

Haryana Engineering College, Jagadhri

Lesson Plan of Electrical Engineering Deptt. 8th Semester

Subject : Computer Methods in Power System (EE-402N)

Day	Topic / Chapter Covered	Academic Activity	Test/Assignment
Day 1	General: Impact of computers	Lecture	
Day 2	Orientation of engineering problems to computers	Lecture	
Day 3	Review of matrices and matrix operations	Lecture	
Day 4	Incidence and Network Matrices	Lecture	
Day 5	Network graph	Lecture	
Day 6	Various incidence matrices	Lecture	
Day 7	Generalized element representation	Lecture	
Day 8	Primitive network and primitive network matrices	Lecture	Assignment 1
Day 9	Formation of various network matrices by singular transformations	Lecture	
Day10	Inter- relations between various incidence matrices and network.	Lecture	
Day11	Bus Impedance and admittance matrices	Lecture	
Day12	Building algorithms for bus impedance matrix	Lecture	
Day13	Modification of bus impedance matrix for change of reference bus and for network changes	Lecture	
Day14	Formation of bus admittance matrix	Lecture	
Day15	Modification of three-phase network elements	Lecture	
Day16	Treatment under balanced and unbalanced excitation	Lecture	
Day17	Transformation matrices, and unbalanced elements	Lecture	
Day18	Short-Circuit Studies	Lecture	Assignment 2
Day19	Introduction, network short circuit studies using Z bus	Lecture	
Day20	Short circuit calculations using symmetrical components for various types of faults	Lecture	
Day21	Load-Flow Studies: Introduction	Lecture	
Day22	Importance of load flow studies	Lecture	
Day23	Classification of buses	Lecture	
Day24	Load flow equations	Lecture	
Day25	Iterative methods	Lecture	
Day26	Computer algorithms and load flow solutions using Gauss Seidel	Lecture	
Day27	Newton Raphson methods	Lecture	Assignment 3
Day28	Decoupled and fast decoupled load flow solutions	Lecture	

Day29	Representation of regulating and off nominal ration transformers	Lecture	
Day30	Comparison of load flow solution methods.	Lecture	
Day31	Sparsity: Introduction	Lecture	
Day32	Optimally ordered triangular factorization	Lecture	
Day33	Schemes of optimal ordering Stability Studies	Lecture	
Day34	Algorithms flow chart and transient stability solution using modified Euler method	Lecture	
Day35	Power System Security: introduction	Lecture	Assignment 4
Day36	Contingency analysis using Z bus and various distribution factors	Lecture	

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Lesson Plan of Electrical Engineering Deptt. 8th Semester

Subject : HVDC Transmission (EE-404N)

Day	Topic / Chapter Covered	Academic Activity	Test/Assignment
Day 1	DC Power Transmission Technology: Introduction	Lecture	
Day 2	Comparison of AC and DC transmission	Lecture	
Day 3	Application of DC transmission	Lecture	
Day 4	Description of DC transmission system	Lecture	
Day 5	Planning for HVDC transmission	Lecture	
Day 6	Modern trends in DC transmission	Lecture	
Day 7	Thyristor Valve	Lecture	
Day 8	Analysis of HVDC Converters: Introduction	Lecture	Assignment 1
Day 9	Thyristor device	Lecture	
Day10	Thyristor value	Lecture	
Day11	Value tests	Lecture	
Day12	Recent trends	Lecture	
Day13	Pulse number	Lecture	
Day14	Choice of converter: configuration	Lecture	
Day15	Simplified analysis of Graetz circuit	Lecture	
Day16	Converter bridge characteristics	Lecture	
Day17	Characteristics of twelve pulse converter	Lecture	
Day18	Detailed analysis of converters	Lecture	Assignment 2
Day19	Converter and HvdC System Control: General	Lecture	
Day20	Principles of DC link control	Lecture	
Day21	Converter control characteristics	Lecture	
Day22	System control hierarchy	Lecture	
Day23	Firing angle control	Lecture	
Day24	Current and extinction angle control	Lecture	
Day25	Starting and stopping of dc link	Lecture	
Day26	Power control	Lecture	
Day27	Higher level controllers	Lecture	Assignment 3
Day28	Telecommunication requirements	Lecture	
Day29	Reactive Power Control, Harmonic and Filters: Introduction	Lecture	
Day30	Reactive power requirement in steady state	Lecture	
Day31	Sources of reactive power	Lecture	
Day32	Static var systems	Lecture	
Day33	Reactive power control during transients	Lecture	
Day34	Introduction of harmonic and filters	Lecture	
Day35	Generation of harmonics	Lecture	Assignment 4

Day36	Design of AC filters	Lecture	
Day37	DC filters	Lecture	
Day38	Carrier frequency	Lecture	
Day39	RI noise	Lecture	

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Lesson Plan of Electrical Engineering Deptt. 8th Semester

Subject : Special Electrical Machines (EE-406N)

Day	Topic / Chapter Covered	Academic Activity	Test/Assignment
Day 1	Different types of FHP motors	Lecture	
Day 2	Different types of FHP motors	Lecture	
Day 3	Uses in domestic	Lecture	
Day 4	Industrial applications	Lecture	
Day 5	Single phase Induction motor	Lecture	
Day 6	Qualitative examination starting	Lecture	
Day 7	Running performance of I-Phase Induction Motors	Lecture	
Day 8	Linear Induction Motors	Lecture	Assignment 1
Day 9	Actuators and its principle of operation	Lecture	
Day10	Actuators and its principle of operation	Lecture	
Day11	Linear Levitated machine & applications	Lecture	
Day12	Permanent magnet motors	Lecture	
Day13	Permanent magnet motors	Lecture	
Day14	High performance energy efficient machines	Lecture	
Day15	Effect of E.M.F injected into secondary circuits	Lecture	
Day16	Quantitative study	Lecture	
Day17	Discharge motor	Lecture	
Day18	Special Induction generations	Lecture	Assignment 2
Day19	Special motors	Lecture	
Day20	Special motors	Lecture	
Day21	Special motors	Lecture	
Day22	Generators associated with Wind	Lecture	
Day23	Solar	Lecture	
Day24	Tidal	Lecture	
Day25	Biogas and other unconventional energy forms and their applications	Lecture	
Day26	Synchronous motors	Lecture	
Day27	Series universal motors	Lecture	Assignment 3
Day28	Stepper motor	Lecture	
Day29	Permanent magnet D.C. motor	Lecture	
Day30	Permanent magnet AC motors	Lecture	
Day31	Switch reluctance motors	Lecture	
Day32	Servo motor	Lecture	
Day33	Shaded pole motor	Lecture	
Day34	Brush less D.C motor	Lecture	
Day35	Typical applications in Computers, Electronics	Lecture	Assignment 4

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Lesson Plan of Electrical Engineering Deptt. 8th Semester

Subject : Electrical Energy Conservation and Auditing (EE-408N)

Day	Topic / Chapter Covered	Academic Activity	Test/Assignment
Day 1	Introduction: Energy Scenario	Lecture	
Day 2	Energy Analysis of Fuels	Lecture	
Day 3	Energy Needs of Growing Economy	Lecture	
Day 4	Long Term Energy Scenario	Lecture	
Day 5	Energy Pricing	Lecture	
Day 6	Energy Sector Reforms	Lecture	
Day 7	Energy and Environment	Lecture	
Day 8	Air Pollution, Climate Change	Lecture	Assignment 1
Day 9	Energy Security	Lecture	
Day10	Energy Conservation and its Importance	Lecture	
Day11	Energy Strategy for the Future	Lecture	
Day12	Energy Conservation Act-2001 and its Features.	Lecture	
Day13	Basics of energy and it's various forms	Lecture	
Day14	Thermal	Lecture	
Day15	Electricity	Lecture	
Day16	Non-Conventional Sources Thermal	Lecture	
Day17	Different Fuels & its Energy Contents	Lecture	
Day18	Temperature & Pressure	Lecture	Assignment 2
Day19	Heat Capacity	Lecture	
Day20	Steam and Moist Air	Lecture	
Day21	Electricity: AC & DC	Lecture	
Day22	Load Management	Lecture	
Day23	Maximum Demand Control	Lecture	
Day24	Aggregated Technical & Commercial Losses (ATC)	Lecture	
Day25	Electricity Tariffs	Lecture	
Day26	Energy Management	Lecture	
Day27	Need for Energy Management	Lecture	Assignment 3
Day28	Various Approaches	Lecture	
Day29	Cost Effectiveness	Lecture	
Day30	Bench Marking	Lecture	
Day31	Optimization of Energy Requirements	Lecture	
Day32	Maximization of System Efficiencies	Lecture	
Day33	Fuel and Energy Substitution	Lecture	
Day34	A Few Case Studies of Real Systems	Lecture	
Day35	Energy Audit: Definition	Lecture	Assignment 4
Day36	Requirements for Energy Audit	Lecture	

Day37	Different Approaches viz	Lecture	
Day38	Preliminary and Detailed Energy Audit	Lecture	
Day39	Case Studies for Real Systems	Lecture	

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Lesson Plan of Electrical Engineering Deptt. 8th Semester

Subject : Power Management (EE-414N)

Day	Topic / Chapter Covered	Academic Activity	Test/Assignment
Day 1	Introduction: Power scenario	Lecture	
Day 2	Power development	Lecture	
Day 3	Planning; power resources	Lecture	
Day 4	Environment- power matters plan	Lecture	
Day 5	Pre-feasibility and feasibility studies	Lecture	
Day 6	State relations for power etc	Lecture	
Day 7	Electricity industry structure	Lecture	
Day 8	Safety regulations bill - state and central power boards / power corporations	Lecture	Assignment 1
Day 9	Resources: Resources	Lecture	
Day10	Geophysical study	Lecture	
Day11	Seismic considerations	Lecture	
Day12	Environmental restraints	Lecture	
Day13	Resettlement	Lecture	
Day14	Rehabilitation	Lecture	
Day15	Procurement: Contracting and procurement	Lecture	
Day16	Consulting services; types of contracts	Lecture	
Day17	Project management	Lecture	
Day18	Organization and economy management	Lecture	Assignment 2
Day19	Organizational planning and time scheduling	Lecture	
Day20	Project cost control	Lecture	
Day21	Engineering: Engineering and general layout of equipments	Lecture	
Day22	Generator	Lecture	
Day23	Transformer and switch gear and control equipment	Lecture	
Day24	Construction methods; operation and maintenance principle	Lecture	
Day25	Maintenance organization	Lecture	
Day26	Planning; availability	Lecture	
Day27	Life cycle cost and future development	Lecture	Assignment 3
Day28	Visits to sites	Lecture	
Day29	Power Sector	Lecture	
Day30	Power sector structure in different states	Lecture	
Day31	Regulatory regime in those states	Lecture	
Day32	Power utilities in Haryana	Lecture	
Day33	Grid management	Lecture	
Day34	Power financing	Lecture	

Day35	Visit to sites	Lecture	Assignment 4
Day36	Power Station	Lecture	
Day37	Management of fuel	Lecture	
Day38	Water resource electricity dividend scenario	Lecture	
Day39	Storage and handling	Lecture	
Day40	Pricing; contract etc.	Lecture	
Day41	Human resource management	Lecture	
Day42	Visit to sites	Lecture	

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