	STRL406	A
3	45	Analysis and design of Multi storied buildings, calculation of loads, Approximate analysis,	13/02/2017	STRL406	A
4	46	Analysis and design of special structures i.e. pipes (underground, on ground, Elevated),	15/02/2017	STRL406	A
4	47	Analysis and design of special structures i.e. pipes (underground, on ground, Elevated),	16/02/2017	STRL406	A
4	48	Analysis and design of special structures i.e. pipes (underground, on ground, Elevated), TUTORIAL	16/02/2017	STRL406	A
4	49	Analysis and design of special structures i.e. pipes (underground, on ground, Elevated),	17/02/2017	STRL406	A
4	50	Analysis and design of special structures i.e. pipes (underground, on ground, Elevated),	20/02/2017	STRL406	A
4	51	Analysis and design of special structures i.e. pipes (underground, on ground, Elevated),	22/02/2017	STRL406	A
4	52	Analysis and design of special structures i.e. pipes (underground, on ground, Elevated),	23/02/2017	STRL406	A
4	53	Analysis and design of special structures i.e. pipes (underground, on ground, Elevated), TUTORIAL	23/02/2017	STRL406	A



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Course : ADVANCED DESIGN OF RCC STRUCTURES

Faculty : Mrudul V. Gabhane

Unit	Topic Code	Topic Covered	Date	Course	Section
4	54	Analysis and design of special structures i.e. pipes (underground, on ground, Elevated),	27/02/2017	STRL406	A
4	55	Analysis and design of special structures i.e. pipes (underground, on ground, Elevated),	01/03/2017	STRL406	A
4	56	Analysis and design of special structures i.e. pipes (underground, on ground, Elevated),	02/03/2017	STRL406	A
4	57	Analysis and design of special structures i.e. pipes (underground, on ground, Elevated), TUTORIAL	02/03/2017	STRL406	A
4	58	Analysis and design of special structures i.e. pipes (underground, on ground, Elevated),	03/03/2017	STRL406	A
4	59	Analysis and design of special structures i.e. pipes (underground, on ground, Elevated),	06/03/2017	STRL406	A
4	60	Analysis and design of special structures i.e. pipes (underground, on ground, Elevated),	08/03/2017	STRL406	A
5	61	REVISION	09/03/2017	STRL406	A
5	62	REVISION	09/03/2017	STRL406	A
5	63	REVISION	10/03/2017	STRL406	A
5	64	REVISION	13/03/2017	STRL406	A
5	65	REVISION	15/03/2017	STRL406	A
5	66	REVISION	16/03/2017	STRL406	A
5	67	REVISION	16/03/2017	STRL406	A
5	68	REVISION	17/03/2017	STRL406	A
5	69	REVISION	20/03/2017	STRL406	A
6	70	REVISION	22/03/2017	STRL406	A



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Course wise Teaching Plan for Session : Summer 2017

Course : ADVANCED DESIGN OF RCC STRUCTURES

Faculty : Mrudul V. Gabhane

Unit	Topic Code	Topic Covered	Date	Course	Section
6	71	REVISION	23/03/2017	STRL406	A
6	72	REVISION	23/03/2017	STRL406	A
6	73	REVISION	24/03/2017	STRL406	A
6	74	REVISION	27/03/2017	STRL406	A
6	75	REVISION	29/03/2017	STRL406	A
6	76	REVISION	30/03/2017	STRL406	A
6	77	REVISION	30/03/2017	STRL406	A
6	78	REVISION	31/03/2017	STRL406	A



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Course wise Teaching Plan for Session : Summer 2017

Course : DESIGN OF BRIDGES AND RETAINING WALLS

Faculty : Snehal P. Abhyankar

Unit	Topic Code	Topic Covered	Date	Course	Section
1	1	Vision & Mission of Dept., Course objectives & outcomes of subject	12/12/2016	STRL511	A
1	2	Introduction to Bridge Engg	13/12/2016	STRL511	A
1	3	IRC / IRS loading standards of balanced cantilever bridge	14/12/2016	STRL511	A
1	4	Classification & Importance	15/12/2016	STRL511	A
1	5	Investigation for Bridges	22/12/2016	STRL511	A
1	6	Investigation for Bridges	26/12/2016	STRL511	A
1	7	Selection of bridge site	27/12/2016	STRL511	A
1	8	design of prestressed concrete girder and box girder bridges considering only primary torsion, design of end block	28/12/2016	STRL511	A
1	9	design of prestressed concrete girder and box girder bridges considering only primary torsion, design of end block	02/01/2017	STRL511	A
1	10	Economical Span & Location of piers & abutments	03/01/2017	STRL511	A
2	11	Economical Span & Location of piers & abutments	04/01/2017	STRL511	A
2	12	Economical Span & Location of piers & abutments	05/01/2017	STRL511	A
2	13	Types of bearings, Elastomeric bearing	09/01/2017	STRL511	A
2	14	Types of bearings, Elastomeric bearing	10/01/2017	STRL511	A
2	15	Piers, Abutments, Wing walls factors effecting and stability	11/01/2017	STRL511	A
2	16	Piers, Abutments, Wing walls factors effecting and stability	12/01/2017	STRL511	A
1	17	Well foundations. Design of well, Construction	16/01/2017	STRL511	A
2	18	Well foundations. Design of well, Construction	17/01/2017	STRL511	A
3	19	Open sinking of walls, Plugging, Sand filling and casting of well cap.	18/01/2017	STRL511	A



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Course wise Teaching Plan for Session : Summer 2017

Course : DESIGN OF BRIDGES AND RETAINING WALLS

Faculty : Snehal P. Abhyankar

Unit	Topic Code	Topic Covered	Date	Course	Section
1	10	Types of bridge superstructure and introduction to their design, sub-structure	23/01/2017	STRL511	A
3	20	Performance of Bridges in past earthquakes	24/01/2017	STRL511	A
3	21	Performance of Bridges in past earthquakes	25/01/2017	STRL511	A
3	22	Seismic design philosophy for Bridges, State of art modeling of bridges	30/01/2017	STRL511	A
3	23	Seismic Design of Substructures, Capacity design of substructures and ductile detailing	01/02/2017	STRL511	A
3	24	Seismic design of well and pile foundations, Modeling soil flexibility.	06/02/2017	STRL511	A
3	25	Seismic design of well and pile foundations, Modeling soil flexibility.	07/02/2017	STRL511	A
3	26	Seismic design of well and pile foundations, Modeling soil flexibility.	08/02/2017	STRL511	A
4	27	Seismic design of well and pile foundations, Modeling soil flexibility.	09/02/2017	STRL511	A
4	28	Earthquake behavior and Design of retaining wall and Abutments, IS code recommendations. Design of Bearings (Free, Guided and Restrained).	14/02/2017	STRL511	A
4	29	Earthquake behavior and Design of retaining wall and Abutments, IS code recommendations. Design of Bearings (Free, Guided and Restrained).	21/02/2017	STRL511	A
4	30	Earthquake behavior and Design of retaining wall and Abutments, IS code recommendations. Design of Bearings (Free, Guided and Restrained).	22/02/2017	STRL511	A
4	31	Design of pier & abutments	01/03/2017	STRL511	A
4	32	type of foundations, importance of bearings	02/03/2017	STRL511	A
4	33	Bearings of girder bridges, joints, expansion joints.	06/03/2017	STRL511	A
1	34	Introduction to Bridge Engg	07/03/2017	STRL511	A
1	35	IRC / IRS loading standards of balanced cantilever bridge	08/03/2017	STRL511	A



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Course wise Teaching Plan for Session : Summer 2017

Course : DESIGN OF BRIDGES AND RETAINING WALLS

Faculty : Snehal P. Abhyankar

Unit	Topic Code	Topic Covered	Date	Course	Section
1	36	Classification & Importance	15/03/2017	STRL511	A
1	37	Investigation for Bridges	16/03/2017	STRL511	A
1	38	Investigation for Bridges	20/03/2017	STRL511	A
1	39	Selection of bridge site	21/03/2017	STRL511	A
1	40	design of prestressed concrete girder and box girder bridges considering only primary torsion, design of end block	28/03/2017	STRL511	A



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Course wise Teaching Plan for Session : Summer 2017

Course : FINITE ELEMENT METHOD

Faculty : Mr. Kuldeep R. Dabhekar

Unit	Topic Code	Topic Covered	Date	Course	Section
1	1	Introduction to Finite element method, History, Applications,	13/12/2016	STRL507	A
1	2	Principles and discretization, Elements stiffens/ mass formulation based on direct, variational and weighted residual techniques	14/12/2016	STRL507	A
1	3	Principles and discretization, Elements stiffens	14/12/2016	STRL507	A
1	4	mass formulation based on direct, variational and weighted residual techniques	15/12/2016	STRL507	A
1	5	variational and weighted residual techniques	20/12/2016	STRL507	A
1	6	variational and weighted residual techniques	21/12/2016	STRL507	A
2	7	Shape function,	21/12/2016	STRL507	A
2	8	convergence, displacement formulation for rectangular	22/12/2016	STRL507	A
2	9	convergence, displacement formulation for rectangular, triangular elements	27/12/2016	STRL507	A
2	10	convergence, displacement formulation for rectangular, triangular elements in Cartesian oordinates,	28/12/2016	STRL507	A
2	11	Application to 2D stress analysis	28/12/2016	STRL507	A
2	12	Application to 2D stress analysis	29/12/2016	STRL507	A
3	13	Natural coordinates, Isoparametric elements,	03/01/2017	STRL507	A
3	14	Natural coordinates, Isoparametric elements, Numerical integration,	04/01/2017	STRL507	A
3	15	Natural coordinates, Isoparametric elements, Numerical integration, Convergence of Isoparametric elements,	04/01/2017	STRL507	A
3	16	Numerical integration, Convergence of Isoparametric elements,	05/01/2017	STRL507	A
3	17	Numerical integration, Convergence of Isoparametric elements,	10/01/2017	STRL507	A



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Course wise Teaching Plan for Session : Summer 2017

Course : FINITE ELEMENT METHOD

Faculty : Mr. Kuldeep R. Dabhekar

Unit	Topic Code	Topic Covered	Date	Course	Section
3	18	application to 1D problems	11/01/2017	STRL507	A
3	19	application to 1D problems	11/01/2017	STRL507	A
4	20	Isoperimetric elements for two-dimensional and axisymmetric stress analysis for plane stress/ strain problems	12/01/2017	STRL507	A
4	21	Isoperimetric elements for two-dimensional and axisymmetric stress analysis for plane stress/ strain problems	13/01/2017	STRL507	A
4	22	axisymmetric stress analysis for plane stress/ strain problems	17/01/2017	STRL507	A
4	23	axisymmetric stress analysis for plane stress/ strain problems	18/01/2017	STRL507	A
4	24	axisymmetric stress analysis for plane stress/ strain problems	18/01/2017	STRL507	A
5	25	Isoperimetric formulation for thin and thick plates and shells	24/01/2017	STRL507	A
5	26	Isoperimetric formulation for thin and thick plates	25/01/2017	STRL507	A
5	27	Isoperimetric formulation for thin and thick plates	25/01/2017	STRL507	A
5	28	Isoperimetric formulation for thin and thick plates	26/01/2017	STRL507	A
5	29	Isoperimetric formulation for thin and thick shells	31/01/2017	STRL507	A
5	30	Isoperimetric formulation for thin and thick plates and shells	01/02/2017	STRL507	A
5	31	Isoperimetric formulation for thin and thick plates and shells	01/02/2017	STRL507	A
5	32	Isoperimetric formulation for thin and thick plates and shells	02/02/2017	STRL507	A
5	33	Modeling techniques,	07/02/2017	STRL507	A
6	34	Modeling techniques, application of FEM	08/02/2017	STRL507	A
6	35	Modeling techniques, to general engineering structures	08/02/2017	STRL507	A
6	36	Modeling techniques of FEM packages to general engineering structures	09/02/2017	STRL507	A



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Course wise Teaching Plan for Session : Summer 2017

Course : FINITE ELEMENT METHOD

Faculty : Mr. Kuldeep R. Dabhekar

Unit	Topic Code	Topic Covered	Date	Course	Section
6	37	Modeling techniques, application of FEM packages to general engineering structures	14/02/2017	STRL507	A
6	38	Modeling techniques, application of FEM to general engineering structures	15/02/2017	STRL507	A
6	39	Modeling techniques, application of FEM packages to general engineering structures	15/02/2017	STRL507	A
6	40	Modeling techniques, application of FEM packages to general engineering structures	28/02/2017	STRL507	A
1	41	Revision for all Units	01/03/2017	STRL507	A
1	42	Revision for all Units	01/03/2017	STRL507	A
1	43	Revision for all Units	02/03/2017	STRL507	A
2	44	Revision for all Units	07/03/2017	STRL507	A
2	45	Revision for all Units	08/03/2017	STRL507	A
2	46	Revision for all Units	08/03/2017	STRL507	A
3	47	Revision for all Units	09/03/2017	STRL507	A
3	48	Revision for all Units	14/03/2017	STRL507	A
3	49	Revision for all Units	15/03/2017	STRL507	A
4	50	Revision for all Units	15/03/2017	STRL507	A
4	51	Revision for all Units	16/03/2017	STRL507	A
4	52	Revision for all Units	21/03/2017	STRL507	A
5	53	Revision for all Units	22/03/2017	STRL507	A
5	54	Revision for all Units	22/03/2017	STRL507	A
6	55	Revision for all Units	23/03/2017	STRL507	A



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Course wise Teaching Plan for Session : Summer 2017

Course : STRUCTURAL DYNAMICS

Faculty : Sanket S. Sanghai

Unit	Topic Code	Topic Covered	Date	Course	Section
1	1	Unit I Single degree freedom system, free vibrations,	12/12/2016	STRL505	A
1	2	Single degree freedom system, free vibrations	12/12/2016	STRL505	A
1	3	damped free vibrations, critical damping, and response,	16/12/2016	STRL505	A
1	4	damped free vibrations, critical damping, and response	16/12/2016	STRL505	A
1	5	periodic loading expressed in harmonics,	19/12/2016	STRL505	A
1	6	dynamic load factor	19/12/2016	STRL505	A
1	7	periodic loading expressed in harmonics,	23/12/2016	STRL505	A
2	8	Unit II Single degree freedom system, response to impulsive loading, rectangular, triangular pulses,	23/12/2016	STRL505	A
2	9	Single degree freedom system, response to impulsive loading, rectangular, triangular pulses,	02/01/2017	STRL505	A
2	10	Single degree freedom system, response to impulsive loading, rectangular, triangular pulses,	02/01/2017	STRL505	A
2	11	Duhamel Integral, Response to general dynamic loading,	06/01/2017	STRL505	A
2	12	Duhamel Integral, Response to general dynamic loading,	06/01/2017	STRL505	A
2	13	Duhamel Integral, Response to general dynamic loading,	09/01/2017	STRL505	A
2	14	Numerical schemes such as Wilson-Theta, Newmark-Beta, constant linear acceleration,	09/01/2017	STRL505	A
2	15	Numerical schemes such as Wilson-Theta, Newmark-Beta, constant linear acceleration,	13/01/2017	STRL505	A
2	16	time domain and frequency domain analysis	13/01/2017	STRL505	A
2	17	SDOF Respose to trangular loading	16/01/2017	STRL505	A
2	18	time domain and frequency domain analysis	16/01/2017	STRL505	A



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Course wise Teaching Plan for Session : Summer 2017

Course : STRUCTURAL DYNAMICS

Faculty : Sanket S. Sanghai

Unit	Topic Code	Topic Covered	Date	Course	Section
3	19	Unit III Multi-degree freedom system, stiffness and flexibility approaches,	23/01/2017	STRL505	A
3	20	Multi-degree freedom system, stiffness and flexibility approaches,	23/01/2017	STRL505	A
3	21	Lumped-mass matrix, free vibrations fundamental Frequencies and mode shapes,	27/01/2017	STRL505	A
3	22	orthogonality of modes, numerical schemes to find mode shapes and frequencies	27/01/2017	STRL505	A
3	23	Lumped-mass matrix, free vibrations fundamental Frequencies and mode shapes,	30/01/2017	STRL505	A
3	24	orthogonality of modes, numerical schemes to find mode shapes and frequencies	30/01/2017	STRL505	A
4	25	Multi degree freedom systems, response to dynamic loading,	03/02/2017	STRL505	A
4	26	Unit IV Multi degree freedom systems, response to dynamic loading,	03/02/2017	STRL505	A
4	27	Formulations of equations of motion, normal coordinates mode superposition method,	06/02/2017	STRL505	A
4	28	Formulations of equations of motion, normal coordinates mode superposition method,	06/02/2017	STRL505	A
4	29	Formulations of equations of motion, normal coordinates mode superposition method,	10/02/2017	STRL505	A
4	30	modal matrix, numerical scheme of Wilson and Newmark	10/02/2017	STRL505	A
4	31	modal matrix, numerical scheme of Wilson and Newmark	13/02/2017	STRL505	A
5	32	Unit V Distributed systems, free vibrations of uniform beams,	13/02/2017	STRL505	A
4	33	modal matrix, numerical scheme of Wilson and Newmark	20/02/2017	STRL505	A
5	34	Distributed systems, free vibrations of uniform beams,	20/02/2017	STRL505	A
5	35	differential equation and Solution, boundary conditions, finite difference solution,)	27/02/2017	STRL505	A



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Course wise Teaching Plan for Session : Summer 2017

Course : STRUCTURAL DYNAMICS

Faculty : Sanket S. Sanghai

Unit	Topic Code	Topic Covered	Date	Course	Section
6	36	Response spectra, Introduction to vibrations due to earthquake	27/02/2017	STRL505	A
5	37	differential equation and Solution, boundary conditions, finite difference solution,)	03/03/2017	STRL505	A
5	38	Finite element, Ritz approach, frees vibrations of simply supported plate. (Transverse vibrations)	03/03/2017	STRL505	A
5	39	Finite element, Ritz approach, frees vibrations of simply supported plate. (Transverse vibrations)	06/03/2017	STRL505	A
5	40	Finite element, Ritz approach, frees vibrations of simply supported plate. (Transverse vibrations)	06/03/2017	STRL505	A
5	41	Finite element, Ritz approach, frees vibrations of simply supported plate. (Transverse vibrations)	10/03/2017	STRL505	A
5	42	Unit VI Study of IS 1893-1984 and 2000 applicable to buildings and water tanks,	10/03/2017	STRL505	A
6	43	Study of IS 1893-1984 and 2000 applicable to buildings and water tanks,	17/03/2017	STRL505	A
6	44	Study of IS 1893-1984 and 2000 applicable to buildings and water tanks,	17/03/2017	STRL505	A
6	45	Study of IS 1893-1984 and 2000 applicable to buildings and water tanks,	20/03/2017	STRL505	A
6	46	Study of IS 1893-1984 and 2000 applicable to buildings and water tanks,	20/03/2017	STRL505	A
6	47	Response spectra, Introduction to vibrations due to earthquake	24/03/2017	STRL505	A
6	48	Response spectra, Introduction to vibrations due to earthquake	24/03/2017	STRL505	A
6	49	Response spectra, Introduction to vibrations due to earthquake	27/03/2017	STRL505	A
6	50	Revision	27/03/2017	STRL505	A
6	51	Revision	31/03/2017	STRL505	A



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Course wise Teaching Plan for Session : Summer 2017

Course : STRUCTURAL DYNAMICS

Faculty : Sanket S. Sanghai

Unit	Topic Code	Topic Covered	Date	Course	Section
1	52	Revision	31/03/2017	STRL505	A



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Course wise Teaching Plan for Session : Summer 2017

Course : THEORY OF PLATES AND SHELLS

Faculty : Mr. Vishal K. Gajghate

Unit	Topic Code	Topic Covered	Date	Course	Section
1	1	Introduction Theory of Plates & Shells	12/12/2016	STRL504	A
1	2	Introduction Theory of Plates & Shells	13/12/2016	STRL504	A
1	3	Moment curvature relation in pure bending	14/12/2016	STRL504	A
1	4	Symmetrical bending of laterally loaded circular plates	15/12/2016	STRL504	A
1	5	Symmetrical bending of laterally loaded circular plates	19/12/2016	STRL504	A
1	6	Uniformly loaded circular plates with clamped	20/12/2016	STRL504	A
1	7	Uniformly loaded circular plates with clamped and Governing differential equations	21/12/2016	STRL504	A
1	8	thin rectangular plates with various boundary conditions & loading	22/12/2016	STRL504	A
1	9	various boundary conditions & loading	26/12/2016	STRL504	A
1	10	various boundary conditions & loading	27/12/2016	STRL504	A
1	11	thin rectangular plates	28/12/2016	STRL504	A
2	12	Laterally loaded rectangular plates	29/12/2016	STRL504	A
2	13	Laterally loaded rectangular plates	03/01/2017	STRL504	A
2	14	Differential equation of the deflection surface (Lagrange's equation)	04/01/2017	STRL504	A
2	15	Boundary conditions,	05/01/2017	STRL504	A
2	16	Boundary conditions,	09/01/2017	STRL504	A
2	17	simply supported plates under sinusoidal loading	10/01/2017	STRL504	A
2	18	simply supported plates under sinusoidal loading	11/01/2017	STRL504	A
2	19	Navier's solution	12/01/2017	STRL504	A
2	20	Differential equation of the deflection surface (Lagrange's equation)	16/01/2017	STRL504	A
2	21	Boundary conditions,	17/01/2017	STRL504	A



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Course wise Teaching Plan for Session : Summer 2017

Course : THEORY OF PLATES AND SHELLS

Faculty : Mr. Vishal K. Gajghate

Unit	Topic Code	Topic Covered	Date	Course	Section
2	22	Boundary conditions,	18/01/2017	STRL504	A
2	23	Navier's solution	23/01/2017	STRL504	A
3	24	Finite difference method	24/01/2017	STRL504	A
3	25	Finite difference method	25/01/2017	STRL504	A
3	26	Finite difference method	30/01/2017	STRL504	A
3	27	, Differential equation to bent surface of anisotropic plate	31/01/2017	STRL504	A
3	28	, Differential equation to bent surface of anisotropic plate	02/02/2017	STRL504	A
3	29	, Differential equation to bent surface of anisotropic plate	06/02/2017	STRL504	A
3	30	, Differential equation to bent surface of anisotropic plate	07/02/2017	STRL504	A
3	31	, Differential equation to bent surface of anisotropic plate	08/02/2017	STRL504	A
3	32	Application to grid	09/02/2017	STRL504	A
3	33	Application to grid	13/02/2017	STRL504	A
3	34	Application to grid	14/02/2017	STRL504	A
3	35	Application to grid	15/02/2017	STRL504	A
3	36	Application to grid	20/02/2017	STRL504	A
3	37	, Differential equation to bent surface of anisotropic plate	21/02/2017	STRL504	A
3	38	, Differential equation to bent surface of anisotropic plate	22/02/2017	STRL504	A
3	39	, Differential equation to bent surface of anisotropic plate	27/02/2017	STRL504	A
4	40	General shell geometry	28/02/2017	STRL504	A
4	41	General shell geometry	02/03/2017	STRL504	A
4	42	shell geometry, classifications	06/03/2017	STRL504	A



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Course wise Teaching Plan for Session : Summer 2017

Course : THEORY OF PLATES AND SHELLS

Faculty : Mr. Vishal K. Gajghate

Unit	Topic Code	Topic Covered	Date	Course	Section
4	43	shell geometry, classifications	07/03/2017	STRL504	A
4	44	Membrane theory of cylindrical shells	08/03/2017	STRL504	A
4	45	Membrane theory of cylindrical shells	09/03/2017	STRL504	A
4	46	equation of equilibrium	14/03/2017	STRL504	A
4	47	equation of equilibrium	15/03/2017	STRL504	A
4	48	, stress resultants under dead load and snow load for circular	16/03/2017	STRL504	A
4	49	, stress resultants under dead load and snow load for circular	20/03/2017	STRL504	A
5	50	cycloidal, catenary, and parabolic cylindrical shells	21/03/2017	STRL504	A
5	51	cycloidal, catenary, and parabolic cylindrical shells	22/03/2017	STRL504	A
5	52	cycloidal, catenary, and parabolic cylindrical shells	23/03/2017	STRL504	A
5	53	Bending theory of cylindrical shells	27/03/2017	STRL504	A
5	54	Bending theory	29/03/2017	STRL504	A
5	55	Bending theory	30/03/2017	STRL504	A



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Course wise Teaching Plan for Session : Summer 2017

Course : AIR POLLUTION & SOLID WASTE MANAGEMENT

Faculty : Mr. Buddharatna Janbrao

Godbole

Unit	Topic Code	Topic Covered	Date	Course	Section
1	1	Introduction to air pollution	12/12/2016	ENVL516	A
1	2	pollution:Defination,air pollution episodes	13/12/2016	ENVL516	A
1	3	atmosphere and its zones	14/12/2016	ENVL516	A
1	4	Effects of air pollutants on man	15/12/2016	ENVL516	A
1	5	Effects of air pollutants on plants	19/12/2016	ENVL516	A
1	6	Effects of air pollutants on materials.	20/12/2016	ENVL516	A
2	7	Meteorology and air pollution: primary and secondary parameters	21/12/2016	ENVL516	A
2	8	Atmospheric and stability	22/12/2016	ENVL516	A
2	9	Atmospheric and stability	02/01/2017	ENVL516	A
2	10	Plume behavior	03/01/2017	ENVL516	A
2	11	Ambient air sampling and stack sampling	04/01/2017	ENVL516	A
2	12	Ambient air sampling and stack sampling	05/01/2017	ENVL516	A
2	13	Collection of particulate particules gaseous pollutants	09/01/2017	ENVL516	A
2	14	Collection of particulate particules gaseous pollutants	10/01/2017	ENVL516	A
2	16	Méthodes of Estimation.	12/01/2017	ENVL516	A
2	15	principals of control methods for particulate and gaseous pollutants	16/01/2017	ENVL516	A
3	17	principals of control methods for particulate and gaseous pollutants	17/01/2017	ENVL516	A
3	18	Gravity settlers	18/01/2017	ENVL516	A
3	19	Electrostatic precipitator bag filter cyclones	26/01/2017	ENVL516	A
3	20	wet scrubber 28/01	30/01/2017	ENVL516	A
3	21	Automobile Exhaust	31/01/2017	ENVL516	A



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Course wise Teaching Plan for Session : Summer 2017

Course : AIR POLLUTION & SOLID WASTE MANAGEMENT

Faculty : Mr. Buddharatna Janbrao

Godbole

Unit	Topic Code	Topic Covered	Date	Course	Section
3	22	Noise pollution : Sources, ill effect, control measurement	01/02/2017	ENVL516	A
4	23	Introduction to solid waste management	06/02/2017	ENVL516	A
4	24	quantity and quality	07/02/2017	ENVL516	A
4	25	sources of solid waste	08/02/2017	ENVL516	A
4	26	Classification of Component of solid waste	09/02/2017	ENVL516	A
4	27	Physical and chemical characteristic	13/02/2017	ENVL516	A
4	28	per capita contribution	14/02/2017	ENVL516	A
4	29	Sampling and analysis	22/02/2017	ENVL516	A
5	30	Method of collection for solid waste	27/02/2017	ENVL516	A
5	31	equipment used for collection and transportation	28/02/2017	ENVL516	A
5	32	Methods of processing	01/03/2017	ENVL516	A
5	33	Choice of methods	02/03/2017	ENVL516	A
5	34	Merits and demerits of methods	06/03/2017	ENVL516	A
5	35	Method of Composting	07/03/2017	ENVL516	A
5	36	Latchet Management	08/03/2017	ENVL516	A
5	37	Types of Incinerators	09/03/2017	ENVL516	A
5	38	Advantage and disadvantage of incineration	13/03/2017	ENVL516	A
5	39	Revision	14/03/2017	ENVL516	A
5	40	Revision	15/03/2017	ENVL516	A



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Course wise Teaching Plan for Session : Summer 2017

Course : **INDUSTRIAL WASTEWATER MANAGEMENT**

Faculty : **Ms. Isha Puranchandrababu**

Khedikar

Unit	Topic Code	Topic Covered	Date	Course	Section
1	1	General scenario of IWWTD and TAE-1 allotment .Discussion on PEOs , POs and COs	12/12/2016	ENVL524	A
1	2	General environmental impact assessment due to industrial water pollution in stream	13/12/2016	ENVL524	A
1	3	General environmental impact assessment due to industrial water pollution on land	15/12/2016	ENVL524	A
1	4	assessment of due to industrial water pollution	16/12/2016	ENVL524	A
1	5	assessment of pollution strength of waste	19/12/2016	ENVL524	A
1	6	BOD, COD	20/12/2016	ENVL524	A
1	9	analysis of wastes	21/12/2016	ENVL524	A
1	7	TOC, COD/BOD/ratio	22/12/2016	ENVL524	A
1	8	sampling of wastes	23/12/2016	ENVL524	A
1	10	analysis of wastes	26/12/2016	ENVL524	A
1	11	determination of BOD rate constant by least square method	27/12/2016	ENVL524	A
1	12	determination of BOD rate constant by Fijimitive method	29/12/2016	ENVL524	A
1	13	standards for waste disposal for various method	30/12/2016	ENVL524	A
1	14	TAE and NPTL video	02/01/2017	ENVL524	A
3	15	Industrial waste volume reduction	03/01/2017	ENVL524	A
3	16	continued Industrial waste volume reduction	05/01/2017	ENVL524	A
3	17	Industrial waste Strength reduction	06/01/2017	ENVL524	A
3	18	paper showing and Industrial waste Strength reduction	09/01/2017	ENVL524	A
3	19	equalization	10/01/2017	ENVL524	A
3	20	equalization numerical	12/01/2017	ENVL524	A



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Course wise Teaching Plan for Session : Summer 2017

Course : **INDUSTRIAL WASTEWATER MANAGEMENT**

Faculty : **Ms. Isha Puranchandrababu**

Khedikar

Unit	Topic Code	Topic Covered	Date	Course	Section
3	21	proportioning of wastes	13/01/2017	ENVL524	A
3	22	neutralization of waste of acidic waste	16/01/2017	ENVL524	A
3	23	Numerical on neutralization of waste	17/01/2017	ENVL524	A
3	24	General method of treatment of industrial wastes.	23/01/2017	ENVL524	A
4	25	Treatment of textile industry	24/01/2017	ENVL524	A
4	26	Treatment of canning industry	27/01/2017	ENVL524	A
4	27	Treatment of dairy industry	30/01/2017	ENVL524	A
4	28	Treatment of fertilizer industry	31/01/2017	ENVL524	A
4	29	Treatment of pulp and paper industry	01/02/2017	ENVL524	A
4	30	Treatment of tanning industry	02/02/2017	ENVL524	A
4	31	Treatment of sugar industry	06/02/2017	ENVL524	A
3	32	Oil and Grease removal theory	07/02/2017	ENVL524	A
4	33	Treatment of brewery and distillery industry	09/02/2017	ENVL524	A
4	34	Treatment of steel and iron industry	10/02/2017	ENVL524	A
4	35	ppt on Common effluent treatment plant	13/02/2017	ENVL524	A
4	36	Anaerobic digestion of industrial wastewater	14/02/2017	ENVL524	A
4	37	UASB	20/02/2017	ENVL524	A
5	38	AFFF	21/02/2017	ENVL524	A
5	39	Hybrid reactors	27/02/2017	ENVL524	A
4	40	Introduction of cleaner technologies	28/02/2017	ENVL524	A
2	41	Waste to energy	01/03/2017	ENVL524	A
2	42	Waste to energy	02/03/2017	ENVL524	A



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Course : **INDUSTRIAL WASTEWATER MANAGEMENT**

Faculty : **Ms. Isha Puranchandrababu**

Khedikar

Unit	Topic Code	Topic Covered	Date	Course	Section
2	43	Reuse and recycle	06/03/2017	ENVL524	A
2	44	JOint Treatment Plant	07/03/2017	ENVL524	A
5	45	Zero discharge concept	09/03/2017	ENVL524	A
2	46	introduction of Cleaner technologies;	10/03/2017	ENVL524	A
2	47	Waste minimization	13/03/2017	ENVL524	A
2	48	Reuse, Recycling and Resource recovery, Reuse of Industrial Effluent - Urban Effluent Reuse for Agriculture in Arid and , Semi-arid Zones,	14/03/2017	ENVL524	A
2	49	Numerical on Self purification Capacity of Stream	16/03/2017	ENVL524	A
5	50	Principles and techniques for Industrial Pollution prevention and control	17/03/2017	ENVL524	A
2	51	Cleaner technology	20/03/2017	ENVL524	A
2	52	Recent trends in industrial waste management	21/03/2017	ENVL524	A
2	53	Oil and grease removal,	23/03/2017	ENVL524	A
3	54	flotation,	24/03/2017	ENVL524	A
3	55	Removal of Organic and inorganic, dissolved solids,	27/03/2017	ENVL524	A



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Course wise Teaching Plan for Session : Summer 2017

Course : WATER CONVEYANCE AND WASTEWATER

Faculty : M P Bhorkar

COLLECTION

Unit	Topic Code	Topic Covered	Date	Course	Section
1	1	Introduction to Subject & Explain PEO, PO, COs etc.	12/12/2016	ENVL515	A
1	2	Flow through pipes	15/12/2016	ENVL515	A
1	3	Equation for flow through pipes	15/12/2016	ENVL515	A
1	4	Tutorial 1	16/12/2016	ENVL515	A
1	5	Moody diagram	16/12/2016	ENVL515	A
1	6	Analysis of flow through pipe network	19/12/2016	ENVL515	A
1	7	1. Hardy cross method	22/12/2016	ENVL515	A
1	8	1. Hardy cross method	22/12/2016	ENVL515	A
1	9	Tutorial 2	23/12/2016	ENVL515	A
1	10	2. Newton Raphsons Method	23/12/2016	ENVL515	A
1	11	2. Newton Raphsons Method	02/01/2017	ENVL515	A
2	12	3. Linear method	05/01/2017	ENVL515	A
2	13	Reservoirs, Effect of inclusion of pumps and valves in the distribution system	05/01/2017	ENVL515	A
2	14	Tutorial 3	06/01/2017	ENVL515	A
2	15	Node flow analysis	06/01/2017	ENVL515	A
2	16	Rising Main-	09/01/2017	ENVL515	A
2	17	Design of rising main, water hammer, cause and prevention. Maintenance of distribution system	12/01/2017	ENVL515	A
2	18	Detection and prevention of faults	12/01/2017	ENVL515	A
2	19	Tutorial 4	13/01/2017	ENVL515	A
3	20	Design of transmission and distribution system	13/01/2017	ENVL515	A
3	21	Waste water collection: General – Objectives	16/01/2017	ENVL515	A



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Course wise Teaching Plan for Session : Summer 2017

Course : WATER CONVEYANCE AND WASTEWATER

Faculty : M P Bhorkar

COLLECTION

Unit	Topic Code	Topic Covered	Date	Course	Section
3	22	Types of system and sewers, requisites for sewerage system design	23/01/2017	ENVL515	A
3	23	Tutorial 5	27/01/2017	ENVL515	A
3	24	Survey and investigations	27/01/2017	ENVL515	A
3	25	Hydraulics of sewer	30/01/2017	ENVL515	A
3	26	Flow equations, pipe and open channel flow, self cleansing and damaging velocities through sewer	02/02/2017	ENVL515	A
3	27	Flow in partially filled sewers	02/02/2017	ENVL515	A
3	28	Tutorial 6	03/02/2017	ENVL515	A
3	29	Velocity of equal cleansing, sewer shape vis-avis their usefulness	03/02/2017	ENVL515	A
4	30	Sewer invert drop	06/02/2017	ENVL515	A
4	31	Design of sewers	09/02/2017	ENVL515	A
4	32	Storm Sewers- Estimation of design flow, rational and other method of estimation of design storm flow	09/02/2017	ENVL515	A
4	33	Tutorial 7	10/02/2017	ENVL515	A
4	34	Frequency relationships	10/02/2017	ENVL515	A
4	35	Design to a typical storm sewerage system.	13/02/2017	ENVL515	A
4	36	Sanitary Sewers- House plumbing system	16/02/2017	ENVL515	A
4	37	Estimation of design flows, fluctuation flows, sewer ventilation.	16/02/2017	ENVL515	A
4	38	Tutorial 8	17/02/2017	ENVL515	A
4	39	Rainfall intensity - duration	17/02/2017	ENVL515	A
5	40	Sulfide generation in sewers, depth of sewer, design of a typical sanitary sewerage system.	20/02/2017	ENVL515	A
5	41	Pumps And Pumping Stations	27/02/2017	ENVL515	A



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Course wise Teaching Plan for Session : Summer 2017

Course : WATER CONVEYANCE AND WASTEWATER

Faculty : M P Bhorkar

COLLECTION

Unit	Topic Code	Topic Covered	Date	Course	Section
5	42	Pumps pump drive units	01/03/2017	ENVL515	A
0	43	Sewage pump selection,	02/03/2017	ENVL515	A
5	44	Pumping station design, illustrative example	02/03/2017	ENVL515	A
5	45	Tutorial 9	03/03/2017	ENVL515	A
5	46	Sewer Appurtenances- Manholes, street inlets, catch basins	03/03/2017	ENVL515	A
5	47	Building connections, sewer junctions	06/03/2017	ENVL515	A
0	48	Inverted siphon, flushing tanks,	09/03/2017	ENVL515	A
5	49	Air ejectors, regular and measuring devices.	09/03/2017	ENVL515	A
5	50	Tutorial 10	10/03/2017	ENVL515	A
5	51	Air ejectors, regular and measuring devices.	10/03/2017	ENVL515	A
5	52	Air ejectors, regular and measuring devices.	13/03/2017	ENVL515	A
5	53	Revision Unit 1	16/03/2017	ENVL515	A
5	54	Revision Unit 2	16/03/2017	ENVL515	A
5	55	Revision Unit 3	17/03/2017	ENVL515	A
5	56	Revision Unit 4	17/03/2017	ENVL515	A
5	57	Revision Unit 5	20/03/2017	ENVL515	A



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Course wise Teaching Plan for Session : Summer 2017

Course : WASTEWATER RECYCLING

Faculty : Vishal Rajendrasingh Kachwah

Unit	Topic Code	Topic Covered	Date	Course	Section
1	1	Introduction of Course Objectives & Outcomes. Introduction to the subject	13/12/2016	ENVL520	A
1	2	Wastewater collection and conveyance:	14/12/2016	ENVL520	A
1	3	Planning factors, Handling and transport of slurry	14/12/2016	ENVL520	A
1	4	Wastewater pumps and pumping stations- sewer appurtenances	16/12/2016	ENVL520	A
1	5	material, construction, inspection and maintenance of sewers	20/12/2016	ENVL520	A
1	6	conveyance of corrosive wastewaters	21/12/2016	ENVL520	A
1	7	Grit removal	21/12/2016	ENVL520	A
1	8	Types of grit chambers, Flotation: Objective, Types of flotation systems, Design considerations	23/12/2016	ENVL520	A
2	9	Chemical precipitation for removal of phosphorous	03/01/2017	ENVL520	A
2	10	Heavy metals and dissolved inorganic substances,	04/01/2017	ENVL520	A
2	11	Mass transport processes	04/01/2017	ENVL520	A
1	12	Mass balance analysis, Introduction to depth filtration	06/01/2017	ENVL520	A
2	13	filtration processes, principal mechanisms of different type of filter (rapid, sand dual media filter),	10/01/2017	ENVL520	A
2	14	Adsorption processes, causes and types of adsorption	11/01/2017	ENVL520	A
2	15	influencing factors, Ion exchange, exchange materials,	11/01/2017	ENVL520	A
2	16	exchange capacity, ion exchange chemistry and reactions	13/01/2017	ENVL520	A
3	17	Ideal disinfectant, chemistry of chlorination	17/01/2017	ENVL520	A
3	18	ozone chemistry, estimation of ozon dosage	18/01/2017	ENVL520	A



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Course : WASTEWATER RECYCLING

Faculty : Vishal Rajendrasingh Kachwah

Unit	Topic Code	Topic Covered	Date	Course	Section
3	19	UV disinfection, Estimation of UV dose,	18/01/2017	ENVL520	A
3	20	Corrosion processes, electrochemical nature of corrosion	24/01/2017	ENVL520	A
3	21	types of corrosion, methods of corrosion control, membrane filtration:	25/01/2017	ENVL520	A
3	22	process classification, membrane configurations, membrane operation for micro filtration, ultra filtration and reverse osmosis,	25/01/2017	ENVL520	A
3	23	area requirement, membrane fouling and its control	27/01/2017	ENVL520	A
3	24	application of membranes. Electro dialysis: theory, area and power requirement, disposal of concentrate waste streams.	31/01/2017	ENVL520	A
4	25	Waste water- a growing resource	01/02/2017	ENVL520	A
4	26	area under wastewater irrigation; rationale for wastewater irrigation;	01/02/2017	ENVL520	A
4	27	wastewater use in developed countries, quality of wastewater	03/02/2017	ENVL520	A
4	28	economic characteristics of recycled wastewater, and key drivers for wastewater recycling:	07/02/2017	ENVL520	A
4	29	limited and decreasing freshwater sources; environmental concerns;	08/02/2017	ENVL520	A
4	30	Acceptability of wastewater by the primary producers	08/02/2017	ENVL520	A
5	31	Quality issues of wastewater reuse/recycling:	10/02/2017	ENVL520	A
5	32	Types of wastewater reuse: reuse for irrigation, domestic and industrial reuse	14/02/2017	ENVL520	A
5	33	direct potable purposes, wastewater	15/02/2017	ENVL520	A
5	34	government/institutional role in	15/02/2017	ENVL520	A
5	35	future of water reuse.	17/02/2017	ENVL520	A
5	36	future of water reuse.	21/02/2017	ENVL520	A



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Course : WASTEWATER RECYCLING

Faculty : Vishal Rajendrasingh Kachwah

Unit	Topic Code	Topic Covered	Date	Course	Section
5	37	key drivers for wastewater recycling	22/02/2017	ENVL520	A
5	38	key drivers for wastewater recycling	22/02/2017	ENVL520	A
5	39	domestic and industrial reuse	28/02/2017	ENVL520	A
5	41	reuse for irrigation, domestic and industrial reuse	03/03/2017	ENVL520	A
5	40	environmental concerns	07/03/2017	ENVL520	A
5	42	disposal of concentrate waste streams.	08/03/2017	ENVL520	A
5	43	disposal of concentrate waste streams.	08/03/2017	ENVL520	A
5	44	government/institutional role in future of water reuse.	10/03/2017	ENVL520	A
1	45	Revision I	14/03/2017	ENVL520	A
1	46	Revision II	15/03/2017	ENVL520	A
2	47	Revision III	15/03/2017	ENVL520	A
3	48	Revision III	17/03/2017	ENVL520	A
4	49	Revision IV	21/03/2017	ENVL520	A
4	50	Revision IV	22/03/2017	ENVL520	A
5	51	Revision V	24/03/2017	ENVL520	A
5	52	Revision V	28/03/2017	ENVL520	A