



PANACEA IES/GATE INSTITUTE
Best Institute for Electronics & Communication



PANACEA

IES/GATE INSTITUTE

The Best Institute for Electronics & Communication

Regular & Weekend Classes

All India Test Series

Postal Study Material

Interview Guidance

IES-GATE-PSU

Exclusively For

Electronics & Communication

PANACEA IES/GATE INSTITUTE

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About Panacea Institute

Panacea IES/GATE Institute is the only institute in country whose director is IES & GATE topper in Electronics & Communication engineering with 9 plus years teaching experience for IES/GATE/PSU Exams. This institute is exclusively for Electronics & Communication engineering.

In last sessions Panacea has produced many toppers in IES exam including many in top-5 ranks. 100 % students qualified in GATE exam including many in top-100 rank. Most of the students qualified in various PSU exams in same session only.

Panacea technical faculties comprise of IES & GATE toppers with 8-10 yrs. teaching experience. Experts for GS & non technical are IAS qualified & MBA professionals.

Study material is of very high quality & exam oriented. Last 20 years error free IES/GATE solution supplemented with thousands of new questions are also provided.

About Faculties

Our faculties comprises of IES/GATE/PSU toppers in field of Electronics & Comm Engineering with 8-10 years teaching for IES/GATE/PSU exams.

1. **Mr. Yogesh Agrawal**- IES & GATE topper with 9 plus years of teaching exp
2. **Mr.D.Kumar** - IES & GATE topper with 7 plus years of teaching exp
3. **Mr.V.Saini** - IES & GATE topper with 7 plus years of teaching exp
4. **Mr.Y.V. Rao** - Professor with 10 plus years of teaching exp
5. **Mr.Neeraj** - IAS qualified with 9 plus years of teaching exp. for General Study.
6. **Mr.Ghanshaym** - 9 years teaching exp for Maths and Non tech.
7. **Mr.Ravi Chaudhary**- M.Tech from IISc Bangalore.
8. **Mr.C.P.Singhani** - Handles R & D works at Panacea institute with 8 years experience

Study material & Assignment:

- 24 books for technical subjects. In which 12 are for theory and 12 for assignment
- 7 books for Non technical subjects including G.S, English, Quanta and Mathematics
- Panacea GATE file exclusively designed for GATE exam
- IES conventional question book exclusively designed for IES exam
- Interview book exclusively designed for IES & Various PSU Exams
- Theory book contains basics of subjects with tricks for solving objective questions
- Assignment book contains last 20 years IES/GATE & PSU questions
- Study material is error free , compact and exam oriented

Test Series Program

- Subject wise topic tests in class with full discussion
- 5 Topic tests for GATE exam with full discussion
- 8 Full mock tests for GATE exam with full discussion
- 8 Topic tests for IES exam with full discussion
- 3 Full mock tests for IES exam with full discussion
- Mock tests for various PSUs with full discussion

Other Facilities:

- Hostel facility and library facility
- Postal course available for IES/GATE & Various PSU exams
- Interview guidance for IES & various PSU exams available
- Crash course and study material for BSNL-JTO
- Doubt clearing sessions for IES & GATE exams
- Study material for various interview exams
- Personal discussion with faculty for any technical and non technical doubts

Correspondence course with faculty assistance:

Postal course/distance learning program of PANACEA Institute has been designed for those aspirants who are not able to attend class room program at our institute. This postal course is designed by a team of IES & GATE toppers with 10 plus years teaching experience. There are separate booklets for building up theoretical concepts and practice of questions and these books contains many short cut methods for solving problems. This study material is totally exam oriented & error free and provides full coverage of both technical and non technical sections. Last 20 years solution of IES/GATE papers are provided with reference. Study material is sent in form of package by postal. This material can also be collected from our office personally. Unique feature of Panacea institute is faculty assistance to our postal students. They can ask their doubt, guidance for study and any suggestion from our faculty by phone, mail, online or post. Faculty for this assistance will be IES/GATE topper with 10 plus years teaching experience

Indian Engineering Service Exam (I.E.S)

Indian Engineering Service exam for Electronics&Communication is conducted by UPSC every year in second week of month of May for post of class-1 officer in various departments like Indian Railway, Indian telecom, Defence, Wireless planning, Ordinance, power-engineering & Inspection services etc. All posts will be as class-1 officer. Most of the seats in electronics&communication will be in Indian Railway& Indian Telecom service only. I.E.S is the best option for an electronics & communication engineer in government sector.

1. Minimum Eligibility criterion for this exam:

(a) Education qualification:

If you have done your B.TECH/B.E in

1. Any branch which has word Electronics eg. Electronics & Telecomm, Electronics-communication & Electronics engineering.
2. Computer science/Information technology.
3. Electrical engineering.
4. Any branch related to instrumentation engineering.
5. M.Sc in electronics & equivalent

Note: If you belongs to any circuit branch (Electronics, computer, IT, Instrumentation & Electrical) you are eligible for IES in Electronics & Tele Communication. There is no need of minimum percentage in your degree. Computer science is not included in engineering service exams but generally computer science graduates prefer ECE because many subjects of electronics they have already studied in B.Tech. Instrumentation graduates also prefer IES by electronics & Communication Only. Past result shows that many computer & Instrumentaion graduates have cleared IES exam in E & T only.

(b) Age criterion for IES- 2012:

A candidate for this examination must have attained the age of 21 years and must not have attained the age of 30 years on the **1st August, 2012** i.e. he/she must have been born not earlier than **2nd August, 1982** and not later than **1st August, 1991**.

2. No of posts in IES exam:

Generally no of seats vary from year to year and it is in the range of 175-200. Out of which most of the posts belong to Indian Railway Service of Signal Engineering (IRSSE) & Indian Telecom Service (I.T.S). Reservation is as per Government of India rule. In IES-2010 No of seats in Electronics & communication were **170** which are expected to be around **190** in IES 2011.

3. Pattern of Engineering service Exam :

(a) Number of papers:

There are 5 papers out of which 3 are objective types and 2 are conventional (Subjective) papers. Every paper carries 200 marks. These exams are conducted for 3 days. Result of written exam is declared and then successful candidates are called for interview which also carries 200 marks. So final result is delclared out of 1200 marks.

(b) Negative marking:

1/3 mark will be deducted as penalty for every wrong question in objective paper. There is no negative marking in conventional paper. So in objective paper accuracy is more important.

(c) Standard of questions:

Questions asked in all 5 papers require depth and conceptual study of subject. For solving all those questions you must have basic concept and good practice of objective questions. In objective generally questions are trick based and one is required various tricks for solving those questions. For conventional paper generally questions are based upon derivations and numerical questions. In conventional numerical question answer is important.

4. Minimum cut-off marks for selection in Engineering service exam:

After written exam UPSC short list students on the basis of performance in total marks in all 3 objective papers. Conventional paper will be evaluated only of successful students in objective paper. But interview call will be on the basis of performance in total 5 papers.

(a) Minimum cut-off marks for evaluating conventional paper in IES exam:

Exam year	General	O.B.C	S.C	S.T
2009	245	220	192	158

(b) Minimum cut-off marks for Interview call in IES exam:

Exam year	General	O.B.C	S.C	S.T
2008	388	346	306	297
2009	440	401	348	296
2010	410	360	312	288

(c) Minimum cut-off marks for final selection in IES exam:

Exam year	General	O.B.C	S.C	S.T
2008	526	500	438	460
2009	579	547	467	430
2010	554	514	450	420

Syllabus for IES in Electronics & Communication paper:

PAPER-1:

1. Materials and Components: Structure and properties of Electrical Engineering materials; Conductors, Semiconductors and Insulators, magnetic, Ferroelectric, Piezoelectric, Ceramic, Optical and Super-conducting materials. Passive components and characteristics Resistors, Capacitors and Inductors; Ferrites, Quartz crystal Ceramic resonators, Electromagnetic and Electromechanical components.

2. Physical Electronics, Electron Devices and ICs: Electrons and holes in semiconductors, Carrier Statistics, Mechanism of current flow in a semiconductor, Hall effect; Junction theory; Different types of diodes and their characteristics; Bipolar Junction transistor; Field effect transistors; Power switching devices like SCRs, GTOs, power MOSFETS; Basics of ICs - bipolar, MOS and CMOS types; basic of Opto Electronics.

3. Signals and Systems: Classification of signals and systems: System modelling in terms of differential and difference equations; State variable representation; Fourier series; Fourier transforms and their application to system analysis; Laplace transforms and their application to system analysis; Convolution and superposition integrals and their applications; Z-transforms and their applications to the analysis and characterisation of discrete time systems; Random signals and probability, Correlation functions; Spectral density; Response of linear system to random inputs.

4. Network theory: Network analysis techniques; Network theorems, transient response, steady state sinusoidal response; Network graphs and their applications in network analysis; Tellegen's theorem. Two port networks; Z, Y, h and transmission parameters. Combination of two ports, analysis of common two ports. Network functions : parts of network functions, obtaining a network function from a given part. Transmission criteria: delay and rise time, Elmore's and other definitions effect of cascading. Elements of network synthesis.

5. Electromagnetic Theory: Analysis of electrostatic and magnetostatic fields; Laplace's and Poisson's equations; Boundary value problems and their solutions; Maxwell's equations; application to wave propagation in bounded and unbounded media; Transmission lines : basic theory, standing waves, matching applications, microstrip lines; Basics of wave guides and resonators; Elements of antenna theory.

6. Electronic Measurements and instrumentation: Basic concepts, standards and error analysis; Measurements of basic electrical quantities and parameters; Electronic measuring instruments and their principles of working: analog and digital, comparison, characteristics, application. Transducers; Electronic measurements of non electrical quantities like temperature, pressure, humidity etc; basics of telemetry for industrial use.

PAPER-2:

1. Analog Electronic Circuits: Transistor biasing and stabilization. Small signal analysis. Power amplifiers. Frequency response. Wide banding techniques. Feedback amplifiers. Tuned amplifiers. Oscillators. Rectifiers and power supplies. Op Amp, PLL, other linear integrated circuits and applications. Pulse shaping circuits and waveform generators.

2. Digital Electronic Circuits: Transistor as a switching element; Boolean algebra, simplification of Boolean functions, Karnaguh map and applications; IC Logic gates and their characteristics; IC logic families : DTL, TTL, ECL, NMOS, PMOS and CMOS gates and their comparison; Combinational logic Circuits; Half adder, Full adder; Digital comparator; Multiplexer Demulti-plexer; ROM an their applications. Flip flops. R-S, J-K, D and T flip-flops; Different types of counters and registers Waveform generators. A/D and D/A converters. Semiconductor memories.

3. Control Systems: Transient and steady state response of control systems; Effect of feedback on stability and sensitivity; Root locus techniques; Frequency response analysis. Concepts of gain and phase margins; Constant-M and Constant-N Nichol's Chart; Approximation of transient response from Constant-N Nichol's Chart; Approximation of transient response from closed loop frequency response; Design of Control Systems, Compensators; Industrial controllers.

4. Communication Systems: Basic information theory; Modulation and detection in analogue and digital systems; Sampling and data reconstructions; Quantization & coding; Time division and frequency division multiplexing; Equalization; Optical Communication: in free space & fibre optic; Propagation of signals at HF, VHF, UHF and microwave frequency; Satellite Communication.

5. Microwave Engineering: Microwave Tubes and solid state devices, Microwave generation and amplifiers, Waveguides and other Microwave Components and Circuits, Micro strip circuits, Microwave Antennas, Microwave Measurements, Masers, lasers; Microwave propagation. Microwave Communication Systems terrestrial and Satellite based.

6. Computer engineering: Number Systems. Data representation; Programming; Elements of a high level programming language PASCAL/C; Use of basic data structures; Fundamentals of computer architecture; Processor design; Control unit design; Memory organisation, I/o System Organisation. Microprocessors:



Architecture and instruction set of Microprocessors 8085 and 8086, Assembly language Programming. Microprocessor based system design: typical examples. Personal computers and their typical uses.

Strategy for Indian Engineering Service Exam:

IES is considered one of the toughest and prestigious exams conducted by UPSC. Success ratio is very less and its syllabus is too vast. To qualify this exam one requires proper strategy other than good knowledge and concept. You require tricks for solving the objective papers and presentation skills for writing conventional papers. One must know what to study and what not to study.

(a) Pattern for General Ability Paper

This is very crucial paper because generally engineers are weak in general study and don't score good marks in this paper. This paper contains 60 questions from GS & 60 questions from English

(i) Strategy for English section:

1. 20 questions from Vocabulary
2. 10 questions from Grammar (error)
3. 10+20 questions from comprehension & sentence ordering.

For English vocabulary try to learn high frequency 3500 words of Panacea English book. Most of the vocabulary in IES paper comes from this book only. For error you can follow panacea English so that you can have the concept of error finding. For sentence ordering and passage no need of much practice, in this section if you are attentive in exam you can solve all these questions very easily. For practice you can follow Panacea English book. For learning high frequency words we are arranging classes by experts who will help you to memorise these words by some audio&video visual effects and will also give many techniques so that student can remember these words very easily.

(ii) Strategy for General study section:

General study becomes very difficult for an engineer as they don't study history & geography which are major part of General study. For Geography you need a mentor because it is very conceptual subject. For history and geography you can follow Panacea books and NCERT books which are the best available material in market. For GS, classes are taken by a person who has qualified IAS exam. He is the best available faculty for GS in India for IES exam. Most of the questions in IES exam come directly from his class notes. He has experience of 9 years teaching in field of IES exam. For current affair section extra classes are taken and we also provide study material for that section. For current affairs we are conducting classes 2 month before exams so that every current issue can be discussed in great detail.

(b) Strategy for Electronics & Communication objective papers:

For solving objective papers student must have very good concept in electronics & communication engineering. The best formula for cracking objective papers in IES is to solve last 20 years objective papers of IES/GATE Electronics & Communication. It is not possible to solve questions by a single book. So try to build concept and solve objective questions. Most of the questions in objective papers of electronics & communication come from our class notes only. Our classes are taken by IES & GATE toppers and they teach in class what they studied for themselves. It's very difficult to get correct solution of last 20 years questions in market. We solve all last 20 years questions in our class-room with full explanation. We provide exact solution of all last 20 years questions. Other than these questions we also provide probable 1000 extra questions on each topic. We also conduct topic test every week during class room program. Other than this we also conduct test series 2 month before the IES exam.



(c) Strategy for Electronics & Communication conventional papers:

For solving conventional papers student must have very good concept in electronics & communication engineering. The best formula for cracking subjective papers in IES is to solve last 20 years conventional papers of IES Electronics & Communication papers. It is not possible to solve questions by a single book. So try to build concept and solve subjective questions. Most of the questions & derivations in subjective papers of electronics & communication come from our class notes only. Our classes are taken by IES & GATE toppers and they teach in class what they studied for themselves. It's very difficult to get correct solution of last 20 years questions in market. We solve all last 20 years questions only in our class-room with full explanation. We provide exact solution of all last 20 years questions. We also provide probable questions on every topic for conventional papers.

Note: In conventional paper accuracy is very important and students must concentrate on answer.

Graduate Aptitude Test Examination (GATE)

Graduate Aptitude test in electronics & communication is conducted every year by IIT for admission in M.Tech, MS and Phd in various IITs, NITs, government colleges and various private colleges. After doing M.Tech you will have specialisation in your stream eg. After doing M.Tech in VLSI you will be specialised in that field only and you will have better opportunities because very less specialised people are there. Value of your resume will also be increased many fold.

1. Branches for admission in M.Tech in Electronics & Communication:

- (i) Integrated Electronics and circuit
- (ii) Communication Engineering
- (iii) Control & automation
- (iv) Telecommunication technology and management
- (v) R.F and Microwave engineering
- (vi) Fibre optics and light wave engineering
- (vii) Visual information and embedded system
- (viii) Wireless communication
- (ix) Measurement and Instrumentation
- (x) Power electronics

2. Minimum Eligibility criterion for this exam:

(a) Education qualification:

If you have done your B.TECH/BE in

1. Any branch which has word Electronics e.g. Electronics & Telecomm, Electronics-communication & Electronics engineering.
2. Computer science/Information technology.
3. Electrical engineering.
4. Any branch related to instrumentation engineering.
5. M.Sc in electronics&equivalent

(b) Age criterion for GATE-2012:

There is no age criterion for GATE exam.

3. Pattern of GATE Exam :

(a) Number of papers:

There is only 3 hour paper which contains 65 questions. Total marks for this Paper are 100. Out of 100 marks 85 marks are for technical subjects and 15 marks for Non technical subjects. Non technical subjects include quantative aptitude and general English.

(b) Negative marking:

1/3 mark will be deducted as penalty for every wrong 1 marks question in objective paper. 2/3 marks will be deducted as penalty for every 2 marks wrong question.

(c) Standard of questions:

Questions asked in this paper require depth and conceptual study of subject. For solving all those questions you must have basic concept and good practice of objective questions. In objective generally

questions are trick based and required various tricks for solving those questions.

(d) *Minimum cut-off marks for GATE score :*

Exam year	General	O.B.C	S.C
2010	25	22.67	16.67
2011	26.33	23.67	17.67

(e) *Marks for good percentile:*

For getting top-100 rank marks are generally in range of 60 plus. But if your marks are in range of 60 you can get admission of your choice. For getting M.Tech admission in very good colleges 50 plus Marks are required.

Syllabus for GATE in Electronics & Communication paper:

Syllabus for Engineering Mathematics:

- 1. Linear Algebra:** Matrix Algebra, Systems of linear equations, Eigen values and eigen vectors.
- 2. Calculus:** Mean value theorems, Theorems of integral calculus, Evaluation of definite and improper integrals, Partial Derivatives, Maxima and minima, Multiple integrals, Fourier series. Vector identities, Directional derivatives, Line, Surface and Volume integrals, Stokes, Gauss and Greens theorems.
Differential equations: First order equation (linear and nonlinear), Higher order linear differential equations with constant coefficients, Method of variation of parameters, Cauchy's and Euler's equations, Initial and boundary value problems, Partial Differential Equations and variable separable method.
- 3. Complex variables:** Analytic functions, Cauchy's integral theorem and integral formula, Taylor's and Laurent series, Residue theorem, solution integrals.
- 4. Probability and Statistics:** Sampling theorems, Conditional probability, Mean, median, mode and standard deviation, Random variables, Discrete and continuous distributions, Poisson, Normal and Binomial distribution, Correlation and regression analysis.
- 5. Numerical Methods:** Solutions of non-linear algebraic equations, single and multi-step methods for differential equations.
- 6. Transform Theory:** Fourier transform, Laplace transform, Z-transform.

Syllabus for Electronics & Communication:

Networks: Network graphs: matrices associated with graphs; incidence, fundamental cut set and fundamental circuit matrices. Solution methods: nodal and mesh analysis. Network theorems: superposition, Thevenin and Norton's maximum power transfer, Wye-Delta transformation. Steady state sinusoidal analysis using phasors. Linear constant coefficient differential equations; time domain analysis of simple RLC circuits, Solution of network equations using Laplace transform: frequency domain analysis of RLC circuits. 2-port network parameters: driving point and transfer functions. State equations for networks.

Electronic Devices: Energy bands in silicon, intrinsic and extrinsic silicon. Carrier transport in silicon: diffusion current, drift current, mobility, and resistivity. Generation and recombination of carriers. p-n junction diode, Zener diode, tunnel diode, BJT, JFET, MOS capacitor, MOSFET, LED, p-I-n and avalanche photo diode, Basics of LASERS. Device technology: integrated circuits fabrication process, oxidation, diffusion, ion implantation, photolithography, n-tub, p-tub and twin-tub CMOS



process.

Analog Circuits: Small Signal Equivalent circuits of diodes, BJTs, MOSFETs and analog CMOS. Simple diode circuits, clipping, clamping, rectifier. Biasing and bias stability of transistor and FET amplifiers. Amplifiers: single-and multi-stage, differential and operational, feedback, and power. Frequency response of amplifiers. Simple op-amp circuits. Filters. Sinusoidal oscillators; criterion for oscillation; single-transistor and op-amp configurations. Function generators and wave-shaping circuits, 555 Timers. Power supplies.

Digital circuits: Boolean algebra, minimization of Boolean functions; logic gates; digital IC families (DTL, TTL, ECL, MOS, CMOS). Combinatorial circuits: arithmetic circuits, code converters, multiplexers, decoders, PROMs and PLAs. Sequential circuits: latches and flip-flops, counters and shift-registers. Sample and hold circuits, ADCs, DACs. Semiconductor memories. Microprocessor (8085): architecture, programming, memory and I/O interfacing.

Signals & Systems: Definitions and properties of Laplace transform, continuous-time and discrete-time Fourier series, continuous-time and discrete-time Fourier Transform, DFT and FFT, z-transform. Sampling theorem. Linear Time-Invariant (LTI) Systems: definitions and properties; causality, stability, impulse response, convolution, poles and zeros, parallel and cascade structure, frequency response, group delay, phase delay. Signal transmission through LTI systems.

Control-systems: Basic control system components; block diagrammatic description, reduction of block diagrams. Open loop and closed loop (feedback) systems and stability analysis of these systems. Signal flow graphs and their use in determining transfer functions of systems; transient and steady state analysis of LTI control systems and frequency response. Tools and techniques for LTI control system analysis: root loci, Routh-Hurwitz criterion, Bode and Nyquist plots. Control system compensators: elements of lead and lag compensation, elements of Proportional-Integral-Derivative (PID) control. State variable representation and solution of state equation of LTI control systems.

Communications: Random signals and noise: probability, random variables, probability density function, autocorrelation, power spectral density. Analog communication systems: amplitude and angle modulation and demodulation systems, spectral analysis of these operations, superheterodyne receivers; elements of hardware, realizations of analog communication systems; signal-to-noise ratio (SNR) calculations for amplitude modulation (AM) and frequency modulation (FM) for low noise conditions. Fundamentals of information theory and channel capacity theorem. Digital communication systems: pulse code modulation (PCM), differential pulse code modulation (DPCM), digital modulation schemes: amplitude, phase and frequency shift keying schemes (ASK, PSK, FSK), matched filter receivers, bandwidth consideration and probability of error calculations for these schemes. Basics of TDMA, FDMA and CDMA and GSM.

Electromagnetic: Elements of vector calculus: divergence and curl; Gauss and Stokes theorems, Maxwells equations: differential and integral forms. Wave equation, Poynting vector. Plane waves: propagation through various media; reflection and refraction; phase and group velocity; skin depth. Transmission lines: characteristic impedance; impedance transformation; Smith chart; impedance matching; S parameters, pulse excitation. Waveguides: modes in rectangular waveguides; boundary conditions; cut-off frequencies; dispersion relations. Basics of propagation in dielectric waveguide and optical fibers. Basics of Antennas: Dipole antennas; radiation pattern; antenna gain.

Strategy for GATE Exam:

GATE exam requires depth knowledge of subject. For cracking GATE exam one require clear concepts in subject. Questions asked are numerical based and very less theoretical questions are asked. Generally concepts are repeated in GATE exam so if you want to crack GATE exam you must solve last 20 years GATE questions with proper understanding. We at panacea are teaching special tricks for solving objective questions for GATE exam. Classes are taken by GATE toppers and last 20 years GATE solutions are given



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with full explanation. Other than this we provide 1000 additional questions on every topic. Other than topic tests 8 Full tests for GATE exam are also conducted. YG file is specially designed for GATE which includes 200 advance questions on every topic. For mathematics and Non technical portion same strategy is followed. For Mathematics class is taken by Maths expert while for Non tech&English portion experts are IIM qualified professionals. Counselling for M.Tech admission is also provided.

Public Sector Units (PSUs) for Electronics&Communication:

PSU Name	Min % marks			Upper-age limit			Selection/Exam pattern
	Gen	OBC	SC/ST	Gen	OBC	SC/ST	
BSNL	-	-	-	30	33	35	100 Tech+20 Non tech(3 hr)
MTNL	60	60	55	30	33	35	100 Tech+70 Non tech (2 hr)
DRDO	60	-	-	28	31	33	100 Tech +50 Non tech (2:30 hr)
ECIL	60	60	50	25	28	30	100 Tech(2hr)
NTPC	65	65	55	27	30	32	50 Tech+ 35 Non tech(2:00 hr)
BHEL	60	60	55	33	36	38	120 Tech +120 Non Tech(2:30 hr)
DMRC	70	70	70	28	31	33	45 Tech + 50 Non Tech(2:30 hr)
ONGC	65	65	60	30	33	35	82 Tech+ 42 Non tech(3hr)
BARC	60	60	-	26	29	31	100 Tech(2 hr)
UPPCL	60	60	50	-	-	-	120 Tech(2hr)
P.Bharati	-	-	-	-	-	-	175 Tech + 25 Non tech(2hr)
HAL	65	65	55	-	-	-	120 Tech + 40 Non tech (2:30 hr)
ISRO	65	65	60	-	-	-	80 Tech (1:30 hr)
GAIL	60	-	-	26	29	31	66 Tech + 34 Non tech(1:30 hr)
SAIL	65	60	60	28	31	33	100 Tech + 150 Non tech (2:30 hr)
BPCL	60	60	55	-	-	-	60 Tech +60 Non tech (2:30 hr)
IOCL	65	65	60	28	31	33	Basis on GATE score
HPCL	-	-	-	25	28	30	50 Tech + 120 Non tech(2:30 hr)
NALCO	65	60	-	30	33	35	60 Tech+60 Non tech(2:30 hr)
IFFCO	-	-	-	30	-	-	-
UPCL	60	60	-	35	-	-	120 Tech+ 50 Non tech(2:30 hr)
NFL	60	60	-	27	27	32	90 Tech +80 Non tech (2:30 hr)
SJVNL	-	-	-	30	-	-	120 Tech +30 Non tech(2:30 hr)
RRB	-	-	-	30	33	35	150 Tech + Non tech(2:00 hr)
PDIL	60	60	55	25	-	-	100 Tech+ 50 Non tech(2:30 hr)
Vizag	60	60	50	27	30	32	70 Tech +100 Non tech (2:30 hr)

Syllabus for PSU exams

Syllabus for various PSU exams is same as that of IES & GATE exam. So if you are preparing for IES & GATE exams then PSU syllabus will be covered automatically.

In general most of the questions in PSU exams are from last 20 years papers of IES/GATE exams.

Strategy for PSU exams:

In most of the PSUs questions asked are from last 20 years GATE & IES exams. If you have clear concept and have done all last 20 years questions of IES & GATE It is very easy to clear all these exams. For non technical portion generally questions come from quanta, reasoning and English. We at panacea are giving 1000 questions on every topic especially designed for PSU exams. Before every PSU exam mock tests are also conducted and assistance for PSU-interview is also provided.

List of reference books for Electronics & Communication:

General study:

1. Panacea book for history and polity
2. Panacea book for geography and life science
3. Panacea assignment book for 1200 questions on G.S
4. Panacea book for current affairs and General Knowledge
5. N.C.E.R.T book for Geography, history, life science and polity.
6. Polity book by D.D. Bashu.
7. Current affair from chronicle magazine
8. The Hindu News paper.

Non technical subjects:

1. Panacea book for Engineering mathematics theory and assignment
2. Panacea book for General aptitude theory and assignment
3. Panacea book for English

Material science & Component:

1. Panacea theory book for material science
2. Panacea assignment book for material science
3. Material science & engineering by V.Raghavan
4. Electrical material by C.S. Indulkar
5. Solid state physics by Pillai
6. Electrical material by S.P.Seth & Deccar
7. Solid-State Electronics by Streetman
8. Integrated Electronics by Milliman & Helkias

Electronics Device & circuit

1. Panacea theory book for Electronics & device circuit
2. Panacea assignment book for Electronics & device circuit
3. Solid-State Electronics by Streetman
4. Integrated Electronics by Milliman & Helkias
5. Micro-Electronics Circuit by Sedra-Smith
6. Electronics-Principal by Malvino

Electronics & Instrumentation:

1. Panacea theory book for Electronics & Instrumentation
2. Panacea assignment book for Electronics & Instrumentation
3. Electrical and Electronics Measurement by A.K.Sahni.
4. Electronics Measurement by Cooper
5. Electronics Measurement by Kalsi

Electromagnetic Theory:

1. Panacea theory book for Electro Magnetic Theory
2. Panacea assignment book for Electro Magnetic Theory
3. Elements of Electromagnetic by N.O.Sadiku
4. Electromagnetic Theory by K.D.Prasad
5. Electromagnetic waves and Radiation by J.D.Kraus
6. Electromagnetic by Haytt.
7. Electromagnetic Waves and Radiation by Jordan & Balman

Signal System and Random variable:

1. Panacea theory book for Signal system
2. Panacea assignment book for signal system
3. Signal System by Openheim & Willsky
4. Signal & System by M.J.Roberts
5. Problems from Schaum-Series
6. Random Variable from Peebles
7. Random Variable topic from B.P.Lathi

Network Theory:

1. Panacea theory book for Network theory
2. Panacea assignment book for Network theory
3. Circuit-Theory by A.Chakrabarti
4. Circuit-Theory by Soni-Gupta
5. Network Analysis by Valkanberg
5. Schaum-Series Problems

Analog Electronics:

1. Panacea theory book for Analog circuit
2. Panacea assignment book for Analog circuit
3. Electronics-Device & Circuit Theory by Boylsted
4. Linear Integrated Electronics by D.R.chaudhary
5. Op-Amp & Linear I.C. by Gayakwad
6. Pulse, Digital & Switching by Milliman & Taub

Digital Electronics:

1. Panacea theory book for Digital circuit
2. Panacea assignment book for digital circuit
3. Digital Logic & Computer design by Moris-Mano
4. Digital Integrated Electronics by Taub & Schilling
5. Digital Fundamentals by Flyod
6. Digital Principles by Malvino & Leach
7. Modern Digital Electronics by R.P.Jain



Control System:

1. Panacea theory book for Control circuit
2. Panacea assignment book for Control circuit
3. Modern Control Engineering by K.Ogata
4. Control System by B.C.Kuo
5. Control System Engineering by Nagrath & Gopal
6. Linear Control System by B.S.Manke
7. Problems in Control System by A.K.Jairath

Communication Theory:

1. Panacea theory book for Control circuit
2. Panacea assignment book for Control circuit
3. Principle of Communication by Taub & Schilling
4. Electronics Communication by Roddy & Coolen
5. Modern Digital & Analog Comm. by B.P.Lathi
6. Comm. System by Simon-Haykins
7. Electronics Communication by Kennedy
8. Senior for Optical Fibre
9. Gulati for TV
10. DC agrawal for satellite

Microwave Engineering:

1. Panacea theory book for micro wave
2. Panacea assignment book for micro wave
3. Electronics & communication by Kennedy
4. Microwave by Liao
5. Microwave by Kulkarni

Microprocessor and Computer Architecture:

1. Panacea theory book for microprocessor
2. Panacea assignment book for microprocessor
3. 8085 Microprocessor by R.A.Gaonkar
4. Microprocessor Interfacing by Douglas V.Hall
5. Microcomputer System 8086 by Liu & Gibson
6. Computer architecture by Moris meno
7. Book in C by Balaguru swamy



Why to study at Panacea IES/GATE Institute:

1. It is the only institute in country whose director is IES (3rd Rank) & GATE topper in ECE.
2. We are exclusively for Electronics & communication engineering.
3. Our all faculties are IES & GATE toppers with 8-10 yrs teaching exp
4. For GS & Non technical experts are IAS qualified and MBA professionals
5. In last sessions we have given the best result in Electronics & Communication
6. we teach tricks for solving objective problems
7. our class notes contain every possible concept and many questions
8. Our study material is of very high quality and assignments contain vast variety of questions
9. weekly topic tests are conducted in class other than full topic tests
10. For GATE & IES full topic tests are conducted with personal feedback.
11. 8 Full tests on pattern of GATE & 3 full tests on pattern of IES are conducted
12. Personal attention is given to students
13. For PSU special mock tests are also conducted
14. . Doubt clearing sessions are conducted before GATE & IES exam.
15. You can ask any type of doubt to our faculty.
16. Interview guidance is also provided for IES & Various PSU exams

Result and toppers of Panacea Institute:

In last sessions Panacea Institute has given the best result in field of Electronics & communication engineering. For latest results (Ranks and Percentile) see latest brochure of Panacea Institute or visit www.panaceainstitute.org.in

All India Test series for GATE-2012:

Topic Test series for GATE-2012:

S.N.	Topics	Date
1	EDC and Analog	19-11-2011
2	S&S and Communication	26-11-2011
3	Network and Control	03-12-2011
4	Digital and EMT	10-12-2011
5	Maths and Non tech	14-12-2011

Full Mock tests for GATE-2012:

S.N	Tests	Date
1	Full Mock Test-I	17-12-2011
2	Full Mock Test-II	24-12-2011
3	Full Mock Test-III	31-12-2011
4	Full Mock Test-IV	07-01-2012
5	Full Mock Test-V	14-01-2012
6	Full Mock Test-VI	21-01-2012
7	Full Mock Test-VII	28-01-2012
8	Full Mock Test-VIII	04-02-2012

All India Test Series for IES 2012:

Topic Test series for IES-2012:

S.N.	Topics	Date
1	EDC & Analog	03-03-2012
2	S&S & Communication	10-03-2012
3	E.M Theory & Microwave	17-03-2012
4	Network Theory & Control system	24-03-2012
5	Digital and Microprocessor	31-03-2012
6	Material science and Instrumentation	07-04-2012
7	General study	14-04-2012
8.	General English	18-04-2012

Full Mock tests for IES-2012:

S.N	Tests	Date
1	Full Mock Test-I	21&22 April-2012
2	Full Mock Test-II	28&29 April-2012
3	Full Mock Test-III	05&06 May-2012