



IES GS & APTITUDE PAPER
TOPIC WISE STUDY PLAN 2018

IES GS & APTITUDE PAPER STUDY & REVISION PLAN

Salient Points

- This is a 90 days plan from 1st Oct to 30th December
- Consists of 70 days of study plan to cover all 10 topics, including the current affairs (from 1st October to 10th December)
- It also has 20 days of revision plan, followed by tests on those individual subjects (from 11th December, to 30th December)
- Every day 8 hrs of study, 5 hr for technical, 3 hr for the GS paper 1 (30 min extra, if the current affairs also covered everyday)
- If the news are not covered daily then, allocate some time for every 15 days to complete the same
- **Material to study:** Try to follow what ever you have already studied, apart from that, we are providing source links to different concepts under each topic
- In December consolidated current affairs will be provided, by weeding out unwanted material, along with important topics of June and July months.

IES GS & APTITUDE TOPICS

1. Energy & Environment
2. ICT
3. Material Science
4. Ethics
5. Quality Control
6. Design, Drawing and Safety
7. Project Management
8. Engineering Mathematics
9. Engineering Aptitude
10. Current affairs(Basic portion is optional)

Daily Plan

Topics	Engineering Subjects	General Studies(Without Daily Current Affairs)	General Studies(With Daily Current Affairs)
Time allocation	5 hours	3 hours	3.30 hours
Time subdivision	Up to you	Topics - 2.45 hrs Revision - 15 min	Topics - 2.45 hrs Revision - 15 min Daily news and quiz -30min

Revision Plan

- Revision of each topic for two days, followed with a dedicated quiz.
- It will start on 11th December and continue upto 30th December.
- This is again divided in to Daily revision, Periodic revision and Overall revision

Note: Basic Concepts(Static portion) in Economic, Social and Industrial Development are not included in our plan as most of these issues are covered in Daily News.

STUDY PLAN

Date	Topic Name	Source
Energy & Environment		
01/10/2017	Ecology: environment, ecosystem, biodiversity, adaptations, interactions, ecological pyramids, trophic levels, food chains, Biogeochemical cycles, ecological footprint	IES GS material: http://iesgeneralstudies.com/environment-concepts/
02/10/2017	Environment degradation and pollution: different types of pollution and pollutants, land degradation, soil erosion, desertification, global warming, ozone hole depletion	IES GS material: http://iesgeneralstudies.com/environmental-pollution/

03/10/2017	Environment Conservation: Biodiversity conservation, pollution control, water and waste recycling, sustainable development, Environmental education, national legislations	IES GS material: http://iesgeneralstudies.com/environmental-pollution/ NIOS material: http://www.nios.ac.in/online-course-material/sr-secondary-courses/Enviornmental-Science-(333)/english-medium.aspx
04/10/2017	Energy and Conservation: resources, production and distribution, pollution and waste management, Energy conservation, energy efficiency, renewable energy, government initiatives.	IES GS material: http://iesgeneralstudies.com/energy-generation-and-distribution/ IES GS material: http://iesgeneralstudies.com/energy-conservation/
05/10/2017	Climate change: causes, GHG emission, effects, mitigation, adaptation, global treaties	IES GS material: http://iesgeneralstudies.com/climate-change/
06/10/2017	Global Environmental Treaties: Pollution control, waste management, ozone protection, climate change, biodiversity conservation and protection, sustainable development	IES GS material: http://iesgeneralstudies.com/environmental-conservation-global/

07/10/2017	EIA: process, approval, case studies	IES GS material: http://iesgeneralstudies.com/environmental-impact-assessment/
08/10/2017	Topic revision	
Information & Communication Technology		
09/10/2017	Communication Technologies: Mobile, satellite, telephone, broadcasting, standards - 1G-5G, GPRS, GSM etc, spectrum, multiplexing - CDMA, FDMA etc	IES GS material: http://iesgeneralstudies.com/communication/
10/10/2017	Internet: types, protocols, services, social media, WWW, connections - wired and wireless	IES GS material: http://iesgeneralstudies.com/communication/
11/10/2017	Information processing: storage, computing, big data, cloud, AI, ML, cyber security, protection	IES GS material: http://iesgeneralstudies.com/information-processing-storage-security/

12/10/2017	ICT Applications: networking, communication, education, business, governance, IoT, big data analysis, cloud computing and storage, digitisation, services.	IES GS material: http://iesgeneralstudies.com/ict-applications-and-government-schemes/ IES GS material: http://iesgeneralstudies.com/information-processing-storage-security/
13/10/2017	Digital India & Other schemes: G2G, G2B, G2C services, digital infrastructure, digital empowerment, digital literacy, digital identity, local content generation, financial inclusion, e-governance, participatory governance, m-governance	IES GS material: http://iesgeneralstudies.com/ict-applications-and-government-schemes/ IES GS daily news
14/10/2017	Revision	
15/10/2017	Current Affairs Revision	
16/10/2017	Current Affairs Revision	
Engineering Materials		
	Topic Name	Source

17/10/2017	<p>Introduction: Historical Perspective, Classification of materials.</p> <p>Chemical Bonding: Structure of an atom, Periodic table, Primary bonds(ionic, covalent and metallic), Secondary bonds(dipole bond, hydrogen bond) and Anomalous expansion of water.</p>	<p>IES GS material: http://iesgeneralstudies.com/chapter-1-introduction/</p> <p>IES GS material: http://iesgeneralstudies.com/material-science-chemical-bonding/</p>
18/10/2017	<p>Imperfections: Point defects, Line defects, Interfacial defects, Bulk or Volume defects</p> <p>Optical properties: Refraction, Reflection, Absorption, Optical applications, Luminescence, LED materials, Lasers, Photo Conductivity, Optical Fibers</p>	<p>NPTEL lecture by Prof. Satish Kailash: http://nptel.ac.in/courses/112108150/pdf/PPTs/MTS_03_m.pdf or</p> <p>Material Science book by William D.Callister: https://abmpk.files.wordpress.com/2014/02/book_maretial-science-callister.pdf</p> <p>NPTEL lecture by Prof. Satish Kailash: http://nptel.ac.in/courses/112108150/pdf/PPTs/MTS_17_m.pdf</p>
19/10/2017	<p>Electrical properties:Electrical Conductivity classification, Energy Band structures, Superconductivity, Semiconductivity, Hall effect, n,p-type semiconductors, Polarisation, Dielectric strength, Ferro electricity, Piezo electricity</p>	<p>NPTEL lecture by Prof. Satish Kailash: http://nptel.ac.in/courses/112108150/pdf/PPTs/MTS_14_m.pdf or</p> <p>Material Science book by William D.Callister: https://abmpk.files.wordpress.com/2014/02/book_maretial-science-callister.pdf</p>

20/10/2017	Magnetic properties: Pauli exclusion rule, Magnetic dipoles, Magnetism, Temperature effect, Magnetic domains, hysteresis, soft, semi hard and hard magnets.	NPTEL lecture by Prof. Satish Kailash: http://nptel.ac.in/courses/112108150/pdf/PPTs/MTS_16_m.pdf
21/10/2017	Mechanical properties of materials: stress and strain concepts, stress-strain curve for tension, Important material properties like Strength, Hardness and Fatigue etc., Elastic constants	IES GS material: http://iesgeneralstudies.com/mechanical-properties-of-materials/
22/10/2017	Ferrous materials: Classification, Types in Steels, Effect of alloying materials, Types in cast iron, Wrought iron	IES GS material: http://iesgeneralstudies.com/material-science-ferrous-materials/
23/10/2017	Non-Ferrous metals and alloys: Properties of Aluminium, Copper, and other materials like Lead, Tin, Bearing materials and Noble metals etc. Processing of materials: Mechanical fabrication, Thermal processing(Annealing, Quenching, Tempering), Case Hardening(Last hardening, Carburizing, Cyaniding, Nitriding)	IES GS material: http://iesgeneralstudies.com/material-science-non-ferrous-metals-and-alloys/ IES GS material: http://iesgeneralstudies.com/processing-of-metals/

24/10/2017	Ceramics: Classification, Characteristics, Crustal structure, Carbon-Diamond, Graphite, Fullerenes and Carbon Nanotubes, Processing methods	IES GS material: http://iesgeneralstudies.com/chapter-5-ceramics/
25/10/2017	Polymers: Understanding basic words, Molecular structure of polymers, Polymer classification, Different types of plastics, Properties of polymers and applications	IES GS material: http://iesgeneralstudies.com/chapter-6-polymers/
26/10/2017	Composites: Particle reinforced, Fiber reinforced and Structural composites, Classification based on matrix materials, Forces and Moments in composites	IES GS material: http://iesgeneralstudies.com/chapter-7-composites/ For forces and Moments in Composites, read from below Material Science book by William D.Callister: https://abmpk.files.wordpress.com/2014/02/book_maretial-science-callister.pdf
27/10/2017	Revision	
Engineering Ethics		
28/10/2017	Ethics theory: Values and morals, codes of ethics, ethical dilemmas, ethical decision making, attitude, emotional intelligence, leadership	IES GS material: http://iesgeneralstudies.com/ethics-theory/

29/10/2017	Ethics in Public life: Professional ethics, corporate governance, work ethics, corruption, right to information, whistleblowing, citizen's charter, code of conduct, good governance	IES GS material: http://iesgeneralstudies.com/ethics-theory/ II ARC Report: http://arc.gov.in/4threport.pdf
30/10/2017	Engineering ethics: professional codes, personal codes, values in engineering profession, ethical dilemmas, case studies	IES GS material: http://iesgeneralstudies.com/ethics-in-engineering-profession/
31/10/2017	Revision	
01/11/2017	Current Affairs Revision	
02/11/2017	Current Affairs Revision	
Standard & Quality Practices in Production, Construction, Maintenance & Services		
<p>Try to follow below text book which is very concise and to the point</p> <ol style="list-style-type: none"> 1. <i>Industrial Engineering and Management</i> book by Dr. Ravi Shankar 2. NPTEL Course: http://nptel.ac.in/courses/110101010/2 		

03/11/2017	<p>Total Quality Management(TQM) & Continuous Improvements: What is TQM?, What is Quality?, Objectives of TQM, Quality Improvement, Quality cost, Tools of Improvement for Quality, Quality related awards</p>	<p>Above NPTEL lectures or Text book by Dr. Ravi Shankar Quality awards: https://en.wikipedia.org/wiki/List_of_national_quality_awards</p>
04/11/2017	<p>Six Sigma: Six Sigma Framework(Five elements, DMAIC process, TQM and Six Sigma, ISO and Six Sigma ISO Standards: Introduction, ISO 9001, ISO 9004, ISO 14000, ISO 50001, OHSAS 18001, Bharat Stage Emmission norms</p>	<p>Six Sigma Six Sigma NPTEL lectures: http://nptel.ac.in/courses/110105039/4 or https://ocw.mit.edu/courses/aeronautics-and-astronautics/16-660j-introduction-to-lean-six-sigma-methods-january-iap-2012/lecture-videos/MIT16_660JIAP12_3-6.pdf ISO https://www.iso.org/popular-standards.html iso 9000: http://nptel.ac.in/courses/110101010/downloads/mod2/Module%20II-Lec10.pdf (or) https://www.iso.org/iso-9001-quality-management.html OHSAS 18001: http://safety-solutions.ie/ohsas/ BS Emission Stage: http://www.news18.com/news/auto/bharat-stage-bs-emission-norms-explained-what-does-it-mean-and-how-does-it-impact-you-iv-iii-euro-regulation-1365792.html</p>

05/11/2017	Statistical Quality Control: Process control, Control chart, Acceptance plan: Advantages & Disadvantages, Accepting sampling: Simple sampling, Double sampling & Sequential sampling plans, Operating Characteristic curves and Average Outgoing Quality	<i>Industrial Engineering and Management</i> book by Dr. Ravi Shankar (or) NPTEL lectures
06/11/2017	Reliability: Relation between Reliability, Failure rate and MTBF, Bath Tub Curve, Means time to Failure(MTTF), Mean Time Between Failure(MTBF)	<i>Industrial Engineering and Management</i> book by Dr. Ravi Shankar (or) NPTEL lectures
07/11/2017	Production Performance Issues: Inventory Control: Functions of Inventory, Inventory costs, Inventory Models: Deterministic and Probabilistic, ABC analysis and Other methods like VED analysis, FNSD, XYZ etc. JIT in Production: Philosophy, Push system vs Pull system, Kanban and Pull system, Preliminaries, Benefits and Evaluation of JIT	NPTEL Notes: http://nptel.ac.in/courses/Webcourse-contents/IIT-Delhi/project%20and%20production%20management/mod9/mod91.htm (or) <i>Industrial Engineering and Management</i> book by Dr. Ravi Shankar
08/11/2017	Quality in Construction and Services: Its Importance, Nine factors affecting Quality of construction Service Quality	http://pmbook.ce.cmu.edu/13_Quality_Control_and_Safety_During_Construction.html

09/11/2017	Revision	
Drawing		
10/11/2017	Engineering Curves: Theory of cones, Conic curves generation: Ellipse, Parabola, Hyperbola, Roulettes: Cycloids, Involutives, Trochoids, Spirals, Helix	IES GS Videos: https://www.youtube.com/watch?v=vwDhZdKVkNg&list=PLiKZmh4IhSfv_tvFLwszP-7_dOH0c4pBD (or) <i>Engineering Drawing NPTEL lectures by Robi, P.S:</i> http://nptel.ac.in/courses/112103019/ (or) <i>Engineering Drawing book by N.D.BHATT</i>
11/11/2017	Projections: Orthographic and Isometric projections, projection of points, lines and planes	
12/11/2017	Development of surfaces: Development of lateral surfaces of right solids: Cube, Prism, Cylinders, Pyramids, Cones, Theory on frustums	
13/11/2017	Revision	
Design		
14/11/2017	Under this, Basic concepts in different engineering streams like Mechanical(Only design parts like stress-strain analysis), Electrical(Basic concepts),Civil and Electronics, will be asked. This need no specialised reading but only brushing basic concepts in each stream. Follow any standard textbook to cover these basics but no need to go for very detailed analysis.	

Safety

15/11/2017	Safety Practices in various Industries	Any standard books or From the daily news
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16/11/2017	Current Affairs Revision	
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17/11/2017	Current Affairs Revision	
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Project Management

18/11/2017	Basic Concepts: Classification, Project life cycles, Level of effort	IES GS material: http://iesgeneralstudies.com/project-management-chapter1-basic-concepts/
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19/11/2017	Project Formulation & Project Organisation: Decision matrix, weighted decision matrix, Project appraisals, Financial analysis/feasibility, Methods of demand forecasting(Delphi method, Time series projection method, Causal method), Project Charter, Project organisation, Project Manager	IES GS material: http://iesgeneralstudies.com/project-management-chapter2-project-formulation-project-organization/
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20/11/2017	Project Planning & Scheduling: Tasks and Functions of project planning, Work breakdown structure(with an example of a building), Scheduling process, BAR chart, Linked chart, Milestone chart, Network diagrams, CPM, PERT, Resource levelling and Resource smoothing	IES GS material: http://iesgeneralstudies.com/project-management-project-planning-scheduling/
21/11/2017	Project Monitoring & Control Process: Performance evaluation techniques: Earned value analysis. Critical ratio, Line of Balance, Graphical evaluation and review technique, Project Crashing and time-cost trade off	IES GS material: http://iesgeneralstudies.com/project-management-project-monitoring-control-process/
22/11/2017	Project Evaluation & Termination: Evaluation criteria and methods, Project auditing, Project termination, Project contracts, Miscellaneous topics:Enterprise resource Planning, ABC analysis etc.	IES GS material: http://iesgeneralstudies.com/material-science-chapter-5-project-evaluation-termination/
23/11/2017	Revision	
Engineering Mathematics & Numerical Methods		

24/11/2017	Engineering Maths: Basic of important chapters Numerical Methods: Algebraic equations solution methods, Approximate solutions of equations, Linear simultaneous equations solutions(Direct and Iterative methods), Solutions to nonlinear simultaneous equations	Follow any standard textbook or Higher Engineering Mathematics by B.S Grewal
25/11/2017		
26/11/2017		
27/11/2017		
28/11/2017		
29/11/2017		
30/11/2017		

Engineering Aptitude covering Logical reasoning and Analytical ability

1,2,3,4,5,6 of Dec	Basic Concepts	Any standard text book or material or Book by R S agarwal
7,8,9 and 10 of Dec	Current Affairs + Any Pending Portion	

REVISION PLAN

11/12/2017	Energy & Environment	Revision
12/12/2017	Energy & Environment	Revision + Quiz
13/12/2017	ICT	Revision

14/12/2017	ICT	Revision + Quiz
15/12/2017	Material Science	Revision
16/12/2017	Material Science	Revision + Quiz
17/12/2017	Ethics	Revision
18/12/2017	Ethics	Revision + Quiz
19/12/2017	Quality Control	Revision
20/12/2017	Quality Control	Revision + Quiz
21/12/2017	Design, Drawing and Safety	Revision
22/12/2017	Design, Drawing and Safety	Revision + Quiz
23/12/2017	Project Management	Revision
24/12/2017	Project Management	Revision + Quiz
25/12/2017	Engineering Mathematics	Revision
26/12/2017	Engineering Mathematics	Revision + Quiz
27/12/2017	Engineering Aptitude	Revision
28/12/2017	Engineering Aptitude	Revision + Quiz
29/12/2017	Current Affairs	Revision
30/12/2017	Current Affairs	Revision + Quiz
1-5th Jan	Your Choice	

IES GS WISHES ALL THE BEST FOR PRELIMS