

EE ESP SYLLABUS

1ST SEMESTER:-

Subject Code : IVC101	Category: Mandatory & Industry Value Added Course
Subject Name : MENTAL MATHS FOR PROFESSIONALS-I	Semester : 1st
L-T-P : 2-0-0 (Total Contact Hrs. 2)	Credit: 0
Pre-Requisites: Basic & fundamental knowledge of mathematics up to class 10 th standard, Logical & Analytical skill.	

Course Objective:

1. To learn aptitude and multiple tricky approaches.
2. To enhance the analytical skill and quick decision-making skill of the students.
Good analytical skill and sound knowledge in analogies will also enhance student's interview facing skill.
3. To make them prepare for the various competitive exams and different placement aptitude test as well.
4. To enhance student's skill to appear in various aptitude test within limited time constrain.

Course Outcome:

1. Students will learn advance tricky approach for solving Quantitative Aptitude questions.
2. It will enhance students skill to appear in various aptitude test within limited time constrain.
3. This module will enhance students Analytical skill & will also improve quick decision making skill.
4. Students can prepare various competitive exams and different placement aptitude test as well.
5. Good analytical skill and sound knowledge in analogies will also enhance student's interview facing skill.

Course Content:

Module No.	Description	Hours	Blooms Level	PO (1..12) Mapping
1.	Quantitative Aptitude: 1) Quant foundation 2) Basic Multiplication 3) Division 4) Squaring numbers 5) Percentage 6) Ratio 7) Simple equation 8) Variation 9) Partnership 10) Profit & Loss	30	L1 (Remember) L2 (Understand) L3 (Apply)	PO6, PO7, PO8

2.	Logical Mental ability -1: 1) Coding and Decoding & Direction Sense 2) Series & Numbers 3) Blood Relations 4) Analogy	18	L1 (Remember) L2 (Understand) L3 (Apply)	PO6, PO7, PO8
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Learning Resources:

Text Books:

1. Fast Track Arithmetic- Rajesh Verma
2. Verbal & non-verbal reasoning- R.S Agarwal
3. Quantitative Aptitude- R.S Agarwal
4. Analytical Reasoning –Peeyush Bhardwaj

2ND SEMESTER:-

Subject Code : IVC201	Category : Mandatory & Industry Value Added Course
Subject Name : General Studies and CA-II	Semester : 2nd
L-T-P : 2-0-0 (Total Contact Hrs. 2)	Credit: 0
Pre-Requisites: Fundamental knowledge of humanities & social science subjects till class 10 th standard and knowledge of Economics up to class 11 th standard.	

Course Objective:

1. To learn aptitude and multiple tricky approaches.
2. To enhance the analytical skill and quick decision-making skill of the students.
Good analytical skill and sound knowledge in analogies will also enhance student's interview facing skill.
3. To make them prepare for the various competitive exams and different placement aptitude test as well.
4. To enhance student's skill to appear in various aptitude test within limited time constrain.

Course Outcome:

1. This part of the syllabus will create base of general knowledge among students which is required to appear in various competitive exams in public sector jobs.
2. It will inculcate their rights & duties to the society, it will help them to act according to law in society.
3. It will also improve basic banking knowledge among students.
4. This part of the syllabus will enhance knowledge on National & International Current Affairs among students.

Course Content:

Module No.	Description	Hours	Blooms Level	PO(1..12) Mapping
1.	Laws of Society: History of Constitution, Preamble, Fundamental Rights, Directive Principle of State Policy and Fundamental Duties	8	L1 (Remember) L2 (Understand) L3 (Apply)	PO6, PO 7, PO8
2.	Our Ancient Past: Indus Valley Civilization, Vedic Civilization, 16 Mahajanapadas, Mauryan Dynasty.	10	L1 (Remember) L2 (Understand) L3 (Apply)	PO6, PO 7, PO8
3.	Know Our Country: Physiographic Division of India- Geological history of India, Northern Mountain, Mineral Resources of India.	8	L1 (Remember) L2 (Understand) L3 (Apply)	PO6, PO 7, PO8
4.	Financial Planning and Market Laws: Basic Concept of Economics, National	8	L1 (Remember) L2 (Understand) L3 (Apply)	PO6, PO 7, PO8

	Income, Unemployment and Poverty			
5.	India and World: Monthly Current Affairs Magazine	8	L1 (Remember) L2 (Understand) L3 (Apply)	PO6, PO 7, PO8
6.	Universal Human Values: Understanding Value Education, Method to fulfill the Basic Human Aspiration, Continuous happiness and Prosperity- the Basic Human Aspiration	6	L1 (Remember) L2 (Understand) L3 (Apply)	PO6, PO 7, PO8

Learning Resources:

Text Books:

- Indian Constitution- M.Laxmikant
- Indian Economy-Ramesh Singh
- India's Ancient Past- R.S.Sharma
- Geography of India- Majid Hussain

Reference Books:

- Current Affairs Magazine of IEM-UEM

3RD SEMESTER:-

Subject Code : IVC301	Category: Mandatory & Industry Value Added Course
Subject Name : General Studies and CA- III	Semester : 3rd
L-T-P : 2-0-0 (Total Contact Hrs. 2)	Credit: 0
Pre-Requisites: Basic Social Science from primary to high school, NCERTs	

Course Objective:

1. To learn about basic of History to know about our past and to implement it in our daily life.
2. To learn about the Political System of Our Country.
3. To learn the concepts of Basics of Geography and Economics from which Students will acquire knowledge for Competitive exams.

Course Outcome:

At the end of the course the students will be able

1. To inculcate human values and ethical thinking among students.
2. To prepare the stage for facing different levels of civil service and other competitive examinations.
3. To prepare the ground for making them aware of the happenings, cultural historical and developmental aspects of the country as well as global affairs
4. Learning current affairs with technique.

Course Content:

Module No.	Description	Hours	Blooms Level	PO(1..12) Mapping
1.	Laws of Society : Union Executive- President, Vice President, PM and Council of Ministers, Attorney General	6	L1 (Remember) L2 (Understand) L4 (Analyse)	PO6,PO7, PO8
2.	Our Freedom Struggle: Arrival of the Europeans- Portuguese, Dutch, English, French; Land Revenue System, Economic Exploitation of British Rule, Socio-religious Reforms Movement.	12	L1 (Remember) L2 (Understand) L3 (Apply) L4 (Analyse)	PO6,PO7, PO8
3.	Know Our Country: Physical Geography of India- Peninsular Plateau, Northern Great Plains, Coastal Plains, Soil of India.	12	L1 (Remember) L2 (Understand) L3 (Apply) L4 (Analyse)	PO6,PO7, PO8

4.	RBI and Banking, India and World and Universal Human Values: Banking System of India with reference to RBI, Capital Market Monthly Current Affairs Magazine and Understanding Human Beings as the co- existence of the self and the body, Program to ensure self-regulation and health, Understanding harmony in the nature.	6	L1 (Remember) L2 (Understand) L3 (Apply) L4 (Analyze)	PO6,PO7, PO8
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Learning Resources:

Text Books:

1. NCERT Books from class 8-12.

Reference Books:

1. Indian Constitution-M.Laxmikant
2. Indian Economy-Ramesh Singh
3. History of Modern India- Bepan Chandra
4. Geography of India- Majid Hussain
5. Current Affairs Magazine of IEM-UEM

4TH SEMESTER:-

Subject Code : IVC401	Category : Mandatory & Industry Value Added Course
Subject Name : GENERAL STUDIES & CURRENT AFFAIRS-IV	Semester : 4th
L-T-P : 2-0-0 (Total Contact Hrs. 2)	Credit: 0
Pre-Requisites: Basic Social Science from primary to high school, NCERTs	

Course Objective:

1. To learn about basic of History to know about our past and to implement it in our daily life.
2. To learn about the Political System of Our Country.
3. To learn the concepts of Basics of Geography and Economics from which Students will acquire knowledge for Competitive exams.

Course Outcome:

At the end of the course the students will be able

1. To inculcate human values and ethical thinking among students.
2. To prepare the stage for facing different levels of civil service and other competitive examinations.
3. To prepare the ground for making them aware of the happenings, cultural historical and developmental aspects of the country as well as global affairs
4. Learning current affairs with technique.

Course Content:

Module No.	Description	Hours	Blooms Level	PO(1..12) Mapping
1.	Laws of Society: Central Legislative System of India, State Legislative System of India, Indian Judiciary	6	L1 (Remember) L2 (Understand) L4 (Analyze)	PO6,PO7, PO8
2.	Heritage of India: Islam and Early Muslim Invaders, Delhi Sultanate, Bhakti and Sufi Movement.	12	L1 (Remember) L2 (Understand) L3 (Apply) L4 (Analyze)	PO6,PO7, PO8
3.	Know Our Country: Rivers of India, Vegetation of India, Climate of India, Transport of India.	12	L1 (Remember) L2 (Understand) L3 (Apply) L4 (Analyze)	PO6,PO7, PO8
4.	Revenue and Expenditure of India, India and World and Universal Human Values: Tax System of India, Balance of Payment,	6	L1 (Remember) L2 (Understand) L3 (Apply) L4 (Analyze)	PO6,PO7, PO8

	Industrial Reforms, Monthly Current Affairs Magazine, Realising existence and co- existence at all levels, Holistic perception of Harmony in existence.			
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Learning Resources:

Text Books:

1. NCERT Books from class 8-12.

Reference Books:

1. Indian Constitution-M.Laxmikant
2. Indian Economy-Ramesh Singh
3. History of Modern India- Bipan Chandra
4. Geography of India- Majid Hussain
5. Current Affairs Magazine of IEM-UEM

5TH SEMESTER

Subject Code : IVC(EE)501	Category : Mandatory & Industry Value Added Course
Subject Name : ADVANCED TECHNICAL KNOWLEDGE-V	Semester : 5th
L-T-P : 2-0-0 (Total Contact Hrs. 2)	Credit : 0
Pre-Requisites : Basic Science from high school, NCERTs	

Course Objective:

1. To learn about basic of Electrical and Electronic Measurements.
2. To learn about the Measurement of voltage, current, power, energy and power factor.
3. To learn the concepts of Electrical Machines from which Students will acquire knowledge for Competitive exams.

Course Outcome:

At the end of the course the students will be able

1. To inculcate the ability of error analysis among students.
2. To prepare the stage for facing different levels of civil service and other competitive examinations.
3. To prepare the ground for making them aware of the Auto- transformer, Electromechanical energy conversion principles.
4. Learning the operation of Dc Motors.

Course Content:

Module No.	Description	Hours	Blooms Level	PO(1..12) Mapping
1.	Electrical and Electronic Measurements: Bridges and Potentiometers, Measurement of voltage, current, power, energy and power factor; Instrument transformers, Digital voltmeters and multimeters, Phase, Time and Frequency measurement; Oscilloscopes, Error analysis.	18	L1 (Remember) L2 (Understand) L4 (Analyse)	PO6,PO7, PO8
2.	Electrical Machines 1: Single phase transformer: equivalent circuit, phasor diagram, open circuit and short circuit tests, regulation and efficiency; Three phase transformers: connections, parallel operation; Auto-transformer, Electromechanical energy conversion principles, DC machines: separately excited, series and shunt, motoring and generating mode of operation and their characteristics, starting and speed control of dc motors. Three phase induction motors: principle of	18	L1 (Remember) L2 (Understand) L3 (Apply) L4 (Analyse)	PO6,PO7, PO8

	operation, types, performance, torque-speed characteristics, no-load and blocked rotor tests, equivalent circuit, starting and speed control			
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Text Books:

1. G.K publishers GATE Electrical Engineering,
2. Mcgraw hill GATE 2021 Electrical Engineering,
3. Wiley GATE 2021 Electrical Engineering,

6TH SEMESTER

Subject Code : IVC(EE)601	Category : Mandatory & Industry Value Added Course
Subject Name : ADVANCED TECHNICAL KNOWLEDGE-VI	Semester : 6th
L-T-P : 2-0-0 (Total Contact Hrs. 2)	Credit : 0
Pre-Requisites : Basic Science from high school, NCERTs	

Course Objective:

1. To learn about basic of Electrical Machines.
2. To learn about the Power Systems.
3. To learn the concepts of parallel operation of generators from which Students will acquire knowledge for Competitive exams.

Course Outcome:

At the end of the course the students will be able

1. To inculcate the ability of Mathematical modelling and representation of systems among students.
2. To prepare the stage for facing different levels of civil service and other competitive examinations.
3. To prepare the ground for making them aware of the Applications of Fourier Transform, Laplace Transform and z-Transform.
4. Learning the operation of Signals and Systems.

Course Content:

Module No.	Description	Hours	Blooms Level	PO(1..12) Mapping
1.	Electrical Machines: Operating principle of single phase induction motors; Synchronous machines: cylindrical and salient pole machines, performance, regulation and parallel operation of generators, starting of synchronous motor, characteristics; Types of losses and efficiency calculations of electric machines. Power Systems: Power generation concepts, ac and dc transmission concepts, Models and performance of transmission lines and cables, Series and	18	L1 (Remember) L2 (Understand) L4 (Analyse)	PO6, PO7, PO8

	shunt compensation, Electric field distribution and insulators, Distribution systems, Per-unit quantities.			
2.	Control Systems: Mathematical modelling and representation of systems, Feedback principle, transfer function, Block diagrams and Signal flow graphs, Transient and Steady-state analysis of linear time invariant systems, Routh-Hurwitz and Ny-quist criteria, Bode plots, Root loci, Stability analysis, Lag, Lead and Lead-Lag compensators; P, PI and PID controllers. Signals and Systems Representation of continuous and discrete-time signals, Shifting and scaling operations, Linear Time Invariant and Causal systems, Fourier series representation of continuous periodic signals, Sampling theorem, Applications of Fourier Transform, Laplace Transform and z-Transform.	18	L1 (Remember) L2 (Understand) L3 (Apply) L4 (Analyze)	PO6,PO7, PO8

Text Books:

1. G.K publishers GATE Electrical Engineering,
2. Mcgraw hill GATE 2021 Electrical Engineering,
3. Wiley GATE 2021 Electrical Engineering,

7TH SEMESTER

Subject Code : IVC(EE)701	Category : Mandatory & Industry Value Added Course
Subject Name : ADVANCED TECHNICAL KNOWLEDGE-VII	Semester : 7th
L-T-P : 2-0-0 (Total Contact Hrs. 2)	Credit: 0
Pre-Requisites: Basic Science from high school, NCERTs	

Course Objective:

1. To learn about basic of Power Systems.
2. To learn about the Principles of over- current, differential and distance protection.
3. To Students will acquire knowledge of the Characteristics of semiconductor power devices for Competitive exams.

Course Outcome:

At the end of the course the students will be able

1. To inculcate the System stability concepts among students.
2. To prepare the stage for facing different levels of civil service and other competitive examinations.
3. To prepare the ground for making them aware of the Applications of Bus admittance matrix, Gauss-Seidel and Newton-Raphson load flow methods.
4. Learning the Distortion factor of ac to dc converters.

Course Content:

Module No.	Description	Hours	Blooms Level	PO(1..12) Mapping
1.	Power Systems: Bus admittance matrix, Gauss-Seidel and Newton-Raphson load flow methods, Voltage and Frequency control, Power factor correction, Symmetrical components, Symmetrical and unsymmetrical fault analysis, Principles of over-current, differential and distance protection; Circuit breakers, System stability concepts, Equal area criterion.	18	L1 (Remember) L2 (Understand) L4 (Analyse)	PO6,PO7, PO8
2.	Power Electronics: Characteristics of semiconductor power devices: Diode, Thyristor, Triac, GTO, MOSFET, IGBT; DC to DC conversion: Buck, Boost and Buck-Boost	18	L1 (Remember) L2 (Understand) L3 (Apply) L4 (Analyse)	PO6,PO7, PO8

	converters; Single and three phase configuration of uncontrolled rectifiers, Line commutated thyristor based converters, Bidirectional ac to dc voltage source converters, Issues of line current harmonics, Power factor, Distortion factor of ac to dc converters, Single phase and three phase inverters, Sinusoidal pulse width modulation.			
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Text Books:

1. G.K publishers GATE Electrical Engineering,
2. Mcgraw hill GATE 2021 Electrical Engineering,
3. Wiley GATE 2021 Electrical Engineering,

8TH SEMESTER

Subject Code : IVC801	Category : Mandatory & Industry Value Added Course
Subject Name : GENERAL STUDIES & CURRENT AFFAIRS-VIII	Semester : 8th
L-T-P : 2-0-0 (Total Contact Hrs. 2)	Credit: 0
Pre-Requisites: Basic Science from high school, NCERTs	

Course Objective:

1. To learn about Current Affairs for professional exams
2. To learn about fundamentals of general studies for various exams
3. To learn about basics of all the subjects included for professional exams
4. To learn about fundamentals of general knowledge for various exams

Course Outcome:

- 1.To develop an understanding of the things happening in various fields.
- 2.To be prepared for taking UPSC examinations
- 3.To be prepared for performing within a given time.
- 4.To apply the knowledge acquired through Mock Tests.

Course Content:

Module No.	Description	Hours	Blooms Level	PO(1..12) Mapping
1.	Mock tests of UPSC Prelims CSAT-I	12	L1 (Remember) L2 (Understand) L4 (Analyse)	PO6,PO7, PO8
