

<https://tinyurl.com/DISCOM-MSEDCL-REGISTER>

Course Overview

This course is designed to help both graduate electrical engineers and employed professionals preparing for entry level, promotion exams for JE, AE, DyE and EE posts. We specialize in competitive and university exams covering a range of key exams including MSEB/DISCOM/GENCO/TRANSCO, SSC/CGL, MPSC/Technical, RRB, Metro, GATE, IES and campus interviews.

This course goes beyond traditional theoretical teaching. We focus on building a solid foundation of core concepts, equipping you with the skills needed for fieldwork, boosting your confidence for technical exams and campus interviews, and teaching you optimized strategies for tackling objective questions. You'll develop critical thinking, problem-solving abilities, and time management skills—preparing you for professional success. Our program is designed to transform how you approach engineering education, making it easy, engaging, practical, and impactful.

Mission

- To simplify complex concepts, making engineering education both enjoyable and easy to grasp.
- To foster both the professional and personal growth of engineering students.

Faculty

Sachin S. Wagh, holds an engineering postgraduate degree from Government College of Engineering, specializing in Electrical Power Systems. With over 20 years of experience as both a researcher and educator, Sachin has served as an Assistant Professor at K. K. Wagh Institute of Engg Education and Research (Pune Univ), Nashik, for 12 years and has been a visiting professor to multiple engineering institutes. Recognized as a Post-Graduate Teacher (Electrical Engineering) by Savitribai Phule Pune University (2011-2016), he is now self-employed in training, consulting, and project development in electrical engineering, specializing in application software such as MATLAB, PSCAD, and ETAP.

Course Details

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| • Commencement: March 2025 | Duration: 30 days (2 hours daily) |
| • Mode: Live online sessions (Non recorded) | Batch Size: Limited to 20 students |
| • Fees: Rs. 5000 | Registration Charges: Rs. 2000 |
| • Eligibility: Final-year Diploma/Degree or a Diploma and/or Degree in Electrical Engineering. | |

Why Choose Us?

- Personalized guidance to enhance learning and well experienced.
- Comprehensive course materials and tests (about 1000 objective questions)
- Focus on real-world applications, not just theoretical knowledge
- Limited seats to ensure individual attention
- 13 years of experience in coaching for MSEB examinations.

Hurry! Limited seats available—secure your spot now!

For registration and queries please contact:

Sachin S. Wagh, 9403423640, Email: ssw.aws.official@gmail.com

Don't forget to share this email with your friends and fellow engineering candidates!

For more details, queries and registration, please contact: Sachin S. Wagh (ME Electrical Power System)
09403423640 ssw.aws.official@gmail.com

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Syllabus

Basic Electrical Engineering and Network Analysis

Basics of Physics, Atomic structure, Electrical engineering terms (definition, units, laws, and factors affecting), Series and parallel circuits, Filament lamps, Colour coding, Electrical mechanical and thermal system and equivalence, Electromagnetism (terms, definitions, units, relationships, laws, materials), Electromagnetic induction, Series and parallel circuits, Electrostatics, important terms, formulae, relationship and units, Capacitors, types, applications, series and parallel calculations. Insulating, conducting and dielectric materials, Class of insulation, Dielectric loss and $\tan \delta$.

AC circuits, Principle, Terms related to waveform, Average rms peak value and inter relationship for different waveforms, Analytical and graphical method, Common factors, Phasor diagrams, R, L, C, R-L-C series and parallel circuits, Power factor, Apparent, active and reactive power calculations, Energy stored, Energy balance theory, Three-phase circuits, Star and delta circuits, phase shift, Conversions, Three-phase power, Balanced and unbalanced system.

Terms used in network, Types of network and sources, S.C. and O.C., Source transformation and shifting, KCL, Super-node, Nodal analysis, KVL, Super-mesh, Loop analysis, Superposition, Thevenin's, Norton's, Maximum power transfer, Reciprocity, Millman's, Substitution, Tellegen's theorem, Application, comparison, and selection of appropriate theorem for given network conditions for smart solutions. Resonance, Series, Parallel resonance, Conditions, Bandwidth, selectivity and quality factor. Two port network, Z, Y, ABCD, h parameters, Interrelationships, and their equivalent network, Conditions of symmetry and reciprocity, Transfer function, Time Constant, Magnetically coupled circuits, Graph theory, Basics of Laplace transform, Basic signals and functions, Initial and final value theorem, Steady state and Transient circuit analysis.

Electrical Power System

Sources of energy, generation and comparison along with statistics, Power Sector in India (past, present and future), Regional grids, Types of load and characteristics, Load and load duration curve, Contract and Maximum demand, Tariff, Types, and importance of power and load factor, Energy calculations, Load, Capacity, Diversity, Demand, Capacity and Utilization factor, Economics of power generation, Incremental cost and criterion, Economic load scheduling and sharing, Loss coefficients, Penalty factor, Spinning, Hot and cold reserve. Typical Generation, Transmission and Distribution power system with voltage levels. Classification of Transmission and Distribution systems in India. Feeder, Distributor, Service mains, Types of distribution system, AC/DC, Concentrated/uniformly distributed, Supplied from one/both ends, Radial, and Ring main system. IE rules, Electricity Act 2003 and ECBC 2017 code.

Cables, classification, construction and applications. Insulation resistance and factors affecting it. Capacitance calculations, charging current, and reactive power calculations for single and three core cable. Measurement of conductor to conductor and sheath capacitance. Dielectric stress, economic sizing and grading methods. Fault location (Murray loop, Varley loop, Blavier and Fisher test).

Insulators, types, materials, comparison, use and calculation of number of insulators required. Voltage distribution, K factor, String efficiency, Crossarm, Capacitance grading, and Static shielding.

Conductor, Types (practical), Loading, Galloping, Stockbridge damper, Stranded conductors, Supporting towers, structure, types and voltage levels. Sag, Tension calculations for equal and unequal ground level, factors affecting, stringing chart, standard spacing and ground clearance calculations and standard values.

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Concept of GMR and GMD and its use for Inductance and Capacitance calculation for different line configurations, Transposition and Kelvin's method of images. Kelvins and modified Kelvin's law for most economic sizing.

Short, Medium and Long transmission lines, ABCD parameters, Nominal and Equivalent Tee and Pi models, Lumped and distributed networks, Voltage regulation and allied loading conditions, Transmission efficiency, Characteristic impedance, SIL, Propagation and travelling waves, Coefficients of reflection and refraction, Power handling capacity, Skin, Ferranti and Proximity effect.

Complex power, Voltage control/Reactive power compensation, Methods, PF improvement and required capacity (capacitor bank) calculations, Corona loss, symptoms, effects, factors affecting, disadvantages, advantages, Peek's formulae and corona loss reduction, and Radio Interference.

Per Unit system, advantages, base selection, rules and calculations, Impedance diagram, Impedance (Z_{bus}) matrix and calculations. Faults, types and analysis. R-L series circuit transient, sub-transient, transient and steady state, Thevenin's theorem and symmetrical fault analysis, DC offset, CB selection, Current limiting reactors, Symmetrical components, Sequence impedances for common power system components, Power Invariance, Unsymmetrical fault analysis.

Types of buses, Load flow equations, Admittance matrix (Y_{bus}) properties and formulation, Sparsity, Jacobian matrix, Methods and comparison. Power system stability and its types, Dynamics of a synchronous machine, Inertia constant, Swing, Power angle equation, Equal area criterion, X/R ratio and its importance, and Methods to improve stability.

Common terms used in switchgear and protection, Classification of relays, Universal torque characteristic equation, Directional and non-directional characteristics, Instantaneous, IDMT, Overcurrent, Overvoltage, Distance, Reactance, Impedance, Mho and offset-mho, Negative sequence, Earth fault, and Numeric relay. Sensitivity of a relay. Characteristics of a good protection system, protection zones, overlap, underreach and overreach. Differential protection, Types, CT connections, Transformer, Alternator, Feeder and three step distance protection. Relay, Circuit Breaker (CB), and total operating time, Transient switching, Doubling effect, Significance of switching instant, Single pole switching, Arc interruption, Making, Breaking, and Prospective current, Transient recovery, recovery and restriking voltage, Reignition and restrike, First pole to clear factor, Current chopping, Resistance switching, CB ratings, Dielectric strength and materials, Rated breaking and making current, Rated operating sequence, Air break, Blast, MO, Vacuum and SF₆ CB, Time Current Curve (TCC), Pick up current, Plug setting and Time multiplier setting. Fuse, types, characteristic, fusing current, material and HRC fuse.

Note: Syllabus given is not published officially by an employer or any organizing body. It is designed based on pattern of previous examinations, feedback, and experience.

Thank you.

Hurry! Limited seats available (20 only).

Secure your spot now!

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