



**MADE EASY**

India's Best Institute for IES, GATE & PSUs

# ESE 2019



*Commencing from*  
**20<sup>th</sup> Feb, 2019**



*Commencing from*  
**17<sup>th</sup> Mar, 2019**

UNIQUE... EFFECTIVE... REWARDING... DYNAMIC...

**ENROLL NOW**

## Key Features :

- 350 Hrs. of classes with comprehensive and in-depth discussion on conventional questions.
- Classes to be taken by the group of senior teachers only.
- Well designed comprehensive Mains Exclusive workbooks for every subject which contain 2 sections i.e. unsolved and solved (for self practice).
- Special sessions on improving motivation, writing skills, time management & presentation skills by B. Singh Sir.
- Dynamic test series on every Sunday having test of 3 hours in synchronisation with the syllabus taught in the classes exactly on the UPSC pattern and environment.
- Test Series contains **Repeat Topics** and **New Topics** to maintain continuity in study .
- Facility to cross check the evaluated answer sheet & access to see the answer sheet of top scorer of every test to compare your performance.
- There is provision to interact with teachers, to write your missed classroom tests & to discuss doubts, through online support using "Student Portal" (A social learning platform of MADE EASY).
- To create motivational environment & learning competitive environment, MADE EASY introduces reward point system for each student in every test. There will be provision of reward for top rankers in topicwise tests and in full syllabus tests.
- There is option to join for Mains Classroom Program with Mains Test Series or Only Mains Exclusive Test Series.

**Streams Offered : CE, ME, EE, E&T**

## Fee Structure

Program	Ex. MADE EASY Students Enrolled in Postal, Rank Improvement, Mains, GS, Post-GATE, ESE+ GATE, GATE Batches	Non MADE EASY students
Mains Exclusive Batch (Inclusive of ESE-2019 Mains Offline Test Series)	₹ 18,500	₹ 22,500
ESE 2019 Mains Offline Test Series	Rs. 3,500/-	Rs. 4,500/-

## Delhi : Batch Schedule

### Batch Details

**Course Duration**  
90 days | 300 - 350 hours

**Class Duration**  
5-6 days/week (6-7 hours per day)

**Test Series**  
Every Sunday

Streams	Batch Code	Batch Commencing Date	Venue (Delhi)	Timing
ME	A	20-Feb-2019	Ghitorni Centre	7:30 AM to 1:30 PM
ME	B	20-Feb-2019	Ghitorni Centre	3:00 PM to 9:00 PM
ME	C	20-Feb-2019	Saket Centre	7:30 AM to 1:30 PM
CE	A	21-Feb-2019	Ignou Road Centre	7:30 AM to 1:30 PM
CE	B	21-Feb-2019	Kalu Sarai Centre	3:00 PM to 9:00 PM
EE	A	22-Feb-2019	Lado Sarai Centre	7:30 AM to 1:30 PM
EE	B	22-Feb-2019	Kalu Sarai Centre	3:00 PM to 9:00 PM
EC	A	22-Feb-2019	Lado Sarai Centre	7:30 AM to 1:30 PM

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## Hostel Facility

There are many private hostels (Separate for girls and boys) within walking distance from the institution. Students can easily find accommodation on their own. MADE EASY staff may help you in locating the same. Moreover, there are good food provisions and private mess for students, who provide their services on monthly/daily basis.

## Important Note

Candidates are advised **NOT** be remain absent for test series. In case any candidate is unable to appear the test on Sunday due to any unavoidable reasons then he/she can appear the same test on every MONDAY at respective MADE EASY centers. But these candidates will **NOT** be eligible for Incentives & Rewards.

Delhi students can appear the test at Sultanpur Centre.

- Part Syllabus Test Timing : **1:00 pm to 4:00 pm**
- Full Syllabus Test Timing : **10:00 am to 5:00 pm**

**Test Venues**

**Delhi Centre**

<b>CE</b>	Mains <b>A Batch</b>	<b>Saket Centre - I :</b> Opp. ITDC, Westend Marg, Near Saket Metro Station, Saidulajab, New Delhi -110030; Ph: 088511 76827		
	Mains <b>B Batch</b>	<b>Corporate Office :</b> 44 - A/1, Kalu Sarai, Near Hauz Khas Metro Station, New Delhi - 110016; Ph : 011-45124612, 09958995830		
	<b>External Students</b>	<b>Saket Centre - I :</b> Opp. ITDC, Westend Marg, Near Saket Metro Station, Saidulajab, New Delhi - 30 Ph: 088511 76827	<b>Corporate Office :</b> 44 - A/1, Kalu Sarai, Near Hauz Khas Metro, New Delhi - 110016; Ph : 011-45124612, 09958995830	<b>Sultanpur Centre :</b> 174, Sultanpur, MG Road Near Sultanpur Metro Station Opp. Metro Pillar No.33, Near Zorba Farm, New Delhi - 110030 Ph : 088511 76828
<b>ME</b>	Mains <b>A &amp; B Batch</b>	<b>Ghitorni Centre :</b> Khasra No. 354, 100 Feet Road, Near Ghitorni Metro Station, New Delhi-30; Ph: 8851176824		
	Mains <b>C Batch</b>	<b>Saket Centre - I :</b> Opp. ITDC, Westend Marg, Near Saket Metro Station, Saidulajab, New Delhi -110030; Ph: 088511 76827		
	<b>External Students</b>	<b>Saket Centre - I :</b> Opp. ITDC, Westend Marg, Near Saket Metro Station, Saidulajab, New Delhi - 30 Ph: 088511 76827	<b>Ghitorni Centre :</b> Khasra No. 354, 100 Feet Road, Near Ghitorni Metro Station, New Delhi-30; Ph: 8851176824	<b>Sultanpur Centre :</b> 174, Sultanpur, MG Road Near Sultanpur Metro Station Opp. Metro Pillar No.33, Near Zorba Farm, New Delhi - 110030 Ph : 088511 76828
<b>EE</b>	Mains <b>A Batch</b>	<b>Lado Sarai Centre - I :</b> 225-C, near Indraprashtha Gyan Mandir School, behind petrol pump, Lado Sarai, New Delhi - 110030; Ph: 011-47512475, 9810477590		
	Mains <b>B Batch</b>	<b>Choudhary House :</b> 32/1, Opp. Vijay Mandal Enclave, Gate No. 1, Kalu Sarai, New Delhi-16; Ph: 8851176830		
	<b>External Students</b>	<b>Lado Sarai Centre - I :</b> 225-C, near Indraprashtha Gyan Mandir School, Lado Sarai, New Delhi -30; Ph: 011-47512475, 9810477590	<b>Choudhary House :</b> 32/1, Opp. Vijay Mandal Enclave, Gate No. 1, Kalu Sarai, New Delhi-16; Ph: 8851176830	<b>Sultanpur Centre :</b> 174, Sultanpur, MG Road Near Sultanpur Metro Station Opp. Metro Pillar No.33, Near Zorba Farm, New Delhi - 110030 Ph : 088511 76828
<b>E&amp;T</b>	Mains <b>A Batch</b>	<b>Lado Sarai Centre - I :</b> 225-C, near Indraprashtha Gyan Mandir School, behind petrol pump, Lado Sarai, New Delhi - 110030; Ph: 011-47512475, 9810477590		
	<b>External Students</b>	<b>Lado Sarai Centre - I :</b> 225-C, near Indraprashtha Gyan Mandir School, behind petrol pump, Lado Sarai, New Delhi - 110030; Ph: 011-47512475, 9810477590	<b>Sultanpur Centre :</b> 174, Sultanpur, MG Road Near Sultanpur Metro Station Opp. Metro Pillar No.33, Near Zorba Farm, New Delhi - 110030 Ph : 088511 76828	

## Other Centres (For All Streams)

Noida	:	D-28, Sector-63, Noida, Uttar Pradesh; Ph: 0120-6524612, 08860378009
Hyderabad	:	5-1-744, Bank Street, Koti, Hyderabad; Ph: 040-24652324, 040-66774612
Jaipur	:	AB-559, Kings Road, Nirman Nagar, Jaipur; Ph: 0141-4024612, 09166811228
Bhopal	:	Plot No. 46, ZONE - 2, M.P. Nagar, Bhopal; Ph: 0755-4004612, 08120035652
Indore	:	Gemini Mall, Opp. C21 Mall, Vijay Nagar; Ph: 07314029612, 07566669612
Lucknow	:	B1/67, Sector P, Aliganj, Lucknow; Ph: 09919111168, 08400029422
Kolkata	:	755, Anandapur, Next to Fortis Hospital, Off-EM Bypass, Kolkata; Ph: 033-68888880, 08282888880
Patna	:	Nutan Complex, Near Krrish Hyundai, Main Road Kankarbagh, Patna; Ph: 0612-2356616, 09955991166
Bhubaneswar	:	B-61 A&B, Janpath, Saheed Nagar; Ph: 9040999888, 0674-6999888
Pune	:	Plot No. 84, 2nd Floor, Business Bay near RTO, Shivaji Nagar, Pune; Ph: 09168884343

**Important Note**

**For those students who are appearing  
ESE-2019 Mains Test Series at **CLASSROOM****

Test will conducted on	Every Sunday as per schedule
Test solutions will be uploaded on <a href="http://www.madeeasy.in">www.madeeasy.in</a>	Every Tuesday at 10:00 am
Test results will be updated on <a href="http://www.madeeasy.in">www.madeeasy.in</a>	Every Saturday at 6:00 pm
Students can see their evaluated answer sheets (This facility is available only at Delhi centre)	CE + EE : Mon & Tue   11:00 am to 6:00 pm ME + ET : Wed & Thu   11:00 am to 6:00 pm Venue : Kalu Sarai (Corp. Office) Contact Person : Mr. Suraj

**For those students who are appearing  
ESE-2019 Mains Test Series through **ONLINE** mode**

Test papers will be available on student portal	Every Sunday as per schedule
Test solutions will be uploaded on student portal	Every Tuesday at 10:00 am
Test results will be updated on website	Every Saturday at 6:00 pm <i>Due to Holi, result of Test-1 will be made available on 25 March, 2019 (Monday)</i>
Those students who are appearing ESE-2019 Mains Test Series through Online mode has to upload their answers on	Every Monday before 6:00 pm. Answer booklets uploaded after Monday(6:00 pm) will not be evaluated

## Test Pattern

$$\begin{array}{c}
 \mathbf{9} \\
 \text{Subjectwise Tests}
 \end{array}
 +
 \begin{array}{c}
 \mathbf{6} \\
 \text{Full Syllabus Tests}
 \end{array}
 =
 \begin{array}{c}
 \mathbf{15} \\
 \text{Total Tests}
 \end{array}$$

### Test 1

(New Topics)

**Total Marks : 300**  
**Duration : 3 Hrs**

#### Section-A : New Topic

Total 4 Questions of 60 Marks each.

#### Section-B : New Topic

Total 4 Questions of 60 Marks each.

**Note:** Question no. **1** and **5** are compulsory and out of the remaining, THREE questions are to be attempted choosing at least ONE question from each section.

### Test 2-9

(New Topics & Repeat Topics)

**Total Marks : 300,**  
**Duration : 3 Hrs**

#### Section-A : New Topic

Total 4 Questions of 60 Marks each

#### Section-B : • Repeat Topic-1

+

#### • Repeat Topic-2

Total 4 Questions of 60 Marks each

**Note:** Question no. **1** and **5** are compulsory and out of the remaining, THREE questions are to be attempted choosing at least ONE question from each section.

### Test 10, 12, 14

(Full Syllabus Test)

**Total Marks : 300,**  
**Duration : 3 Hrs**

#### Complete Syllabus of Paper-I

Total 8 Questions of 60 Marks each  
 Attempt 5 questions

**Note:** Question no. **1** and **5** are compulsory and out of the remaining, THREE questions are to be attempted choosing at least ONE question from each section.

### Test 11, 13, 15

(Full Syllabus Test)

**Total Marks : 300,**  
**Duration : 3 Hrs**

#### Complete Syllabus of Paper-II

Total 8 Questions of 60 Marks each  
 Attempt 5 questions

**Note:** Question no. **1** and **5** are compulsory and out of the remaining, THREE questions are to be attempted choosing at least ONE question from each section.

**ONLINE FACILITY**

## **"Write Mains Test Series from Your Home " Through Online Mode Using "Student Portal "**

**A social learning platform of MADE EASY**

- Visit : [www.madeeasy.in](http://www.madeeasy.in), Click on MADE EASY student portal icon.
- Register yourself, if you are new user. Current session student of MADE EASY will be auto-registered. They shall get login ID and password on their e-mail.
- Click ESE 2019 Mains Test Series in left pane and download the question paper you want to write.
- Write you answer in plane A4 sheet. Write page number at top left corner of every page.
- Scan these documents (You can take snap of these sheets by good resolution mobile phone also).
- Upload the documents in same place. You can find **Upload Solution** button against every paper.
- Make a zip folder of the documents and click on the submit button.
- The folder can contains jpeg, pdf, doc, png. It should not be greater than 100 MB.

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## Incentives & Rewards for Top Rankers

The Top Rankers of each branch will be rewarded in following 3 categories :

- 1 . Best 5 scorers in topic wise tests :** Top scorers with cumulative maximum reward points will be rewarded . Reward points of best 8 tests out of total 9 topic wise tests will be considered .  
In this category the rewards will be as follows :

Rank-1 ₹ 10,000

Rank-2 ₹ 8,000

Rank-3 ₹ 6,000

Rank-4 ₹ 4,000

Rank-5 ₹ 2,000

- 2. Top 3 Scorers of each branch will be rewarded having best scores in all 6 full syllabus tests :**

In this category the rewards will be as follows:

Rank-1 ₹ 10,000

Rank-2 ₹ 8,000

Rank-3 ₹ 6,000

- 3. Over all Topper of each branch in part syllabus (best 8 tests) and full syllabus tests will be rewarded .**

In this category topper will get Rs. 15,000 as reward.

Rank-1 ₹ 15,000

### Note:

1. Reward points will be equal to the marks obtained by a candidate. Cumulative reward points for all the candidates will be displayed after each test .
2. For reward scheme only those candidates will be eligible who will write test series at MADE EASY centres. Online mode candidates will not be eligible.
3. In any dispute MADE EASY decision will be final.



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# ESE 2019

## Mains Test Series

<b>Civil Engineering</b>	<b>9</b> Subjectwise Tests	<b>6</b> Full Syllabus Tests	<b>15</b> Total Tests
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Test No.	Date/Day	Max. Marks	Subject	
<b>1.</b>	17 <sup>th</sup> Mar, 2019 Sunday 1:00 - 4:00 PM	300	Section A: New Topic	Geo-technical & Foundation Engineering (All Topics)
			Section B : New Topic	Environmental Engineering (All Topics)
<b>2.</b>	31 <sup>st</sup> Mar, 2019 Sunday 1:00 - 4:00 PM	300	Section A: New Topic	Transportation Engineering + Surveying and Geology (All Topics)
			Section B : Repeat Topic of Test 1	Geo-technical & Foundation Engineering - 1 + Environmental Engineering - 1 (Part Syllabus) Topics: Properties of soil, classification, various tests and inter-relationships; permeability and seepage, compressibility, consolidation and shearing resistance, earth pressure theories and stress distribution in soil + Water supply Engineering, Air, Noise pollution and ecology
<b>3.</b>	14 <sup>th</sup> Apr, 2019 Sunday 1:00 - 4:00 PM	300	Section A: New Topic	Strength of Materials (All Topics)
			Section B : Repeat Topic of Test 2 + Repeat Topic of Test 1	Transportation Engineering - 1 + Surveying and Geology-1 (Part Syllabus) Geo-technical & Foundation Engineering - 2 + Environmental Engineering - 2 (Part Syllabus) Topics: Planning & construction methodology, Alignment and geometric design + Classification of surveys, various methodologies, instruments and analysis of measurement of distances, elevation and directions + Soil exploration - planning and methods, properties and uses of geo-synthetics, types of foundations and selection criteria, bearing capacity, settlement analysis, design and testing of shallow and deep foundations; slope stability analysis, earthen embankments, dams and earth retaining structure : types, analysis and design, Principles of ground modifications. + Waste water engg, soild waste management
<b>4.</b>	21 <sup>st</sup> Apr, 2019 Sunday 1:00 - 4:00 PM	300	Section A: New Topic	Design of concrete and Masonry Structures (All Topics)
			Section B : Repeat Topic of Test 3 + Repeat Topic of Test 2	Strength of Materials - 1 (Part Syllabus) Transportation Engineering - 2 + Surveying and Geology-2 (Part Syllabus) Properties of Materials, Simple Stress-strain and elastic constants, Plain Stress-strain, Mohr circle of stress & strain, Bending stress, SFD & BMD + Traffic Surveys and Controls; Principles of Flexible and Rigid pavements design + Field astronomy, Global Positioning systems; Map Layout for culverts, canals, bridges, road/railway alignmet and buildings, setting out of curves; Basic knowledge of Engineering geology and its application in projects
<b>5.</b>	28 <sup>th</sup> Apr, 2019 Sunday 1:00 - 4:00 PM	300	Section A: New Topic	Flow of fluids, hydraulic machines and hydro power (All Topics)
			Section B : Repeat Topic of Test 4 + Repeat Topic of Test 3	Design of concrete and Masonry Structures - 1 (Part Syllabus) Strength of Materials - 2 (Part Syllabus) Topics: Limit state design for bending, shear, axial compression & combined forces; design of beams, Lintels, Tanks & staircases. + Torsion, Principle stress, theories of failure & shear stress
<b>6.</b>	5 <sup>th</sup> May, 2019 Sunday 1:00 - 4:00 PM	300	Section A: New Topic	Structural Analysis + CPM PERT (All Topics)
			Section B : Repeat Topic of Test 5 + Repeat Topic of Test 4	Flow of fluids, hydraulic machines and hydro power - 1 (Part Syllabus) Design of concrete and Masonry Structures - 2 (Part Syllabus) Topics: Fluid properties; Dimensional Analysis and Modeling; Fluid dynamics including flow kinematics and measurements; Flow net; Viscosity, Boundary layer and control, Drag, Lift, Pipe networks + Design of slabs, foundations and retaining walls; Principles of pre-stressed concrete design including materials and methods; Earthquake resistant design of structures, design of Masonry structure
<b>7.</b>	12 <sup>th</sup> May, 2019 Sunday 1:00 - 4:00 PM	300	Section A: New Topic	Design of Steel Structure + Hydrology (All Topics)
			Section B : Repeat Topic of Test 6 + Repeat Topic of Test 5	Structural Analysis - 1 + CPM PERT - 1 (Part Syllabus) Flow of fluids, hydraulic machines and hydro power - 2 (Part Syllabus) Topics: Analysis of determinate and indeterminate structures + Construction - Planning, Equipment, Site investigation and Management including Estimation with latest project management tools & network analysis for different Types of works + Principles in open channel flow, Flow controls, Hydraulic jump, Surges, Various pumps, Air vessels, Hydraulic turbines- types, classifications & performance parameters; Power house-classification & layout, storage, pondage, control of supply.
<b>8.</b>	19 <sup>th</sup> May, 2019 Sunday 1:00 - 4:00 PM	300	Section A: New Topic	Water Resource Engineering + Building Materials + Railway & Airport (All Topics)
			Section B : Repeat Topic of Test 7 + Repeat Topic of Test 6	Design of Steel Structure-1+ Hydrology - 1 (Part Syllabus) Structural Analysis - 2 + CPM PERT - 2 (Part Syllabus) Topics: Principles of Working Stress methods, Design of tension and compression members + Hydrological cycle, Ground water hydrology, Well hydrology and related data analysis; Streams and their gauging Trusses, beams, plane frames; Rolling loads, Influence Lines, Unit load method & other methods; Free & Forced vibrations of single degree and multi degree freedom system; Suspended Cables; Concepts and use of Computer Aided Design + Analysis of Rates of various types of works; Tendering Process and Contract Management, Quality Control, Productivity, Operation Cost ; Land acquisition; Labour safety and welfare.
<b>9.</b>	26 <sup>th</sup> May, 2019 Sunday 1:00 - 4:00 PM	300	Section A: Repeat Topic of Test 8	Water Resource Engineering + Building Materials + Railway & Airport (All Topics)
			Section B : Repeat Topic of Test 7	Design of Steel Structure-2 + Hydrology -2 (Part Syllabus) Topics: Design of beams & beam column connections, built-up sections, Girders, Industrial roofs, Principles of ultimate load design + River morphology; Flood, drought and their management; Capacity of Reservoirs.
<b>10.</b>	2 <sup>nd</sup> June, 2019 Sunday	300	Full Syllabus Test	Paper- I
<b>11.</b>	10 AM- 1 PM : FST-1 2 PM - 5 PM : FST-2	300	Full Syllabus Test	Paper- II
<b>12.</b>	9 <sup>th</sup> June, 2019 Sunday	300	Full Syllabus Test	Paper- I
<b>13.</b>	10 AM- 1 PM : FST-1 2 PM - 5 PM : FST-2	300	Full Syllabus Test	Paper- II
<b>14.</b>	16 <sup>th</sup> June, 2019 Sunday	300	Full Syllabus Test	Paper- I
<b>15.</b>	10 AM- 1 PM : FST-1 2 PM - 5 PM : FST-2	300	Full Syllabus Test	Paper- II



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# ESE 2019

## Mains Test Series

**Mechanical Engineering**

**9**  
Subjectwise Tests

**6**  
Full Syllabus Tests

**15**  
Total Tests

Test No.	Date/Day	Max. Marks	Subject	
1.	17 <sup>th</sup> Mar, 2019 Sunday 1:00 - 4:00 PM	300	Section A: New Topic	Thermodynamics (All Topics)
			Section B: New Topic	Refrigeration and Air-conditioning (All Topics)
2.	31 <sup>st</sup> Mar, 2019 Sunday 1:00 - 4:00 PM	300	Section A: New Topic	Heat Transfer + Theory of Machines (All Topics)
			Section B: Repeat Topic of Test 1	Thermodynamics - 1 + Refrigeration and Air-conditioning - 1 (Part Syllabus) Topics: Thermodynamic systems and processes; properties of pure substance; Zeroth, First and Second Laws of Thermodynamics; Entropy, + Vapour compression refrigeration, Refrigerants and Working cycles, Compressors, Condensers, Evaporators and Expansion devices, Other types of refrigeration systems like Vapour Absorption
3.	14 <sup>th</sup> Apr, 2019 Sunday 1:00 - 4:00 PM	300	Section A: New Topic	Fluid Mechanics and Turbo Machinery (All Topics)
			Section B: Repeat Topic of Test 2 + Repeat Topic of Test 1	Heat Transfer - 1 + Theory of Machines - 1 (Part Syllabus) Thermodynamics - 2 + Refrigeration and Air-conditioning - 2 (Part Syllabus) Topics: Modes of heat transfer, Steady and unsteady heat conduction, Thermal resistance, Fins, Free and forced convection, Correlations for convective heat transfer + Types of Kinematics Pair & analysis Mobility, Inversions, Velocity & Acceleration Analysis of Planar Mechanisms, Dynamic Analysis - Slider - crank mechanisms, turning moment computations, flywheel, Governors, Free and forced vibration of undamped and damped SDOF systems, Transmissibility Ratio, Vibration Isolation, Critical Speed of Shafts + Irreversibility and availability, Otto, Diesel and Dual cycles, analysis of thermodynamic cycles related to energy conversion: ideal and real gases; compressibility factor; Gas mixtures + Vapour jet, thermo electric and Vortex tube refrigeration. Psychometric properties and processes, Comfort chart, Comfort and industrial air conditioning, Load calculations and Heat pumps.
4.	21 <sup>st</sup> Apr, 2019 Sunday 1:00 - 4:00 PM	300	Section A: New Topic	Strength of Materials & Mechanics (All Topics)
			Section B: Repeat Topic of Test 3 + Repeat Topic of Test 2	Fluid Mechanics and Turbo Machinery - 1 (Part Syllabus) Heat Transfer - 2 + Theory of Machines - 2 (Part Syllabus) Topics: Basic Concepts and Properties of Fluids, Manometry, Fluid Statics, Buoyancy, Equations of Motion, Bernoulli's equation and applications + Reciprocating and Rotary pumps, Pelton wheel, Kaplan and Francis Turbines, velocity diagrams, Impulse and Reaction principles, + Radiative heat transfer, Radiation heat transfer coefficient; boiling & condensation, Heat exchanger performance analysis + CAMs with uniform acceleration and retardation, cycloidal motion, oscillating followers; Gears - Geometry of tooth profiles, Law of gearing, Involute profile, Interference, Helical, Spiral & Worm Gears, Gear Trains- Simple, compound and Epicyclic; balancing of Revolving & Reciprocating masses, Gyroscopes & its Effect on automobiles, ships and aircrafts
5.	28 <sup>th</sup> Apr, 2019 Sunday 1:00 - 4:00 PM	300	Section A: New Topic	Production Engineering & Material Science (All Topics)
			Section B: Repeat Topic of Test 4 + Repeat Topic of Test 3	Strength of Materials & Mechanics - 1 (Part Syllabus) Fluid Mechanics and Turbo Machinery - 2 (Part Syllabus) Topics: Stresses and Strains-Compound Stresses and Strains, Bending Moment and Shear Force Diagrams, Thin and thick Cylinders, Spheres. + Analysis of System of Forces, + Viscous flow of incompressible fluids, Laminar and Turbulent flows, Flow through pipes and head losses in pipes. + Steam and Gas Turbines, Theory of Jet Propulsion - Pulse jet and Ram Jet Engines, Reciprocating and Rotary Compressors - Theory and Applications
6.	5 <sup>th</sup> May, 2019 Sunday 1:00 - 4:00 PM	300	Section A: New Topic	Renewable Sources of Energy + Industrial and Maintenance Engineering (All Topics)
			Section B: Repeat Topic of Test 5 + Repeat Topic of Test 4	Production Engineering & Material Science - 1 (Part Syllabus) Strength of Materials & Mechanics - 2 (Part Syllabus) Topics: Metal casting-Metal forming, computer Integrated manufacturing, Basic Crystallography, Heat Treatment, Ferrous and Non Ferrous Metals, Non metallic materials, + Theory of Bending Stresses, Slope and deflection, Torsion, Friction, Centroid and Centre of Gravity,
7.	12 <sup>th</sup> May, 2019 Sunday 1:00 - 4:00 PM	300	Section A: New Topic	IC Engine + Power Plant (All Topics)
			Section B: Repeat Topic of Test 6 + Repeat Topic of Test 5	Renewable Sources of Energy-1 + Industrial and Maintenance Engineering-1 (Part Syllabus) Production Engineering & Material Science - 2 (Part Syllabus) Topics: Solar Radiation, Solar Thermal Energy collection-Flat Plate and focusing collectors their materials & performance. Solar Thermal Energy Storage, Applications- heating, cooling and Power Generation; Solar Photovoltaic Conversion + FMS, Production planning and Control Inventory control and operations research -CPM-PERT+ Metal Joining, Machining and machine tool operations, Limits, fits and tolerances, Metrology and inspection + Alloys and Phase diagrams, Basics of Nano-materials, Mechanical Properties & Testing, Corrosion prevention & control
8.	19 <sup>th</sup> May, 2019 Sunday 1:00 - 4:00 PM	300	Section A: New Topic	Machine Design + Mechatronics & Robotics (All Topics)
			Section B: Repeat Topic of Test 7 + Repeat Topic of Test 6	IC Engine (All Topics) Renewable Sources of Energy-2 + Industrial and Maintenance Engineering-2 (Part Syllabus) Topics: Harnessing of Wind Energy, Bio-mass and Tidal Energy - Methods and Applications, Working principles of Fuel Cells. + Failure concepts and characteristics-Reliability, Failure analysis
9.	26 <sup>th</sup> May, 2019 Sunday 1:00 - 4:00 PM	300	Section A: Repeat Topic of Test 8	Machine Design + Mechatronics & Robotics (All Topics)
			Section B: Repeat Topic of Test 7	Power Plant (All Topics)
10.	2 <sup>nd</sup> June, 2019 Sunday	300	Full Syllabus Test	Paper- I
11.	10 AM- 1 PM : FST-1 2 PM - 5 PM : FST-2	300	Full Syllabus Test	Paper- II
12.	9 <sup>th</sup> June, 2019 Sunday	300	Full Syllabus Test	Paper- I
13.	10 AM- 1 PM : FST-1 2 PM - 5 PM : FST-2	300	Full Syllabus Test	Paper- II
14.	16 <sup>th</sup> June, 2019 Sunday	300	Full Syllabus Test	Paper- I
15.	10 AM- 1 PM : FST-1 2 PM - 5 PM : FST-2	300	Full Syllabus Test	Paper- II



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# ESE 2019

## Mains Test Series

**Electrical Engineering**

**9**  
Subjectwise Tests

**6**  
Full Syllabus Tests

**15**  
Total Tests

Test No.	Date/Day	Max. Marks	Subject	
1.	17 <sup>th</sup> Mar, 2019 Sunday 1:00 - 4:00 PM	300	Section A: New Topic	Digital Electronics (All Topics)
			Section B: New Topic	Control Systems (All Topics)
2.	31 <sup>st</sup> Mar, 2019 Sunday 1:00 - 4:00 PM	300	Section A: New Topic	Electrical Circuits + Microprocessors (All Topics)
			Section B: Repeat Topic of Test 1	Digital Electronics - 1 + Control Systems - 1 (Part Syllabus) Topics: Boolean Algebra & uses, Logic gates, Combinatorial circuits design & applications, Basics of multiplexers + Principles of feedback, transfer function, block diagrams and signal flow graphs, steady-state errors, transforms & their applications; Routh-hurwitz criterion, root loci. Transient & frequency response analysis Nyquist techniques, Bode plots
3.	14 <sup>th</sup> Apr, 2019 Sunday 1:00 - 4:00 PM	300	Section A: New Topic	Power Systems (All Topics)
			Section B: Repeat Topic of Test 2 + Repeat Topic of Test 1	Electrical Circuits - 1 + Microprocessors - 1 (Part Syllabus) Digital Electronics - 2 + Control Systems - 2 (Part Syllabus) Topics: Circuit elements, KCL, KVL, Node & Mesh analysis, ideal current & voltage sources, Thevenin's, Norton's, Superposition & Maximum Power Transfer theorems, Sinusoidal steady state analysis. + Microprocessors (8085 & 8086) basics and applications + Sequential circuits design & applications, counters, registers, memories, A/D-D/A converters + Lag, lead and lead-lag compensation, stability analysis, state space model, state transition matrix, controllability & observability, PID & industrial controllers.
4.	21 <sup>st</sup> Apr, 2019 Sunday 1:00 - 4:00 PM	300	Section A: New Topic	Electrical Machines (All Topics)
			Section B: Repeat Topic of Test 3 + Repeat Topic of Test 2	Power Systems - 1 (Part Syllabus) Electrical Circuits - 2 + Microprocessors - 2 (Part Syllabus) Topics: Basic power generation concepts, steam, gas and water turbines, transmission line models and performance, cable performance, insulation, corona and radio interference, power factor correction, symmetrical components, fault analysis, principles of protection systems, basics of solid state relays and digital protection; Circuit breakers + Transient response of DC and AC networks, Basic filter concepts, two-port networks, three phase circuits, Magnetically coupled circuits, network graphs + Peripheral Interfacing devices and applications.
5.	28 <sup>th</sup> Apr, 2019 Sunday 1:00 - 4:00 PM	300	Section A: New Topic	Basic Electronics Engineering + Analog Electronics + Electrical Materials (All Topics)
			Section B: Repeat Topic of Test 4 + Repeat Topic of Test 3	Electrical Machines - 1 + Power Systems - 2 (Part Syllabus) Topics: 1-phase & 3-phase transformers - connections, parallel operation, auto-transformer, energy conversion principles, Induction motors - principles, types, performance characteristics, starting and speed control, servo and stepper motors. + Radial and ring-main distribution systems, Matrix representation of power systems, load flow analysis, voltage control and economic operation, System stability concepts, Swing curves and equal area criterion. HVDC transmission and FACTS concepts, Concepts of power system dynamics, distributed generation, solar and wind power, smart grid concepts, environmental implications, fundamentals of power economics.
6.	5 <sup>th</sup> May, 2019 Sunday 1:00 - 4:00 PM	300	Section A: New Topic	Power Electronics & Drives + Engineering Mathematics (All Topics)
			Section B: Repeat Topic of Test 5 + Repeat Topic of Test 4	Basic Electronics Engineering - 1 + Analog Electronics - 1 + Electrical Materials - 1 (Part Syllabus) Electrical Machines - 2 (Part Syllabus) Topics: Basics and characteristics of diodes, BJT, FET and MOSFETS, equivalent circuits, different types of amplifiers, frequency response of transistor amplifiers + Electrical Engg. Materials, crystal structures & defects, ceramic materials, insulating materials + DC machines - types, windings, generator characteristics, armature reaction and commutation, starting and speed control of motors, Synchronous machines - performance, regulation, parallel operation of generators, motor starting, characteristics and applications
7.	12 <sup>th</sup> May, 2019 Sunday 1:00 - 4:00 PM	300	Section A: New Topic	Systems & Signal Processing + Electrical & Electronic Measurements (All Topics)
			Section B: Repeat Topic of Test 6 + Repeat Topic of Test 5	Power Electronics & Drives - 1 + Engineering Mathematics - 1 (Part Syllabus) Basic Electronics Engineering - 2 + Analog Electronics - 2 + Electrical Materials - 2 (Part Syllabus) Topics: Semiconductor power diodes, transistors, thyristors, triacs, GTOs, MOSFETs and IGBTs - static characteristics and principles of operation, triggering circuits, phase control rectifiers, bridge converters - fully controlled and half controlled + Matrix theory, Eigen values & Eigen vectors, system of linear equations, Numerical methods for solution of non-linear algebraic equations & differential equations, integral calculus, partial derivatives, maxima & minima, Line, Surface & Volume Integrals + Operational amplifiers - characteristics and applications, oscillators and other circuits, feedback amplifiers + Magnetic materials - basics, properties and applications, ferrites, ferro-magnetic materials and components; basics of solid state physics, conductors; Photo-conductivity Basics of Nano materials and Superconductors
8.	19 <sup>th</sup> May, 2019 Sunday 1:00 - 4:00 PM	300	Section A: New Topic	Electromagnetic Theory + Computer Fundamentals + Communication Systems (All Topics)
			Section B: Repeat Topic of Test 7 + Repeat Topic of Test 6	Systems and Signal Processing - 1 + Electrical and Electronic Measurements - 1 (Part Syllabus) Power Electronics & Drives - 2 + Engineering Mathematics - 2 (Part Syllabus) Topics: Representation of continuous and discrete-time signals, shifting and scaling operations, linear, time-invariant and causal systems, Fourier series representation of continuous periodic signals, Fourier transform + Principles of measurement, accuracy, precision and standards; error analysis, potentiometers; moving coil, moving iron, dynamometer and induction type instruments, measurement of voltage, current, power, energy and power factor + Principles of choppers and inverters, basis concepts of adjustable speed dc and ac drives, DC-DC switched mode converters, DC-AC switched mode converters, resonant converters, high frequency inductors and transformers, power supplies + Fourier series, linear, nonlinear and partial differential equations, initial and boundary value problems, complex variables, Taylor's and Laurent's series, residue theorem, probability and statistics fundamentals, Sampling theorem, random variables, Normal and Poisson distributions, correlation and regression analysis.
9.	26 <sup>th</sup> May, 2019 Sunday 1:00 - 4:00 PM	300	Section A: Repeat Topic of Test 8	Electromagnetic Theory + Computer Fundamentals + Communication Systems (All Topics)
			Section B: Repeat Topic of Test 7	Systems and Signal Processing - 2 + Electrical and Electronic Measurements - 2 (Part Syllabus) Topics: Laplace transforms, sampling theorem, Z transforms, Discrete Fourier transform, FFT, linear convolution, discrete cosine transform, FIR filter, IIR filter, bilinear transformation + Instrument transformers, bridges, digital voltmeters and multi-meters, phase, time and frequency measurement, Q-meters, oscilloscopes, potentiometric recorders, basics of sensors, Transducers, basics of data acquisition systems.
10.	2 <sup>nd</sup> June, 2019 Sunday	300	Full Syllabus Test	Paper- I
11.	10 AM- 1 PM : FST-1 2 PM - 5 PM : FST-2	300	Full Syllabus Test	Paper- II
12.	9 <sup>th</sup> June, 2019 Sunday	300	Full Syllabus Test	Paper- I
13.	10 AM- 1 PM : FST-1 2 PM - 5 PM : FST-2	300	Full Syllabus Test	Paper- II
14.	16 <sup>th</sup> June, 2019 Sunday	300	Full Syllabus Test	Paper- I
15.	10 AM- 1 PM : FST-1 2 PM - 5 PM : FST-2	300	Full Syllabus Test	Paper- II



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# ESE 2019

## Mains Test Series

**Electronics & Telecom Engg.**

**9**  
Subjectwise Tests

**6**  
Full Syllabus Tests

**15**  
Total Tests

Test No.	Date/Day	Max. Marks	Subject	
1.	17 <sup>th</sup> Mar, 2019 Sunday 1:00 - 4:00 PM	300	Section A: New Topic	Digital Circuits (All Topics)
			Section B : New Topic	Control Systems (All Topics)
2.	31 <sup>st</sup> Mar, 2019 Sunday 1:00 - 4:00 PM	300	Section A: New Topic	Network Theory + Microprocessors and Microcontroller (All Topics)
			Section B : Repeat Topic of Test 1	Digital Circuits - 1 + Control Systems - 1 (Part Syllabus) Topics: Boolean Algebra & uses. Logic gates, Digital IC families. Combinatorial circuits design & applications, Basics of multiplexers, MUX based design + Feedback systems-open & close loop types, Signal flow graphs. Transient and Steady state analysis. Stability analysis, Routh-Hurwitz criteria, Root loci. Frequency response analysis, Nyquist/Bode plots.
3.	14 <sup>th</sup> Apr, 2019 Sunday 1:00 - 4:00 PM	300	Section A: New Topic	Analog and Digital Communication Systems (All Topics)
			Section B : Repeat Topic of Test 2 + Repeat Topic of Test 1	Network Theory - 1 + Microprocessors and Microcontroller - 1 (Part Syllabus) Digital Circuits - 2 + Control Systems - 2 (Part Syllabus) Topics: Ohm's & Kirchoff's laws, Wye-Delta transformation, mesh & nodal analysis, DC circuits. Single-phase AC circuits, Steady state sinusoidal analysis, frequency domain analysis of RLC circuits, Circuit theorems + Microprocessors (8085 & 8086) basics, interrupts, instruction sets + Sequential circuits design & applications, counters, registers, memories. A/D-D/A converters + Design of control systems, compensators, elements of lead/lag compensation, PID and industrial controllers. State equations for networks.
4.	21 <sup>st</sup> Apr, 2019 Sunday 1:00 - 4:00 PM	300	Section A: New Topic	Electronic Devices & Circuits + Advanced Electronics Topics (All Topics)
			Section B : Repeat Topic of Test 3 + Repeat Topic of Test 2	Analog & Digital Communication Systems - 1 (Part Syllabus) Network Theory - 2 + Microprocessors and Microcontroller - 2 (Part Syllabus) Topics: Random signals, noise, probability theory. Analog communication Systems - AM, FM, transmitters, receivers, theory, practice, standards, SNR comparison + Linear constant coefficient differential equations - Time domain analysis of RLC circuits, Solution of network equations using Laplace transforms. 2-port network parameters-driving point & transfer functions. Network graphs & matrices + DMA, interfacing controllers and uses. Microcontrollers and Embedded systems.
5.	28 <sup>th</sup> Apr, 2019 Sunday 1:00 - 4:00 PM	300	Section A: New Topic	Analog Circuits + Materials Science (All Topics)
			Section B : Repeat Topic of Test 4 + Repeat Topic of Test 3	Electronic Devices & Circuits - 1 + Advanced Electronics Topics - 1 (Part Syllabus) Analog & Digital Communication Systems - 2 (Part Syllabus) Topics: Basics of semiconductors. Diode basics and characteristics, Diodes for different uses + Basics of Integrated Circuits. Bipolar, MOS and CMOS ICs. VLSI technology: Processing, lithography, interconnects, packaging, testing + Information theory. Digital communication systems - Analog versus digital communication & applications, basics, sampling, quantizing, coding, PCM, DPCM, multiplexing-audio/video, Digital modulation: ASK, FSK, PSK.
6.	5 <sup>th</sup> May, 2019 Sunday 1:00 - 4:00 PM	300	Section A: New Topic	Electromagnetics + Basic Electrical Engineering (All Topics)
			Section B : Repeat Topic of Test 5 + Repeat Topic of Test 4	Analog Circuits -1 + Materials Science-1 (Part Syllabus) Electronic Devices & Circuits - 2 + Advanced Electronics Topics - 2 (Part Syllabus) Topics: Small signal equivalent circuits of diodes. Biasing & stability of BJT & JFET amplifier circuits. Small signal equivalent circuits of BJTs and FETs, single stage/Multi-stage amplifiers + Electrical Engineering materials. Crystal structure & defects. Ceramic materials-structures, composites, processing & uses. Insulating laminates for electronics, structures, properties & uses + BJT, JFETs, MOSFETs basics & characteristics. Basics of optoelectronics & its applications, optical sources/detectors + VLSI design: Principles, Design for testability, examples. ROM/PLA based design, Moore & Mealy circuit design.
7.	12 <sup>th</sup> May, 2019 Sunday 1:00 - 4:00 PM	300	Section A: New Topic	Signals and Systems + Electronic Measurements and Instrumentation (All Topics)
			Section B : Repeat Topic of Test 6 + Repeat Topic of Test 5	Electromagnetics -1 + Basic Electrical Engineering - 1 (Part Syllabus) Analog Circuits -2 + Materials Science-2 (Part Syllabus) Topics: Elements of vector calculus, Maxwell's equations-basic concepts, Gauss', Stokes' theorems. Wave propagation through different media + Electro-magnetism, Faraday's & Lenz's laws, induced EMF and its uses. Transformers, efficiency. Basics of induction machines + Feedback amplifiers, oscillators and other circuits. Basics of linear ICs, operational amplifiers and their applications-linear & non-linear, Active filters, timers, multipliers, wave shaping + Magnetic materials, basics, classification, ferrites, ferro/para-magnetic materials and components. Nano materials-basics, preparation, purification, sintering, nano particles and uses. Nano-optical/magnetic/electronic materials and uses. Superconductivity, uses.
8.	19 <sup>th</sup> May, 2019 Sunday 1:00 - 4:00 PM	300	Section A: New Topic	Advanced Communication Topics + Computer Organization and Architecture (All Topics)
			Section B : Repeat Topic of Test 7 + Repeat Topic of Test 6	Signals and Systems - 1 + Electronic Measurements and Instrumentation - 1 (Part Syllabus) Electromagnetics -2 + Basic Electrical Engineering - 2 Topics: Classification of signals and systems; Application of signal and system theory; System realization; Transforms & their applications + Principles of measurement, accuracy, precision and standards; Analog systems for measurement, measuring instruments for different applications; Static/dynamic characteristics of measurement systems, errors, statistical analysis and curve fitting + Transmission Lines-different types, basics, Smith's chart, impedance matching/transformation, S-parameters, pulse excitation, uses. Waveguides-basics, rectangular types, modes, cut-off frequency, dispersion, dielectric types. Antennas-radiation pattern, monopoles/dipoles, gain, arrays-active/passive, theory, uses + Basics of DC machines and synchronous machines. Electrical power sources basics: hydroelectric, thermal, nuclear, wind, solar, batteries & their uses.
9.	26 <sup>th</sup> May, 2019 Sunday 1:00 - 4:00 PM	300	Section A : Repeat Topic of Test 8	Advanced Communication Topics + Computer Organization and Architecture (All Topics)
			Section B: Repeat Topic of Test 7	Signals and Systems - 2 + Electronic Measurements and Instrumentation - 2 (Part Syllabus) Topics: System realization; Transforms & their applications; DSP: Discrete time signals/systems, uses; Digital filters: FIR/IIR types, design, speech/audio/radar signal processing uses + Measurement systems for non-electrical quantities; Digital systems for measurement, Basics of telemetry; Different types of transducers and displays; Data acquisition system basics. CRO and bridge measurement.
10.	2 <sup>nd</sup> June, 2019 Sunday	300	Full Syllabus Test	Paper- I
11.	10 AM- 1 PM : FST-1 2 PM - 5 PM : FST-2	300	Full Syllabus Test	Paper- II
12.	9 <sup>th</sup> June, 2019 Sunday	300	Full Syllabus Test	Paper- I
13.	10 AM- 1 PM : FST-1 2 PM - 5 PM : FST-2	300	Full Syllabus Test	Paper- II
14.	16 <sup>th</sup> June, 2019 Sunday	300	Full Syllabus Test	Paper- I
15.	10 AM- 1 PM : FST-1 2 PM - 5 PM : FST-2	300	Full Syllabus Test	Paper- II

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