

GIANI ZAIL SINGH CAMPUS COLLEGE OF ENGINEERING & TECHNOLOGY, BATHINDA
DEPARTMENT OF ELECTRICAL ENGINEERING
 Academic Session: Aug-Dec 2019 Course/Branch: B.Tech (EE) Batch/Semester: 2016 / 7th
NON-LINEAR AND DIGITAL CONTROL SYSTEMS (BELE-1-726)
LECTURE PLAN

Sr.No	Lecture No.	Date	Day	Unit	Topic
1	Lec #1	2-Aug	Friday	Unit -1 (12 Hours)	Introduction NON-LINEAR AND DIGITAL CONTROL SYSTEMS
2	Lec #2	6-Aug	Tuesday		Introduction to digital control system
3	Lec #3	7-Aug	Wednesday		Sampling process, mathematical analysis of sampling
4	Lec #4	9-Aug	Friday		Reconstruction of sampled signal, zero order and first order
5	Lec #5	13-Aug	Tuesday		Z- transform, evaluation of Z-transform
6	Lec #6	14-Aug	Wednesday		Inverse Z-transform
7	Lec #7	16-Aug	Friday		limitations of Z-transform, mapping of S plane into Z plane
8	Lec #8	20-Aug	Tuesday		Pulse transfer function
9	Lec #9	21-Aug	Wednesday		Solution of discrete time state equations. Stability analysis
10	Lec #10	23-Aug	Friday		Jury's stability test
11	Lec #11	27-Aug	Tuesday		Extension of Routh-Hurwitz criterion discrete time systems.
12	Lec #12	28-Aug	Wednesday		<i>Doubt Session of Unit-1</i>
13	Lec #13	30-Aug	Friday		UNIT-2 (07 Hrs.)
14	Lec #14	3-Sep	Tuesday	State variable representation of discrete time systems	
15	Lec #15	4-Sep	Wednesday	Solution of state variable models	
16	Lec #16	6-Sep	Friday	Solution of state variable models	
17	Lec #17	10-Sep	Tuesday	Controllability and Observability	
18	Lec #18	11-Sep	Wednesday	Effect of pole-zero cancellation	
19	Lec #19	13-Sep	Friday	<i>Doubt Session of Unit-2</i>	
20	Lec #20	16-22 September		(02 Hrs.)	FIRST HOUSE TEST
21	Lec #21				FIRST HOUSE TEST
22	Lec #22	20-Sep	Friday	UNIT-3 (06 Hrs.)	Describing Function Analysis:
23	Lec #23	24-Sep	Tuesday		Describing function of ideal relay
24	Lec #24	25-Sep	Wednesday		Describing function dead zone
25	Lec #25	27-Sep	Friday		Describing function relay with hysteresis
26	Lec #26	1-Oct	Tuesday		Describing function coulomb friction and backlash.
		2-Oct	Wednesday		Govt. Holiday (Birthday of Mahatma Gandhi Ji)
27	Lec #27	4-Oct	Friday	<i>Doubt Session & Revision</i>	
		8-Oct	Tuesday	Govt. Holiday (Dussehra)	
28	Lec #28	9-Oct	Wednesday	UNIT-4 (06 Hrs.)	Stability Methods: Lyapunov's direct method
29	Lec #29	11-Oct	Friday		Generation of Lyapunov's function by Krasovskii's
30	Lec #30	15-Oct	Tuesday		Variable Gradient methods
31	Lec #31	16-Oct	Wednesday		Phase Plane Analysis: Singular points, Method of isoclines
32	Lec #32	18-Oct	Friday		Delta method
33	Lec #33	22-Oct	Tuesday	Phase portrait of second order nonlinear systems, limit	
34	Lec #34	23-Oct	Wednesday	UNIT-3 (04 Hrs.)	Introduction of Fourier analysis.
35	Lec #35	25-Oct	Friday		Introduction and Characteristics Fourier analysis.
36	Lec #36	29-Oct	Tuesday		Review of Fourier analysis.
37	Lec #37	30-Oct	Wednesday		Non Linear Control Systems Analysis
38	Lec #38	1-Nov	Friday	UNIT-2 (06 Hrs.)	Design of Digital Control System
39	Lec #39	5-Nov	Tuesday		Design of Discrete PID Controller
40	Lec #40	6-Nov	Wednesday		Design of discrete state feedback controller
41	Lec #41	8-Nov	Friday		Design of set point tracker
42	Lec #42	12-Nov	Tuesday		Design of Discrete Observer for LTI System
43	Lec #43	13-Nov	Wednesday		Design of Discrete compensator.
		15-Nov	Friday	Govt. Holiday (Birthday Guru Nanak Dev Ji)	
47	Lec #44	18-22 Nov		(02 Hrs.)	SECOND HOUSE TEST
48	Lec #45				SECOND HOUSE TEST
49	Lec #46	26-Nov	Tuesday	(02 Hrs.)	<i>Revision & Discussion of Unit-I & Unit-II</i>
50	Lec #47	27-Nov	Wednesday		<i>Revision & Discussion of Unit-III & Unit-IV</i>

Rest of the contact hours are assigned to Tutorials

Prepared By: Er.Shimpy Maheshwari, Asstt. Prof., EED




**GIANI ZAIL SINGH CAMPUS COLLEGE OF ENGINEERING & TECHNOLOGY, BATHINDA
DEPARTMENT OF ELECTRICAL ENGINEERING**

Academic Session: Aug-Dec 2019 Course/Branch: B.Tech (EE) Batch/Semester: 2016 / 7th
POWER SYSTEM-II (SWITCHGEAR AND PROTECTION) (BELE1-727)

LECTURE PLAN

Sr.No	Lecture No.	Date	Day	Unit	Topic
1	Lec #1	05-Aug	Monday	Unit -I	Need for Protective System, Nature and Causes of Faults
2	Lec #2	08-Aug	Thursday		Types and Effects of Faults
3	Lec #3	09-Aug	Friday		Zones of Protection, Primary and Backup Protection
4		12-Aug	Monday		Govt. Holiday
5		15-Aug	Thursday		Govt. Holiday
6	Lec #4	16-Aug	Friday		Essential Qualities of Protection, Basic Principle of Protective System
7	Lec #5	19-Aug	Monday		Components and Classification of Protective System
8	Lec #6	22-Aug	Thursday		Brief Idea of Instrument Transformers, Circuit Breakers, Relays and related Terminologies.
9	Lec #7	23-Aug	Friday		Functions, Types, Classification of substation
10	Lec #8	26-Aug	Monday		Main Equipment of substation
11	Lec #9	29-Aug	Thursday		Layout of substation
12	Lec #10	30-Aug	Friday		Bus-bar Arrangement of Substation
13	Lec #11	02-Sep	Monday		Operation, Types and Rating of Isolators
14	Lec #12	05-Sep	Thursday		Types, Rating and Characteristics of Fuses
15	Lec #13	06-Sep	Friday	UNIT-2	Circuit Breaker Ratings, Arc Initiation and their Interruption Methods
16	Lec #14	09-Sep	Monday		Arc Quenching Theories
17	Lec #15	12-Sep	Thursday		Re-striking voltage, Recovery Voltage, RRRV,
18	Lec #16	13-Sep	Friday		Plain Break Oil Circuit Breaker, Minimum Oil Circuit Breaker,
19	Lec #17	16-22 September		(02 Hrs.)	FIRST HOUSE TEST
20	Lec #18				FIRST HOUSE TEST
21	Lec #19	23-Sep	Monday	UNIT-2	Air Circuit Breaker, Air Blast Circuit Breaker,
22	Lec #20	26-Sep	Thursday		Vacuum Circuit breaker and SF6 Circuit Breaker. Introduction to D.C. Circuit Breaker
23	Lec #21	27-Sep	Friday		Introduction, Classification, Constructional Features of relay
24	Lec #22	30-Sep	Monday		Characteristics of Electromagnetic, Induction, Thermal, Over-current relays
25	Lec #23	03-Oct	Thursday		Directional Over Current Relay, Distance relays (Impedance, Reactance and Mho relay)
26	Lec #24	04-Oct	Friday		Differential Relays, Trans-lay, Negative sequence relay,
27	Lec #25	07-Oct	Monday		Introduction to Static and Numerical Relays.
28	Lec #26	10-Oct	Thursday		<i>Doubt Session & Revision</i>
29	Lec #27	11-Oct	Friday		Over current Protection by Time Graded System
30	Lec #28	14-Oct	Monday		Current Graded and Time- Current Graded System
31	Lec #29	17-Oct	Thursday	UNIT-3	Protection of Parallel Feeder, Protection of Ring Mains
32	Lec #30	18-Oct	Friday		Over Current Earth Fault Protection,
33	Lec #31	21-Oct	Monday		Distance Protection of Transmission lines (Impedance, Reactance and Mho Relay)
34	Lec #32	24-Oct	Thursday		Comparison between Distance Relays, Differential and Percentage
35	Lec #33	25-Oct	Friday		Pilot Relaying Protection of Feeder.
36	Lec #34	28-Oct	Monday		Differential Protection of Bus Bars
37	Lec #35	31-Oct	Thursday		<i>Doubt Session & Revision</i>
38	Lec #36	01-Nov	Friday	UNIT-4	Over current protection
39	Lec #37	04-Nov	Monday		percentage differential protection
40	Lec #38	07-Nov	Thursday		incipient faults in transformers
41	Lec #39	08-Nov	Friday		inter-turn fault
42	Lec #40	11-Nov	Monday		protection against over fluxing.
43	Lec #41	14-Nov	Thursday		<i>Doubt Session & Revision</i>
44		15-Nov	Friday		Govt. Holiday (Birthday Guru Nanak Dev Ji)
45	Lec #42	18-22 Nov		(02 Hrs.)	SECOND HOUSE TEST
46	Lec #43				SECOND HOUSE TEST
47	Lec #44	25-Nov	Monday	Revision session	<i>Revision & Discussion of Unit-I & Unit-II</i>
48	Lec #45	28-Nov	Thursday		<i>Revision & Discussion of Unit-III & Unit-IV</i>
49	Lec #46	29-Nov	Friday		<i>Revision & Discussion of Unit-III & Unit-IV</i>

Rest of the contact hours are assigned to Tutorials

Prepared By: Er.Preeti rani, Asstt. Prof., EED

Preeti Rani

MAHARAJA RANJIT SINGH PUNJAB TECHNICAL UNIVERSITY, BATHINDA
(DEPARTMENT OF ELECTRICAL ENGINEERING)

COURSE: B.Tech

SEMESTER: 7th

Subject: Software Lab

Subject Code- BELE1-729

Session: Aug. to Dec. 2019

Teacher Name: Vishali Aggarwal

Lab No.	Method	Topic Covered
1	Bisection Method+Newton Raphson Method	Covered
2	Gauss-Seidel iterative method	
3	Trapezoidal rule	
4	Simpson's 1/3 rule	
5	Simpson's 3/8 rule	
6	Lagrange's method	
7	Euler's method	
8	Modified Euler's method	
9	R-K method	

Vishali Aggarwal
Signature of the Subject Incharge

MAHARAJA RANJIT SINGH PUNJAB TECHNICAL UNIVERSITY, BATHINDA**(DEPARTMENT OF ELECTRICAL ENGINEERING)****COURSE: B.Tech****SEMESTER: 7th**

Subject: Software Lab

Subject Code- BELE1-729

Session: Aug. to Dec. 2019

Teacher Name: Ramanpreet Kaur

Lab No.	Method	Topic Covered
1	Bisection Method+Newton Raphson Method	Covered
2	Gauss-Seidel iterative method	
3	Trapezoidal rule	
4	Simpson's 1/3 rule	
5	Simpson's 3/8 rule	
6	Lagrange's method	
7	Euler's method	
8	Modified Euler's method	
9	R-K method	

Ramanpreet Kaur.
Signature of the Subject Incharge

TENTATIVE COURSE PLAN

POWER SYSTEM-II LAB
SUBJECT CODE: BELE1-730
GROUP-1

S.No.	Date	Experiments
1	06/08/19	To find the operating characteristics of fuse (HRC or open type)
2	13/08/19	To study the performance of a transmission line. Also to find its ABCD parameters
3	20/08/19	To obtain the Characteristics of over current relay
4	27/08/19	To study different types of Insulators
5	03/09/19	To study the radial feeder performance when Fed at one end and Fed at both ends
6	10/09/19	To draw the characteristics of earth fault protection relay
7	24/09/19	Viva-Voce 1
8	01/10/19	To obtain the characteristics of under voltage and over voltage relay.
9	15/10/19	To find the breakdown strength of transformer oil
10	22/10/19	To demonstrate the operation of a Circuit breaker
11	29/10/19	To draw the characteristics of Distance (Impedance, Reactance and Mho) Relay
12	05/11/19	To simulate different types of faults on transmission lines using demonstration panel/model or some available software
13	19/11/19	To simulate different types of faults on transmission lines using demonstration panel/model or some available software
14	26/11/19	Viva-Voce 2

Lab Technician


Subject Teacher

HOD, EED

**GIANI ZAIL SINGH CAMPUS COLLEGE OF ENGINEERING & TECHNOLOGY,
MRSPTU, BATHINDA-151001
DEPARTMENT OF ELECTRICAL ENGINEERING**

TEACHING PLAN

SESSION: JULY-DEC 2019(ODD)

BATCH: 2K19

COURSE: B.TECH

SEMESTER: 7th

SUBJECT: EHVAC TRANSMISSION

SUBJECT CODE: BELE1-771

SUBJECT I/C: ER. SANDEEP PAL SINGH (AP), EE DEPTT.

LTPC - 3 0 0 4

DURATION: 42 Hrs.

Proposed hrs.	S. No.	Topics	Date
UNIT I			
8 Hrs. *As per syllabus	1	Necessity of EHV AC transmission,	5/8/19
	2	Advantages and problems	8/8/19
	3	Power handling capacity and line losses	9/8/19
	4	Mechanical considerations	14/8/19
	5	Resistance of conductors	19/8/19
	6	Properties of bundled conductors	21/8/19
	7	Bundle spacing and bundle radius	22/8/19
	8	Examples.	26/8/19
UNIT II			
12 Hrs. *As per syllabus	8	Line inductance and capacitance	28/8/19
	9	Sequence inductances and capacitances	2/9/19
	10	Modes of propagation, ground return	4/9/19
	11	Examples	5/9/19
	12	Voltage Control: Power circle diagram and its use	9/9/19
	13	Voltage control using synchronous condensers	11/9/19
	14	Cascade connection of shunt compensation	12/9/19
	15	Cascade connection of series compensation	16/9/19
	16	Sub synchronous resonance in series capacitor	23/9/19
	17	Compensated lines	25/9/19
18	Static VAR compensating system	26/9/19	
UNIT III			
12 Hrs. *As per syllabus	19	Electrostatics	30/9/19
	20	Field of sphere gap	3/10/19
	21	Field of line charges and properties	7/10/19
	22	Charge, potential relations for multi-conductors	9/10/19
	23	Surface voltage gradient on conductors	10/10/19
	24	Distribution of voltage gradient on sub conductors of bundle	14/10/19
	25	Electrostatic field	16/10/19
	26	Calculation of electrostatic field of EHV/AC lines	17/10/19

BS

EHVAC Transmission

	27	Effect on humans, animals and plants	21/10/19
	28	Electrostatic induction in un-energized circuit of double-circuit line	23/10/19
	29	Electromagnetic interference	24/10/19
	30	No load voltage conditions and charging current.	30/10/19
UNIT IV			
8 Hrs * As per syllabus	31	Power loss and audible noise (AN),	31/10/19
	32	Corona loss formulae, charge voltage diagram	4/11/19
	33	Generation, characteristics, limits and measurements of AN	6/11/19
	34	Relation between 1- phase and 3-phase AN levels	7/11/19
	35	Radio interference (RI), corona pulses: generation	11/11/19
	36	Properties, limits, frequency spectrum	13/11/19
	37	Modes of propagation, excitation function	14/11/19
	38	Measurement of RI, RIV and excitation functions	25/11/19

1ST MID SEMESTER TEST: 17TH-22TH SEPT, 2019

2ND MID SEMESTER TEST: 18-22ND NOV. 2019

Sharma
22/8/19

Sharma
22/8-19

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DEPARTMENT OF ELECTRICAL ENGINEERING
Academic Session: Aug-Dec 2019 Course/Branch: B.Tech (CSE) Batch/Sem: 2016 / 7th
ENERGY MANAGEMENT (BELE0-F97)
LECTURE PLAN

Proposed hrs.	Lecture No.	Topics	Date
UNIT 1 – ENERGY SCENARIO, MANAGEMENT AND AUDIT			
12 Hrs. *As per syllabus	1	Introduction to Energy conservation and	
	2	Energy needs of growing economy and long term energy scenario	05-08-2019
	3	Production of coal, oil, natural gas in	06-08-2019
	4	Energy Pricing and pricing of fuels	08-08-2019
	5	Energy sector reforms	19-08-2019
	6	Energy conservation Act 2001	20-08-2019
	7	Energy and Environment	22-08-2019
	8	Air pollution and Climate change	26-08-2019
	9	Air pollutants and different toxic gases	27-08-2019
	10	Energy security & Energy conservation with its importance	29-08-2019
	11	Energy strategy for future and Energy	02-09-2019
UNIT 2 – ELECTRICAL SYSTEM			
12 Hrs. *As per syllabus	12	Introduction to Electricity tariff	03-09-2019
	13	Load management and maximum demand	05-09-2019
	14	Power factor improvement	09-09-2019
	15	Distribution and transformer losses	10-09-2019
	16	FIRST HOUSE TEST	16-22 September (02 Hrs.)
	17	FIRST HOUSE TEST	
	18	Losses in induction motor	23-09-2019
	19	Motor efficiency	24-09-2019
	20	Factors affecting motor performance	26-09-2019
	21	Rewinding and motor replacement issues	30-09-2019
	22	Energy efficient motors	01-10-2019
	23	Light sources and choice of lighting	03-10-2019
	24	Luminance requirements and Energy	07-10-2019
UNIT 3 - ENERGY			
11Hrs *As per syllabus	25	Introduction to energy audit and	
	26	Types and needs of Energy audit	10-10-2019
	27	Energy management approach	14-10-2019
	28	Introduction to energy costs	15-10-2019
	29	Bench marking	17-10-2019
	30	Energy performance	21-10-2019
	31	Matching energy use to requirement	22-10-2019
	32	Maximizing system efficiencies	24-10-2019
	33	Optimising the input energy requirements	28-10-2019
			29-10-2019

	34	Fuel and energy substitution and Energy cost structure in inida	31-10-2019
		UNIT-4 FINANCIAL	
10 Hrs *As per syllabus	35	Introduction to investment need	
	36	Introduction to appraisal criteria	04-11-2019
	37	Financial analysis techniques	05-11-2019
	38	Simple payback period	07-11-2019
	39	Return on investment and net pre-set	11-11-2019
	40	SECOND HOUSE TEST	
	41	SECOND HOUSE TEST	18-22 Nov (02 Hrs.)
	42	Introduction to internal rate of return and	
	43	Risk and sensitivity analysis and	25-11-2019
	44	Energy performance contracts and role of ESCOS	26-11-2019 28-11-2019

Subject Incharge -: Er. Harpreet Sharma

Subject- Energy management

Subject code- BELE0-F97

Branch/Semester- Computer Science/7th

Sharma
23/8/19